REMEDIAL INVESTIGATION/ FEASIBILITY STUDY REPORT

New City Cleaners Site

Prepared for: HLH, Inc. c/o Beveridge & Diamond P.C., and Landye Bennett Blumstein, LLP

Project No. 090018 • December 20, 2019 FINAL







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Aspect Consulting, LLC

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Acronyms

μg/L micrograms per liter

μg/m³ micrograms per cubic meter

Agreed Order No. DE 6558 Agreed Order

ARAR applicable or relevant and appropriate requirements

AS/SVE air sparging/soil vapor extraction

Aspect Aspect Consulting, LLC

bgs below ground surface

BTEX benzene, toluene, ethylbenzene, and xylenes

CAP Cleanup Action Plan

cis-DCE cis-1,2-dichloroethylene

COC constituent of concern

CSM Conceptual Site Model

CULs cleanup levels

DCE dichloroethylene

DCA disproportionate cost analysis

DNAPL dense nonaqueous phase liquid

DO dissolved oxygen

Ecology Washington State Department of Ecology

EPA U.S. Environmental Protection Agency

GeoEngineers, Inc.

gpm gallons per minute

ISB *in situ* bioremediation

ISB *in situ* biostimulation

ISCO *in situ* chemical oxidation

ISCR in situ chemical reduction

lbs pounds

mg/kg milligrams per kilogram

MNA Monitored Natural Attenuation

MNA monitored natural attenuation

msl mean sea level

MTCA Model Toxics Control Act

NAVD88 North American Vertical Datum of 1988

NCC New City Cleaners

NFA no further action

PCE tetrachloroethylene / tetrachloroethene

Property NCC property

RI/FS Remedial Investigation/Feasibility Study

RSD Richland School District

Site New City Cleaners Site

SVE soil vapor extraction

TCE trichloroethylene

TOC total organic carbon

TPH total petroleum hydrocarbon

UST underground storage tank

VC vinyl chloride

VOCs volatile organic compounds

WAC Washington Administrative Code

Executive Summary

This Remedial Investigation/Feasibility Study (RI/FS) was conducted for the New City Cleaners (NCC) Site (the Site) located in Richland, Washington. The Site includes the NCC property (the Property), a 0.5-acre parcel (Benton County Parcel ID Number 110981020600018) located at 747 Stevens Drive, and contiguous properties impacted by historical releases of dry cleaning chemicals, including tetrachloroethylene (PCE). The RI/FS was prepared to comply with requirements in an Agreed Order (Agreed Order No. DE6558) between the Washington State Department of Ecology (Ecology) and HLH, Inc., dated April 22, 2009. The purpose of this RI/FS report is to summarize the results of the RI activities completed at the Site in accordance with Washington Administrative Code (WAC) 173-340-350 and evaluate remedial alternatives to support the selection of a cleanup action under WAC 173-340-360.

Site Background

The Property has been used for commercial dry cleaning operations continuously since the late 1940s. Historical dry cleaning operations primarily used Stoddard solvent until 1974, when the use of PCE was initiated. A reported act of vandalism in 1975 released an unknown quantity of PCE onto the ground in the southwest corner of the Property. This release, along with other historical releases of PCE on the Property, have impacted soil and groundwater on the Property. Impacted groundwater has also migrated onto adjacent properties to the south and east of the Property, including a property to the south occupied by the Richland School District (RSD) maintenance building and a vacant property to the east formerly occupied by an Albertsons grocery store. PCE and petroleum hydrocarbons have also been identified from a release on the RSD property.

Subsurface Conditions

The Site is underlain by unconsolidated fill and native deposits that extends to a depth of at least 60 feet below grade. Based on results of previous investigations and published information on regional geology, the Site soils include four soil units: Fill Soil, extending from about 2 to 7 feet below grade with a maximum of 12 feet below grade in areas of previous excavations; Upper Silt Unit, which includes silt with fine to medium sand, which underlies the fill soil and the base of this unit extends from 15 feet to as much as 25 feet below grade; a Gravelly Sand Unit consisting of sandy fine to coarse gravel and cobbles extends from the base of the Upper Silt Unit to approximately 55 feet below grade and referred to in this RI/FS as two units – the Upper Gravelly Sand Unit and Lower Gravelly Sand Unit.

Groundwater is first encountered at the Site in the Upper Silt Unit, generally at a depth of between 12 and 14 feet below grade (elevations of approximately 345 to 347 feet amsl).

Cleanup Actions and RI Activities

PCE impacts at the Property were initially discovered when four underground storage tanks (USTs) were removed from the Property in 1992. Initial environmental investigations at the Site began in 1997 and continued environmental investigations have been conducted since that time. An interim soil removal action was conducted in 2000. The interim action consisted of excavation and off-site disposal of approximately 5,100 tons of PCE-impacted soil to the extent practicable from primarily above the groundwater table on the NCC and adjacent RSD properties.

Ecology-approved RI/FS activities were conducted by Aspect Consulting, LLC (Aspect) in phases between 2009 and 2019. RI activities included soil sampling investigations, installation of monitoring wells, and groundwater monitoring.

Site Constituents of Concern

Investigations completed to date have identified PCE and its degradation products in Site soil, groundwater, and soil vapor as the constituents of concern (COCs), as well as diesel-range total petroleum hydrocarbons (TPH) in soil. Potential exposure pathways for COCs at the Site include soil direct contact, future groundwater consumption, and vapor intrusion.

In 2014, after preparing a preliminary technology screening evaluation, Aspect performed an *in situ* biostimulation (ISB) pilot test to evaluate and scale ISB as a potential remedy. ISB pilot testing consisted of injections into the Upper Silt Unit and Upper Gravelly Sand Unit in 2014 and 2017 at the NCC building. Performance monitoring was conducted at on- and off-Property monitoring wells through 2019. The ISB pilot test proved favorable in enhancing the natural biodegradation reactions and provided measurable reductions in concentrations of PCE in groundwater beneath the Property.

Site Conceptual Model

Impacts to Site soils at concentrations above proposed cleanup levels are generally limited to the western portion of the Property. Residual PCE present in the saturated soils in the Upper Gravelly Sand Unit appears to be the primary source of impacts to Site groundwater, although groundwater concentrations of PCE on the property have decreased since the ISB pilot test in 2014. Impacts to Site groundwater above proposed cleanup levels occur beneath the Property and several adjacent parcels. In the Upper Silt Unit, groundwater impacts of PCE have decreased from both the NCC and RSD property in 2014, to just one well in the northeastern portion of the NCC Property in 2019. In the Upper Gravelly Sand Unit, groundwater impacts of PCE have also decreased since 2014 and no longer exist on the NCC property, but still extend to the RSD property, the Albertsons property to the east and Former L&L Exxon property to the southeast in 2019. Groundwater impacts of cis-1,2-dichloroethylene (cis-DCE), a degradation product of PCE, increased due to the ISB pilot testing, and is present in groundwater downgradient of the NCC building on the northern portion of the RSD property.

Remedial Alternatives

Four remedial alternatives were assembled from the technology screening and evaluated in accordance with Model Toxics Control Act (MTCA) regulations. The evaluated alternatives included the following:

Alternative 1 - Monitored Natural Attenuation (MNA). Under this alternative, groundwater would be monitored for an estimated 20 years to evaluate the long-term effects of the remediation activities performed to date in effectively reducing concentrations of PCE in soil and groundwater at the Site and stabilizing the groundwater plume. Institutional controls would potentially be required to protect future users from direct exposure to soil, groundwater, and soil vapor.

Alternative 2 –Enhanced Anaerobic Bioremediation (EAB) and MNA. A full-scale implementation of enhanced anaerobic bioremediation at the former source area at the NCC building. This alternative includes multiple EAB injections in the groundwater source area on the Property, with performance and MNA monitoring for an estimated 15 years. Institutional controls would be required to protect future users from direct exposure to soil, groundwater, and soil vapor.

Alternative 3 – Soil Vapor Extraction (SVE), EAB, and MNA. SVE would be performed under the NCC building to reduce the mass of COCs in vadose zone soil in this alternative. Soil confirmation samples would be collected after 10 years of SVE operation. This alternative also includes EAB as described in Alternative 2. EAB would include performance and MNA monitoring for an estimated 15 years.

Alternative 4 – SVE, Expanded EAB, and MNA. SVE would be implemented as described in Alternative 3. Full-scale EAB on the NCC property as described in Alternative 2 would also be implemented, in addition to expanded EAB on the RSD property. Expanded EAB would involve an injection transect along the eastern RSD property line and would have multiple injection events. Performance and MNA monitoring would be conducted for 10 years.

Preferred Alternative

The FS includes a disproportionate cost analysis to evaluate the ratio of estimated cost to environmental benefit of the remedial alternatives. Based on the results of the FS and disproportionate cost analysis, the preferred remedial alternative for the Site is Alternative 2 plus the implementation of an SVE pilot test. The results of the proposed SVE pilot test would be used to determine if full-scale SVE operation is warranted, as outlined in Alternative 3. This determination would be approved by Ecology before selection a final cleanup action for the Site.

1 Introduction

This Remedial Investigation/Feasibility Study (RI/FS) was conducted for the New City Cleaners (NCC) Site (the Site) located in Richland, Washington. This RI/FS was prepared by Aspect Consulting, LLC (Aspect) on behalf of HLH, Inc. c/o Beveridge & Diamond P.C., and Landye Bennett Blumstein, LLP and in accordance with the Washington State Model Toxics Control Act (MTCA), as established in Chapter 173-340 of the Washington Administrative Code (WAC).

The Site includes the NCC property (the Property), a 0.5-acre parcel located at 747 Stevens Drive, and contiguous properties impacted by historical releases of dry cleaning chemicals, including tetrachloroethylene (PCE). Cleanup activities at the Site are being performed under Agreed Order No. DE6558 (Agreed Order) between the Washington State Department of Ecology (Ecology) and HLH, Inc., dated April 22, 2009 (Ecology, 2009).

A draft RI/FS was submitted to Ecology for review in July 2015 (Aspect, 2015b). Ecology responded with comments on the draft RI/FS in a November 15, 2015 letter. Ecology issued a second letter on December 9, 2015, identifying remedial investigation data gaps that require additional investigation for completion of the RI. A Remedial Investigation Data Gaps Work Plan to conduct investigation activities was implemented (Aspect, 2016). A Continued Remedial Investigation Data Gaps Work Plan was also implemented (Aspect, 2017) beginning in July 2016 and ending in March 2019. Aspect submitted a Data Summary Memo to Ecology to present the results of data gaps investigations (Aspect, 2019). Upon review of the Data Summary Memo, Ecology acknowledged the remedial investigation data gaps have been addressed and requested submittal of a revised RI/FS in a July 2, 2019 letter.

Both the results of the activities to address the RI data gaps and the evaluation of remedial alternatives for the Site are presented in this RI/FS Report.

1.1 Report Organization

This RI/FS is organized into twelve sections and six appendices. The main text is organized as follows:

- Section 2 The **Site Background and Setting** section provides information about the Site location, site history and ownership, surrounding properties, and defines the current and future land use near the Site.
- Section 3 The **Environmental Setting** section summarizes relevant environmental information including topography and surface drainage, geology, hydrogeology, climate, and terrestrial ecological setting.
- Section 4 A Summary of Environmental Investigations and Cleanup
 Actions describes the purpose, scope, and results of previous investigations and
 cleanup actions at the Site.

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- Section 5 The **Nature and Extent of Contamination** presents and identifies constituents of concern (COCs) and proposed Site cleanup levels (CULs) for soil, groundwater, and soil vapor.
- Section 6 The **Conceptual Site Model** presents how hazardous substances may create potential exposure pathways for receptors.
- Section 7 The **Cleanup Requirements** section identifies applicable or relevant and appropriate requirements (ARARs), the media and areas for remedial action evaluation, points of compliance, and remedial action objectives.
- Section 8 The Remedial Technology Screening identifies potentially applicable remediation technologies and selects technologies to retain for development of remedial alternatives.
- Section 9 The **Remedial Alternative Development** presents the four remedial alternatives for FS evaluation.
- Section 10 The **Evaluation of Remedial Alternatives** comparatively evaluates the alternatives for threshold requirements and a disproportionate cost analysis in accordance with WAC 173-340-360.
- Section 11 The **Preferred Remedial Alternative** section presents the basis for, and selection of the preferred remedial alternative.
- Section 12 The **References** section summarizes all references used in the RI/FS.

2 Site Background and Setting

2.1 Site Location and Description

The Property is located at 747 Stevens Drive in Richland, Washington (Figure 1). The Property, shown on Figure 2, is a 0.5-acre parcel (Benton County Parcel ID Number 110981020600018) containing an approximately 4,300-square foot, single-story, slab-ongrade cinder-block structure. The structure has historically been and is currently being used as a dry cleaning business. The Property is bordered on the east by Stevens Drive; on the north by a vacant lot used for parking; on the south by a vehicle maintenance facility owned by the Richland School District (RSD); and on the west by a former railroad spur, reportedly identified as the Hanford Works Railroad, currently owned by Benton County (EMCON, 1997). A surface water swale owned by the City of Richland is located west of the Benton County property (Figure 2).

The Site, as defined by MTCA, includes areas impacted by historical releases of hazardous substances from the Property. The Site is defined by the extent of the groundwater plume originating at the Property and includes the following off-Property properties: portions of the RSD property to the south; portions of the City of Richland Stevens Drive and Lee Boulevard rights-of-way; portions of the former Albertsons property to the east; and portions of the former L&L Exxon, former Fruit Stand, and Key Bank properties at the downgradient extent of the groundwater plume. (Figure 2). These properties are discussed in Section 2.3.

2.2 Site History and Ownership

The Property was initially developed as early as the late 1940s as a dry cleaning facility (EMCON, 1997). Petroleum-based Stoddard solvent, stored in two 1,200-gallon underground storage tanks (USTs) on the southwest side of the Property building, was initially used as the primary cleaning agent. In 1974, the use of PCE was initiated. PCE was reportedly stored in 55-gallon drums on a rack in the southwest corner of the Property until 1975, when an apparent act of vandalism caused a release of an unknown quantity of PCE to the ground. The drum rack was reportedly moved inside the building in early 1975.

Waste generated from dry cleaning operations included filtrate cake from filtering of dry cleaning fluids, carbon canisters from the filtering system, and still bottoms from operation of a dry cleaning fluid reclamation still. Between 1974 and the early 1980s, wastes from dry cleaning operations were reportedly placed in a dumpster(s) situated in various locations on the western undeveloped portion of the Property. Since the early 1980s, all process wastes have reportedly been disposed by Safety Kleen. The dry cleaning operation ceased the use of PCE and currently uses a hydrocarbon based, non-chlorinated/non-fluorinated "EcoSolv" safety solvent (Chevron Phillips Chemical Company LP, 2014).

2.3 Surrounding Properties

The following describes the activities at Site properties (Figure 2).

North of Subject Property - Historical use of the property at 797 Stevens Drive was a theater, coin shop, bookstore, and carpet store. The property most recently housed a retail paint and wallpaper store and is currently vacant.

West of Subject Property - Historical and current use of the property at 930 Long Avenue is as an athletic field and parking lot. The City of Richland parcel is a surface water drainage ditch.

East of Subject Property – Historical use of the properties at 1320 and 1308 Lee Boulevard was reportedly as barracks for the Hanford Works Project (EMCON, 1997). Historical use of 1320 Lee Boulevard also included a former Albertson's Grocery Store; this property is currently vacant. The property at 1308 Lee Boulevard was formerly/is currently a restaurant.

South of Subject Property - Historical use of the RSD property to the south has included auto dealership and service facilities, and a tile company. The RSD property is currently used as a vehicle maintenance facility for the Richland School District. The RSD property was the subject of a cleanup action completed in 1993 to remove soil contaminated by releases of petroleum products and VOCs, including PCE (Scientific Ecology Group, 1993). Approximately 1,600 cubic yards of contaminated soil were excavated from this property and disposed at the City of Richland landfill.

Downgradient Properties - On the south side of Lee Blvd, a Subway, Massage Studio, Automotive Shop, and Key Bank business currently exist. The Automotive Shop was previously a fuel service station (L&L Exxon) with confirmed presence of gasoline- and diesel-range hydrocarbons in soil and groundwater. The Automotive Shop had five former USTs, decommissioned in 1999 and petroleum-contaminated soil removed to the top of the groundwater table (about 12 feet below ground surface [bgs]), and subsequent *in situ* bioremediation injections (GeoEngineers, 2012). The downgradient plume was characterized on the Key Bank property, as presented in this RI.

2.4 Current and Future Land Use

The Site properties and east to the Columbia River are zoned by the City of Richland as the Central Business District. Nearby properties within this zoning are used primarily for commercial purposes. The area southwest of the Site is zoned General Business and includes commercial and warehouse uses. The area to the west is zoned for parks and includes several athletic fields. A residential neighborhood is located approximately 1,000 feet southeast of the Property.

3 Environmental Setting

3.1 Topography and Surface Drainage

The Property is relatively flat with an elevation of approximately 360 feet above mean sea level (amsl), referenced to the North American Vertical Datum of 1988 (NAVD88). The Property where NCC operates contains an approximate 4,000-square-foot building with an attached shed. Asphalt pavement is present on approximately the eastern third of the Property. The remainder of the Property is either unimproved or a gravel surface.

The Site is located about one-half mile west of the Columbia River and two miles east of the Yakima River. The Yakima River flows into the Columbia River approximately three miles southeast of the Site. The Columbia River is dammed at the McNary Dam, approximately 45 river miles downstream from Richland, forming Lake Wallula which exists in Richland.

A stormwater ditch is located west of the former railroad spur on the west side of the Property (Figure 2). Flows in the ditch are intermittent and primarily the result of stormwater runoff. When present, water in the ditch flows north approximately one mile before discharging to the Columbia River.

3.2 Geology

The Site is underlain by unconsolidated fill and native deposits that extends to a depth of at least 60 feet below grade. Based on results of previous investigations and published information on regional geology, the Site soils include:

- **Fill soil** consisting of variable amounts of silt, gravel, and sand. This fill soil extends from about 2 to 7 feet below grade. Areas that have been excavated may have fill extending to approximately 12 feet below grade.
- An **Upper Silt Unit**, which includes silt with fine to medium sand. This native unit underlies the fill soil and the base of this unit extends from 15 feet to as much as 25 feet below grade. The depositional history of this unit is unknown, it may be slackwater alluvial or lacustrine deposits of the Touchet Formation, or younger windblown loess deposits that are widespread regionally.
- A **Gravelly Sand Unit** consisting of sandy fine to coarse gravel and cobbles extends from the base of the Upper Silt Unit to approximately 55 feet below grade and generally referred to in this RI/FS as two units the Upper Gravelly Sand Unit and Lower Gravelly Sand Unit. This native unit represents the Pasco facies of the Hanford Formation, and was deposited during periodic cataclysmic glacial flood events.
- A **Sandy Silt Unit** underlies the Gravelly Sand Unit. These deposits are primarily sandy silt, with less than 5 percent clay and occasional gravel. This unit likely represents either the Cold Creek Unit or the upper, fine-grained portion of the Ringold Formation. Both these units pre-date the overlying Hanford Formation.

Two geologic cross sections were prepared to illustrate the geologic units described above. Figure 3 shows the locations of Cross Sections A-A' (Figure 4) and B-B' (Figure 5). Cross Section A-A' shows the geology along a transect oriented northwest to southeast across the Site. Cross Section B-B' shows the geology along a transect oriented north to south. Both sections show the fill and native soils are generally continuous across the Site. Section A-A' shows the Upper Silt and Upper Gravelly Sand Units becoming shallower to the east, resulting in unsaturated conditions in the Upper Silt Unit and the top several feet of the Upper Gravelly Sand Unit.

3.3 Hydrogeology

Groundwater is first encountered at the Site in the Upper Silt Unit, generally at a depth of between 12 and 14 feet below grade (elevations of approximately 345 to 347 feet amsl). An average hydraulic conductivity of approximately 2.6 foot per day was estimated from slug tests completed in three Upper Silt Unit monitoring wells (LFR, 2008; Aspect, 2011c). Horizontal hydraulic gradients in the Upper Silt Unit range from 0.003 to 0.006 feet per foot. Using an average hydraulic gradient of 0.0045 and a porosity of 0.20, an average Upper Silt Unit groundwater seepage velocity of 8 feet per year is estimated.

Monitoring wells screened near the top and bottom of the Gravelly Sand Unit are referred to as Upper Gravelly Sand Unit (Intermediate monitoring wells with suffix "I") and Lower Gravelly Sand Unit (Deep monitoring well suffix "D") as shown in the cross sections (Figure 4 and 5). Comparison of groundwater water elevations in paired monitoring well locations indicate generally upward vertical hydraulic gradients in the Upper Gravelly Sand Unit throughout the entire Site. An average hydraulic conductivity of 15 feet per day from slug testing completed in seven Upper Gravelly Sand Unit monitoring wells (LFR, 2008; Aspect, 2011). Horizontal hydraulic gradients in the Upper Gravelly Sand Unit range from 0.0016 to 0.0021 feet per foot. Using an average hydraulic gradient of 0.0018 and a porosity of 0.20, an average groundwater seepage velocity of 49 feet per year in the Gravelly Sand Unit is estimated.

Regionally, the Site is situated between the Yakima and Columbia Rivers, which are both dam-controlled and widely used as a water source in the vicinity of Richland. Groundwater flow directions and velocities in Site aquifers units are ultimately controlled by the stages of these two rivers. The record minimum stage of the Columbia east of the Site was 335.17 feet in March 12, 2003 and the record maximum stage of 343.71 feet occurred in June 13, 1997 (USGS Station 125143500 Columbia River on Clover Island at Kennewick, WA). The normal pool elevation of Lake Wallula is approximately 340 feet amsl. Groundwater elevations in the Upper Gravelly Sand Unit range from 345.5 to 346.75 feet amsl in March 2019 (Appendix B). Water level monitoring at the Site demonstrate seasonal groundwater level fluctuations are generally a result of changing pool elevations in the Columbia River.

Varying stages of the Yakima and Columbia Rivers are also responsible for seasonal changes in groundwater flow direction. Groundwater flow directions in each hydrogeologic unit (Upper Silt Unit, Upper Gravelly Sand Unit, and Lower Gravelly Sand) have generally been to the east or southeast but variability of northeastern to southern flow directions have been observed during the record of monitoring. Appendix B presents rose diagrams of groundwater flow directions in the Upper Silt Unit and the Upper Gravelly Sand Unit. The rose diagrams represent azimuth flow direction and

frequency of occurrence between 2007 and 2014. The Upper Silt Unit diagram shows a predominant flow direction to the southeast, with periodic flow occurrences in nearly all cardinal directions. The variation in the Upper Silt Unit is partially due to the limited extent of saturation discussed above, and the uneven topographic surface and thickness of the Upper Silt Unit. Flow directions in the Upper Gravelly Sand Unit are also to the southeast, but are more consistent, and are controlled by the relative stages of the Yakima and Columbia River, as discussed above. Potentiometric maps for the Upper Silt, Upper Gravelly Sand and Lower Gravelly Sand Units are in Appendix B.

3.4 Climate

The climate of the Richland area is semi-arid, with average annual precipitation of about seven inches (Western Regional Climate Center, 2009). The maximum average monthly precipitation of about one inch occurs in December, with the minimum average monthly precipitation of 0.2 inches occurring in July. Average winter high temperatures are 40s and 50s (degrees Fahrenheit) and lows in the 20s to 30s. During the summer, average daytime temperatures exceed 90 degrees Fahrenheit in July, with nighttime lows in the 50s.

3.5 Terrestrial Ecological Setting

Vegetation in the Site area is generally sparse, consistent with the commercial land uses. With the exception of the athletic fields to the west and the residential neighborhood to the southeast of the Property, the area is typical of urban, developed commercial properties, with vegetation limited to landscaped planting areas. Areas of the Property with former or current soil or groundwater contamination are asphalt paved or gravel-covered and contain limited vegetation.

3.5.1 Terrestrial Ecological Evaluation Exclusion

A Simplified Terrestrial Ecological Evaluation (Table 749-1 in WAC 173-340-900) was prepared to evaluate potential substantial wildlife exposure to Site hazardous substances. The Site is excluded from a Terrestrial Ecological Evaluation due to the numerical results of the Simplified Terrestrial Ecological Evaluation Table as provided in Appendix C and discussed in Section 6.2.2.

4 Summary of Environmental Investigations and Cleanup Actions

Significant environmental investigation and cleanup activities have occurred at the Site beginning in the early 1990s. The following section summarizes these activities according to:

- **Pre-RI investigations**, The Pre-RI investigations occurred between 1997 and 2008 and were conducted by EMCON and LFR. The Pre-RI investigations focused on the characterization of potential soil and groundwater contamination on the NCC Property and adjoining properties.
- **RI investigations**, The RI investigations occurred between 2009 and 2019 and were conducted by Aspect. The RI Investigations focused on assessing the conditions of soil, groundwater, and soil vapor at the Site.
- **Previous Cleanup Actions**, Previous cleanup actions occurred between 1992 and 2015 and were conducted by EMCON, GeoEngineers, and Aspect. These previous cleanup actions represent a significant cleanup effort including removing four USTs (Section 4.3.1), excavating PCE-impacted soil (Section 4.3.2), replacing a sewer line (Section 4.3.3), and performing ISB pilot testing (Section 4.3.4).
- **RI Data Gaps investigations**, The RI Data Gaps investigations occurred between 2015 and 2019. The investigations during this time were conducted by Aspect. The data gaps investigations were conducted to address data gaps identified by Ecology in their review of the 2015 Draft RI/FS Report (Aspect, 2015b).

All Site explorations are shown on Figure 3. Table 1 presents a completion summary for all monitoring wells completed at the Site. All soil boring and monitoring well completion logs can be found in Appendix A. All historical soil sampling results are included in Appendix D. All historical groundwater sampling results are included in Appendix E. All environmental data presented in this RI Report has been uploaded to and accepted by Ecology to their Electronic Information Management (EIM) system.

4.1 Pre-RI Investigations 1997-2008

4.1.1 EMCON Remedial Investigation (1997)

In 1997, EMCON, on behalf of NCC, completed investigation activities on the Property and the adjacent RSD property, and submitted a RI Report (EMCON, 1999a). This work was performed under Enforcement Order No. DE 96T.C-C180, and the completed scope included:

- Collection of 25 surface soil samples
- Collection of 35 subsurface soil samples
- Collection of 10 groundwater samples from temporary wells installed in directpush borings

- Installation and sampling of four on-Property monitoring wells (MW-1 to MW-4)
- Sampling of two monitoring wells (MW-D and MW-E) located on the RSD property
- Slug testing of on-Property monitoring wells

Soil samples were analyzed for volatile organic compounds (VOCs), with select samples also analyzed for gasoline-, diesel-, and oil-range total petroleum hydrocarbons (TPH). Fourteen subsurface soil samples were also analyzed for total organic carbon (TOC). Three rounds of quarterly groundwater monitoring were performed. Groundwater samples were analyzed for VOCs, benzene, toluene, ethylbenzene, and xylenes (BTEX), and gasoline-, diesel-, and oil-range TPH.

Monitoring wells MW-1 to MW-4 were completed with screened intervals in the Upper Silt and Gravelly Sand Units. As such, water quality, groundwater elevation, and hydraulic conductivity data from these wells are not unit discrete. Investigation results indicated the presence of PCE, TCE, xylenes, and gasoline-range TPH in soil and PCE and TCE in groundwater at the Property. Groundwater samples from well MW-E on the RSD property also contained detectable concentrations of PCE and TCE.

4.1.2 LFR Supplemental Characterization (2007)

A supplemental soil and groundwater characterization event was performed at the NCC Property by LFR Inc. in May and June 2007 (LFR, 2007). The additional characterization was conducted following years of groundwater monitoring after the 2000 soil removal action (Section 4.3.2) The supplemental soil and groundwater characterization included:

- A soil investigation focused on shallow soil quality along utility lines (water and sewer) and beneath the dry cleaning building.
- Decommissioning of wells MW-1 to MW-4, which were screened within both the Upper Silt and Upper Gravelly Sand Units.
- Installing and sampling 11 new monitoring wells at five locations. Each well location included a shallow well (MW-5S to MW-9S) completed within the Upper Silt Unit, and a deep well (MW-5D to MW-9D) completed to the base of the Gravelly Sand Unit. One intermediate depth well (MW-7I) was completed at the top of the Gravelly Sand Unit, immediately below the Upper Silt Unit.
- Collecting soil samples during drilling of well MW-8D for laboratory analysis of VOCs.
- Completing a follow-up groundwater sampling event in November 2007.

PCE was detected in nine of ten soil samples collected from beneath the dry cleaning building slab at depths ranging from 5 inches to 2.2 feet. The highest detected sample was next to the floor drain inside the building and was a slight exceedance of the MTCA Method A soil screening level of 0.05 mg/kg. The remaining detections were below the screening level. Acetone was also detected in four of these ten soil samples. PCE degradation products trichloroethylene (TCE), cis-1,2-dichloroethene (cis-DCE), and vinyl chloride (VC) were not detected in any soil samples. PCE and degradation products

were detected in groundwater sampling from the Upper Silt Unit, the Upper Gravelly Sand Unit, and the Lower Gravelly Sand Unit.

4.1.3 LFR Additional Investigation (2008)

An additional investigation was completed by LFR in 2008 to assess off-Property soil and groundwater quality (LFR, 2008 and LFR, 2009). The completed scope of work included:

- Installing and sampling a three-well cluster upgradient of the Property. The cluster included MW-11S in the Upper Silt Unit, MW-11I completed in the Upper Gravelly Sand Unit, and MW11-D in the Lower Gravelly Sand Unit (Table 1).
- Installing and sampling Upper Gravelly Sand Unit monitoring well pairs on the adjacent RSD property (MW-10I and-10D and MW-12I and -12D) and the downgradient Albertsons property (MW-13I and -13D and MW-14I and -14D).
- Slug-testing of monitoring wells MW-5S, MW-7S, and MW-9S and MW-5D, MW-7D, and MW-9D to estimate hydraulic conductivities.
- Completing subsequent groundwater monitoring events in August and November 2008.

No detections of hazardous substances were observed in soil. PCE, TCE, and chloroform were detected in groundwater samples collected from the intermediate wells located on the Albertsons property (MW-13I and MW-14I) and in the northeastern part of the RSD property (MW-10I). PCE and TCE were not detected in any of the deep wells, the MW-11 upgradient well cluster, or the wells located in the southwestern part of the RSD property (MW-12I and MW-12D).

4.2 RI Investigations by Aspect 2009 - 2017

This section provides a summary of Site RI investigations conducted by Aspect.

4.2.1 Soil Assessment - On-Property and Adjacent Richland School District Property (2009)

Eighteen direct-push borings (DP-1 to DP-18) were advanced to characterize soil beneath and near the NCC building, beneath the base of the 2000 soil excavation, discussed in Section 4.3.2, and on the RSD property.

PCE impacts were documented in the Upper Silt Unit below the base of the 2000 remedial excavation, which did not extend below the water table or under the NCC building. Several direct-push samples replicating post-2000 excavation confirmation samples were collected from the Upper Silt Unit immediately below the excavation backfill at borings DP-17 and DP-18 where PCE was detected. At locations DP-11, DP-14, and DP-15, PCE concentration increased with depth to a maximum depth of 23 feet bgs in the Upper Gravelly Sand Unit.

Three soil borings (DP-19 through DP-21) were also drilled on the RSD property to assess potential sources on the RSD property. PCE was not detected in the Upper Silt Unit soil samples analyzed from these borings.

4.2.2 Reconnaissance Groundwater Assessment - Off-Property Areas (2009)

A reconnaissance groundwater sampling program was completed in 2009 to delineate off-Property groundwater impacts. The reconnaissance groundwater sampling program included collection of groundwater grab samples from 3 borings on the RSD property (DP-19 through DP-21), and 6 borings on the Albertsons property (DP-22 through DP-27) in 2009. The results of these reconnaissance groundwater samples were used to scope the locations of the permanent groundwater monitoring wells (see Section 4.2.6).

4.2.3 Off-Property Soil Vapor Sampling (2010-2013)

Collection of soil vapor samples was completed on the former Albertsons property to evaluate potential vapor intrusion in the Albertson's building soil vapor pathway. Three soil vapor probes (VP-01, VP-02, VP-03) were installed in in the Albertsons building in November 2010. The construction and sampling of the vapor probes was consistent with the methods outlined in the Ecology-approved *Data Gaps Investigation Work Plan Addendum* (Aspect, 2011a). Sampling protocols included the use of active helium leak detection using a helium-charge sampling shroud. Vapor samples were collected on five occasions between November 2010 and October 2013 and the results are presented in Table 5.

4.2.4 Supplemental On-Property Floor Drain Assessment (2010)

A floor drain located inside the NCC building was evaluated for connection to the sanitary sewer using extended tracer testing (Aspect, 2010). The tracer test did not confirm hydraulic connection to the sewer. During subsequent drilling of direct-push explorations adjacent to the south wall of the NCC building, elevated temperatures were noted in saturated soil at boring DP-13, indicating potential discharge of warm water to the subsurface.

The NCC building side sewer drain line was video surveyed in September 2010 (Aspect, 2011b). This survey revealed an approximate 60-foot section of damaged pipe where wash water from the NCC building leaked into the subsurface. No discharge appeared to be reaching the main sewer in Stevens Drive. The section of side sewer line was restored (see Section 4.3.3).

4.2.5 Supplemental Soil Assessment - Adjacent Richland School District Property (2010 and 2012)

Supplemental soil assessment activities were completed on the RSD property in October 2010 (Aspect, 2010). Soil samples from the Upper Silt Unit and the Gravelly Sand Unit locations MW-15I and MW-16I were collected for laboratory analysis. In the explorations installed on the RSD property between 2008 (LFR) and 2010 (Aspect), PCE was not detected at concentrations above the MTCA Method A soil screening level of 0.05 milligrams per kilogram (mg/kg) in any of the Upper Silt or Gravelly Sand Unit samples analyzed.

A supplemental shallow soil and groundwater investigation consisting of 18 direct push borings (DP-28 through DP-45) was conducted on the RSD property in January 2012 (Aspect, 2012). This investigation focused on sampling near existing and historical site

features of interest relative to potential sources on the Property and on the RSD property. These samples helped to further refine the extent of PCE impacts to soil on Property and on the adjacent northern portion of the RSD property.

4.2.6 Site-Wide Groundwater Monitoring (2010 to 2015)

Supplemental monitoring well installations were completed in October 2010 and January 2012. This task included installation of three new wells on the RSD property (MW-15S, MW,-15I, and MW-16I), one new well on the NCC property (MW-6I), and five new wells on the former Albertsons property (MW-17I, MW18I, MW-19I, MW-21I, and MW-21I/2).

Initial monitoring results indicated that additional monitoring wells were needed to complete the delineation of groundwater impacts. Installation of six new Upper Gravelly Sand Unit wells was completed in January 2012. These wells included:

- Well MW-26I on the south portion of the NCC property
- Well MW-25I on the southeast corner of the RSD property
- Well MW-24I on the northern portion of the former Albertsons property
- Wells MW-20I, MW-22I, and MW-23I located along the western side of Goethals Drive within the City of Richland right of way

Site-wide groundwater sampling events were completed in November 2010, March 2011, June 2011, and October 2011. After well network expansion in January 2012, additional groundwater monitoring events were completed for eight consecutive quarters, with the last event completed in December 2014. Site groundwater quality is summarized in Section 5.5.

4.2.7 RI Data Gaps Investigations

Aspect prepared a Draft RI/FS; Aspect, 2015b) to summarize the numerous investigations conducted at the Property between 1990 to 2015 on behalf of HLH, Inc. The report was submitted to Ecology in July 2015. Ecology issued comments on the Draft RI/FS in a November 15, 2015 letter. Ecology issued a second letter on December 9, 2015 identifying further site investigation that Ecology believed to be necessary for the completion of the Draft RI/FS per Agreed Order DE6558 prior to issuing a formal opinion letter on the Property.

Aspect implemented two work plans to address Ecology comments necessary to address RI data gaps and completion of the RI/FS. A RI Data Gaps Work Plan to conduct investigation activities was implemented (Aspect, 2016) and a Continued RI Data Gaps Work Plan was implemented (Aspect, 2017) beginning in July 2016 and ending in March 2019. The planned investigations described in the workplans addressed the following information required by Ecology.

4.2.7.1 Remedial Investigation Data Gaps Work Plan (2016)

Aspect implemented the Ecology-approved *Remedial Investigation Data Gaps Work Plan* (2016 Work Plan; Aspect, 2016) to address RI data gaps. The objectives of the 2016 Work Plan included:

- Continued monitoring of degradation products generated during the *in situ* bioremediation (ISB) pilot test initiated by Aspect on behalf of HLH in February 2014.
- Additional groundwater delineation to the south of Lee Boulevard.
- Soil vapor sampling on the NCC and Richland School District (RSD) properties to evaluate the potential for vapor intrusion risk.

The implementation of the 2016 Work Plan included:

- Installation of two new monitoring wells in the Upper Gravelly Sand Unit, MW-33I and MW-34I. These locations were installed south of Lee Boulevard, in order to delineate the downgradient extent of PCE-impacted groundwater within the Gravelly Sand Unit.
- Two Site-wide groundwater sampling events on July 11-13 and November 14-16, 2016 including the new monitoring wells. Groundwater analytical results are presented in Table 2.
- Soil vapor sampling at the NCC and RSD buildings to evaluate the soil vapor intrusion pathway. Four new sub-slab vapor monitoring probes were installed to evaluate potential soil vapor intrusion in buildings on the NCC and RSD properties. The sub-slab vapor samples were collected from the four new sampling points in July and November 2016, concurrent with the groundwater sampling events. Soil vapor results are shown in Table 5.

4.2.7.2 Continued Remedial Investigation Data Gaps Work Plan (2017)

The results of the 2016 Work Plan were summarized in a *Continued Remedial Investigation Data Gaps Work Plan* (2017 Work Plan; Aspect, 2017), in order to address Ecology comments necessary to address the continuation of the RI data gaps investigation activities per Ecology's letter request dated January 31, 2017. Ecology approved the 2017 Work Plan on August 10, 2017.

The objectives of the 2017 Work Plan included:

- Continued Site-wide groundwater monitoring.
- Indoor air sampling in the NCC building.
- Continued *in situ* bioremediation (ISB) pilot testing, and continued monitoring of ISB performance, including source and degradation products, and other biogeochemical indicators.

The 2017 Work Plan implementation began in September 2017 and was completed in April 2019 and consisted of:

- Additional pilot test groundwater monitoring, including an injection event in the ISB pilot area, and additional post-injection monitoring of biostimulants to address the fate and transport of degradation products and support the evaluation of downgradient degradation processes. A second ISB injection event occurred in September 2017 and subsequent performance monitoring.
- Six Site-wide groundwater monitoring events were conducted quarterly through March 2019.
- Indoor air sampling in the NCC building in March 2018. Sampling locations (IA-06 and IA-07) were co-located with sub-slab sampling locations VP-06 and VP-07, respectively. The results of the indoor air sampling are summarized in Table 6.
- To assist in establishing the southern boundary of impacts in the Upper Gravelly Sand Unit, data from selected wells at the L&L Exxon Site was incorporated. The L&L Exxon (FS/ID 78835792) Site, located approximately 800 feet southeast of the NCC at the intersection of Lee Boulevard and Goethals Drive, is an orphan cleanup Site currently under the management of Ecology's Cleanup Sites Initiative Program. As part of the 2017 Work Plan, monitoring wells on L&L property sampled concurrently with Site-wide groundwater monitoring and used to delineate the southern boundary of the impacted groundwater.

The results of the 2017 Work Plan were summarized in the *Data Summary Memo* (Aspect, 2019).

4.3 Previous Cleanup Actions 1992 - 2019

This section provides a summary of previous cleanup actions conducted at the NCC property. The extent and details of each completed cleanup action is presented on Figure 6.

4.3.1 UST Removals (1992)

Two 1,200-gallon Stoddard solvent USTs were removed from the Property in 1992. In addition, one 10,000-gallon UST, reportedly containing Bunker C fuel, and one 500-gallon UST, reportedly containing kerosene, were also removed from the Property. The locations of the UST excavations are shown on Figure 6.

Between 75 to 100 cubic yards of soil excavated during removal of the USTs was reportedly stockpiled on plastic sheeting immediately west of the NCC building. This stockpile reportedly remained on-Property until at least 1997 (EMCON, 1997). Soil and groundwater samples collected from the UST excavations reportedly contained detectable PCE, cis-DCE, 1,2-dichloroethane, BTEX compounds, and TPH (EMCON, 1999a).

4.3.2 Interim Cleanup Action (2000)

Based on the results of the 1999 RI, EMCON prepared a Cleanup Action Plan (CAP) in 1999 (EMCON, 1999b). The CAP identified six areas of impacted soil requiring remediation:

• The area of the former 500-gallon and 10,000-gallon USTs, where TPH and PCE were detected

- The area of the former 1,200-gallon USTs, where TPH and PCE were detected
- The area of the former drum rack area, where TPH and PCE were detected
- The area around well MW-3, located at the northwest corner of the Property, where PCE was detected
- The area of surface soil at the location of the former UST excavation stockpile, where PCE was detected
- The area at the southern Property boundary, where PCE was detected in surface soil

The CAP was implemented between February and August 2000 under the direction of GeoEngineers, Inc. and reported in the Report of Interim Cleanup Action (GeoEngineers, Inc., 2001). The cleanup action consisted of:

- Removal of overlying structures (wood storage sheds, landscaping, fences, and asphalt)
- Excavation of approximately 5,100 tons of PCE-impacted soil
- On-Site passive atmospheric volatilization treatment of soil with PCE concentrations greater than the 60 mg/kg
- Off-Site disposal of contaminated soil with PCE concentrations less than the 60 mg/kg
- Confirmation sampling of the excavation base and sidewalls
- Backfilling of the remedial excavation with clean imported fill
- Decommissioning and replacement of wells MW-1 and MW-3, which were located within the excavated area

The 2000 remedial excavation generally extended to at a depth of approximately 10 feet bgs, or the high groundwater table elevation. The excavation extended laterally to the practical extent based on property boundaries and other key features – it extended south onto the RSD property, to the northern Property boundary, and west to bank of stormwater ditch as shown on Figure 6.

Confirmation samples collected from the 2000 remedial excavation sidewalls generally did not contain detectable concentrations of PCE. Exceptions to this were several sample locations adjacent to the dry cleaning building and along the north Property boundary, where additional excavation could not be performed (GeoEngineers, 2001), and several locations on the RSD and the adjacent property to the west. Detected PCE concentrations from on-Property sidewall confirmation samples ranged from 0.08 to 11.34 mg/kg. Detected PCE concentrations from the off-Property sample locations ranged from 0.06 to 0.08 mg/kg.

Twenty of 22 confirmation samples collected from the base of the 2000 remedial excavation contained detectable concentrations of PCE. PCE concentrations in these samples ranged from 0.06 mg/kg to 3.18 mg/kg.

4.3.3 Sewer Line Excavation and Replacement (2011)

Following discovery of the leaking side sewer in 2010, NCC received a letter from Ecology requesting that the line be repaired under Agreed Order DE6558, due to the following concerns (Ecology, 2010):

- Leakage from the line may have contributed to the observed impacts to Site soils and groundwater from PCE and degradation products.
- The elevated temperature of the discharge water (compared to groundwater temperatures) could increase the solubility of contaminants.
- Unauthorized discharge of "gray water" is not permitted under the State Waste Discharge Regulations (Revised Code of Washington (RCW) 90.48 and Washington Administrative Code (WAC) 73-216).

The March 2011 repair included replacement of approximately 50 linear feet of sewer line, conducted in accordance with an Ecology-approved Work Plan (Aspect, 2011b). Oversight of the repair confirmed that the line was leaking in numerous locations. Analysis of soil samples collected during the repair confirmed the presence of trace concentrations of PCE and degradation products in soil below the sewer line.

The sewer line repair generated 59 tons of soil containing PCE and degradation products. The excavated soil was disposed at the Chemical Waste Management facility in Arlington, Oregon on April 20 and 28, 2011.

4.3.4 In Situ Biostimulation Pilot Testing (2014-2019)

Aspect prepared a *Remediation Pilot Testing Technology Evaluation Memorandum* (Aspect, 2013a) that recommended that an *in situ* biostimulation (ISB) pilot test be performed in the Upper Silt Unit and in the Upper Gravelly Sand Unit on the Property (see Figure 8). Aspect subsequently prepared a *Pilot Test Engineering Design and Implementation Plan* (ISB Pilot Test Plan; Aspect, 2013b). The ISB Pilot Test Plan defined the objectives, procedures, and evaluation methods for ISB pilot test implementation. The ISB pilot test was performed to evaluate whether ISB is a suitable technology for reducing source zone concentrations in both soil and groundwater at the Site and enhancing natural attenuation of groundwater.

The objectives of the ISB pilot test (see Figure 7) included:

- Evaluate the injectivity of biostimulants into the Upper Silt Unit and Upper Gravelly Sand Unit.
- Evaluate the detectability, distribution, mobility, and attenuation of biostimulants.
- Evaluate the effect of biostimulants to the native microbial populations and taxonomy to assess the ability of the microbes to bioattenuate PCE and its bioattenuation degradation products.

- Evaluate the concentrations of competitive electron acceptors to assess the effect and resilience of ISB, and the correlation between reducing conditions and the reductive dechlorination of PCE and its bioattenuation degradation products.
- Evaluate the concentrations of chlorinated VOCs during pilot testing to assess the ability of ISB to effectively reduce PCE and its degradation products in soil and groundwater.

The scope of work included:

- Installing 10 temporary injection wells in the Upper Silt Unit
- Installing 5 injection wells in the Upper Gravelly Unit
- Collecting baseline soil and groundwater samples from pilot test wells
- Injecting biostimulant solution into injection wells
- Groundwater sampling to measure impact of pilot test

The results of the ISB pilot test can be found in the *ISB Pilot Test Evaluation and Groundwater Monitoring Report* (Aspect, 2015a), the 2016 Work Plan (Aspect, 2016), and the 2017 Work Plan (Aspect, 2017). The Pilot Test results inform the Feasibility Study and are summarized in Section 9.2.

4.4 Cleanup Actions on Adjacent Properties

This section provides a summary of previous cleanup actions conducted at the properties adjacent to New City Cleaners. The extent and details of each completed cleanup action is presented on Figure 6.

4.4.1 RSD UST Excavation (1991)

Five USTs were removed from the RSD property in 1991 as part of a site assessment and tank decommissioning. This included a 1,000-gallon tank containing waste oil and gasoline, located on the north side of the RSD building. Waste oil contamination was found in the soil surrounding this tank. The other four tanks were located on the southeast side of the RSD building and included two 5,000-gallon tanks, one containing gasoline and one containing diesel, a 500-gallon tank containing #2 diesel, and a 9,000-gallon tank containing bunker oil. There was substantial contamination in the surrounding soil associated with the 500- and 9,000-gallon tanks.

A total of 324 cubic yards of petroleum contaminated soil was excavated during removal of the USTs and was transported to the City of Richland Landfill for disposal. The locations of the UST excavations are shown on Figure 6. Soil and groundwater samples collected from the UST excavations reportedly contained detectable TPH.

Groundwater monitoring at five monitoring wells on the property after the UST removal did not identify any TPH contamination on the property. However, there was significant TCE and PCE contamination found in monitoring wells adjacent to the NCC property (EP Johnson, 1992).

4.4.2 RSD Excavation (1993)

Two areas were excavated on the RSD property in 1993 after contamination was identified during a building renovation. Area 1, which encompasses the western half of the current RSD parking lot, contained soil with detectable TPH. Area 2, located to the northwest of the RSD building, contained soil with detectable TPH and BTEX compounds. Approximately 1,600 cubic yards of soil was excavated and disposed of at the City of Richland landfill (SEG, 1993). The locations of the excavation areas are shown on Figure 6.

5 Nature and Extent of Contamination

5.1 Reported PCE Releases

The dry cleaning solvent PCE was used for dry cleaning operations at NCC since at least 1974 and was discontinued in 2014. Historical releases of PCE have impacted soil and groundwater at the Property, and PCE-impacted groundwater has migrated onto adjacent properties to the south, east, and northeast. Historical releases of PCE to soil and groundwater at the Site include the following:

- The reported 1975 release from the drum rack located near the south Property boundary
- Reported disposal of dry cleaning wastes in dumpster(s) situated in various locations on the western undeveloped portion of the Property from 1974 through the early 1980s
- Potential releases of PCE originates from a floor drain inside the NCC building entering a leaking side sewer line

5.2 Constituents of Concern

An evaluation of all RI soil and groundwater data was conducted to identify constituents of concern (COCs) for the Site. The statistical evaluation of all Site soil and groundwater data from samples collected between 2000 and 2019 is presented in Tables 3 and 4, respectively. The following chemicals were detected in greater than five percent of the soil and/or groundwater samples, at concentrations that exceed MTCA preliminary screening levels and are selected as Site COCs.

- Soil COCs: PCE is the primary COC in soil. Degradation products TCE and cis-DCE have been detected in soil with one exceedance of the TCE screening level. However, the presence of these low-level degradation product detections is due to presence of PCE.
 - Diesel-range TPH was detected at a significant concentration at sidewall samples SW-A1-3 and SW-A2-1 during the 2000 cleanup action and is therefore retained as a soil COC in the vicinity of these locations.
- **Groundwater COCs:** PCE and degradation products TCE, cis-DCE, and vinyl chloride are the COCs in groundwater.
- **Indoor Air COCs:** PCE and degradation products TCE and vinyl chloride are the COCs in indoor air.
- **Soil Vapor COCs:** PCE and degradation products TCE and vinyl chloride are the COCs in soil vapor.

5.3 Proposed Cleanup Levels

Proposed Site cleanup levels (CULs) for soil and groundwater COCs are the Method A CULs (WAC 173-340-900) for those COCs that have a Method A CUL, and the Method B formula values posted in the CLARC database as of October 1, 2019 for COCs without a Method A CUL. CULs for indoor air, and soil vapor screening levels are the formula values posted in the CLARC database as of October 1, 2019. A summary of proposed CULs for COCs in all Site media is provided in Table 7.

Table 7. Proposed Cleanup Levels for Site COCs

Chemical Name	Soil Proposed Cleanup Levels (mg/kg)	Groundwater Proposed Cleanup Levels (μg/L)	Indoor Air Proposed Cleanup Levels (µg/m³) ⁴	Soil Vapor Proposed Sub-slab Screening Levels (µg/m³) ⁴
Diesel-range TPH	2000	N/A	N/A	N/A
Tetrachloroethylene (PCE)	0.05 ¹	5.0 ²	9.62	320
Trichloroethylene (TCE)	0.03 ¹	5.0 ²	0.37	12
cis-1,2-Dichloroethylene (DCE)	160 ³	16³	N/A	N/A
Vinyl chloride	0.67 ³	0.15 ¹	0.28	3.4

¹ MTCA Method A Cleanup Level.

5.4 Soil Impacts

The extent of soil with COC concentrations above proposed CULs is shown in Appendix F. All historical soil sampling results are also provided in Appendix D. Given the depth of saturated samples (up to 24 feet bgs) in the groundwater plume, Figure 8 presents the inferred extent of soil above proposed CULs equal to or less than 15 feet deep.

Soil impacted with COCs above proposed CULs was documented in the Upper Silt Unit (Figure 8) beneath the western half of the NCC building. The locations with exceedances depicted on Figure 8 either 1) are unsaturated sidewall confirmation samples 2) are bottom saturated confirmation samples 3) or from underneath the NCC building inaccessible to removal.

Soil impacted with COCs above proposed CULs was documented in the Upper Gravelly Sand Unit (Appendix F) in the same footprint of the Upper Silt Unit. All Upper Gravelly soils are saturated and in the presence of high concentration groundwater and in soil-groundwater phase equilibrium.

In the Lower Gravelly Sand Unit, no soil samples collected during the RI exceeded proposed CULs.

²MTCA Method A Cleanup Level, per requirement in Agreed Order.

³MTCA Method B Formula Value from CLARC as of October 1, 2019.

⁴MTCA Method B Formula Value from CLARC as of October 1, 2019. Not adjusted for commercial use scenario in order to use most conservative value.

5.5 Groundwater

The extent of impacted groundwater with COCs at concentrations above proposed CULs is shown on Figures 9, 10, and 11. A tabular summary of groundwater sample results is presented in Table 4. All RI groundwater sampling results are provided in Appendix E.

In the Upper Silt Unit (Figure 9), groundwater with PCE concentrations above proposed CULs was documented beneath western portions of the NCC property and extending onto the northern and central portions of the RSD property, in 2014. As shown in Figure 9, the dissolved-phase PCE plume in the Upper Silt Unit has decreased and proposed CUL exceedances is limited to MW-08S, in the northeastern portion of the NCC property.

In the Upper Gravelly Sand Unit, the inferred extent of PCE exceedances of proposed CULs in 2014 were significantly larger than observed in 2019 (Figure 10). The highest concentrations of PCE and degradation products were recorded beneath the central portion of the NCC building and the northern portion of the RSD property. The extent of cis-DCE in groundwater above proposed CULs is limited to the downgradient side of the NCC Building and the RSD property (Figure 11). The ISB pilot testing resulted in increasing concentrations of cis-DCE during 2014 and later in 2018 but the downgradient extent of cis-DCE has been defined at MW-16I. Sufficient time has passed for the arrival of the cis-DCE plume at locations downgradient of MW-16I; however, no increases in cis-DCE concentrations have been observed indicating the natural attenuation of the cis-DCE concentration and a stable plume condition.

The extent of proposed CULs in the Upper Gravelly Sand Unit was constrained to the southwest by well MW-12I and MW-25I, to the north by well MW-24I, to the northeast by MW-20I, to the east by MW-22I and MW-23I. The toe of the groundwater plume, to the southeast, is bound by the locations of MW-33I and MW-34I¹.

No Lower Gravelly Sand Unit groundwater samples contained COCs exceeding the proposed Site CULs. The upward vertical hydraulic gradient within the Gravelly Sand Unit promotes primarily horizontal COC migration through the Upper Gravelly Sand Unit.

5.6 Soil Vapor and Indoor Air

Sub-slab soil vapor samples were collected beneath the former Albertsons store, the RSD building, and the NCC building as part of the RI. The on- and off-Property soil vapor sampling locations are shown on Figure 3, and complete soil vapor sampling results are presented in Table 5. The soil vapor and indoor air sampling locations on the NCC property are shown on Figure 12.

None of the soil vapor samples collected from beneath the RSD building (VP-04 to VP-05) contained COCs at concentrations above the proposed sub-slab soil vapor screening levels. None of the soil vapor samples collected from beneath the former Albertsons

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¹ The PCE concentrations at MW-33I and MW-34I fluctuate below, at and slightly above the CUL. The Final 2016 RI Data Gaps Investigation Work Plan addressed the downgradient plume extent with the installation of MW-33I and MW-34I as presented in the 2017 Continued RI Data Gaps Investigation Work Plan.

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store (VP-01 and VP-03) contained COCs at concentrations above the proposed sub-slab soil vapor screening levels, except one soil vapor samples VP-02 (330 μ/m^3) collected in November 2010, which contained COCs at concentrations above the proposed sub-slab soil vapor screening level (320 μ/m^3).

Four additional quarters of sub-slab soil vapor sampling were conducted at this location, and the concentration of COCs has remained below the sub-slab soil vapors screening level for each subsequent sampling event. The screening levels are considered conservative to prevent exceedances compared to Site-specific Method B-based indoor air CULs for a commercial worker scenario (see Table 7). Ecology concluded that there is no concern of vapor intrusion risk at the former Albertsons or the RSD buildings in their January 31, 2017 letter (Ecology, 2017).

The soil vapor samples collected from beneath the NCC building (VP-06 and VP-07) contained COCs at concentrations above the proposed sub-slab soil vapor screening levels (Figure 12). PCE was detected at concentrations of 1.7 and 2 ug/m³ less than the proposed CUL of 9.62 ug/m³. 1,2-Dichloroethane (EDC) was detected in the indoor air samples collected at the NCC property. The highest concentration of EDC detected (0.11 μ /m³) marginally exceeds the MTCA Method B Indoor Air Cleanup Level of 0.0962 μ /m³. EDC is not a Site COC and its detection in indoor air sampling is likely associated with the active dry cleaning operations.

6 Conceptual Site Model

6.1 COC Fate and Transport

The fate and transport of COCs at the Site consists:

- Migration of released PCE through vadose and saturated soils
- Leaching of COCs from soil to groundwater
- Dissolved-phase COC transport in groundwater
- Volatilization of COCs present in unsaturated zone soil and groundwater, and subsequent vapor-phase migration in soil gas

Migration of released PCE through vadose and saturated soils

Historical releases of PCE were likely primarily to shallow, unsaturated (vadose zone) soil. Released PCE then migrated downward through the unsaturated and saturated portions of the Upper Silt Unit. Migration likely occurred through a combination of free liquid movement, and dissolved-phase migration during periods of infiltrating rainfall.

PCE-impacted vadose zone soil was removed from the Property during the soil excavation completed in 2000 (GeoEngineers, 2001). The areal extent of the 2000 soil removal action is shown on Figure 6. Residual soil impacted beneath the NCC building, and in other areas below a depth of approximately 10 ft bgs were not addressed during the 2000 remedial excavation.

PCE Concentrations in soil in the Gravelly Sand Unit are low throughout most of the Property as shown in Appendix F. An exception to this is the area beneath and to the south of the NCC building, where elevated concentrations of PCE are present in saturated soil of the upper Gravelly Sand Unit at locations DP-11, DP-14, and DP-16 and are in phase equilibrium with groundwater concentrations.

Further evidence of low PCE concentrations at the Site is shown in documented groundwater concentrations, which have never been indicative of the presence of any dense non-aqueous phase liquid (DNAPL). High PCE exceedances can result if DNAPL is present. Lastly, the current concentrations in groundwater suggest there is limited remaining source of PCE in soils at the NCC building.

Leaching of COCs from soil to groundwater

Groundwater impacts at the Site are in the Upper Silt and Upper Gravelly Sand Units. Dissolved-phase PCE and PCE degradation products have migrated to properties to the east, south, and southeast. PCE has not been detected in deeper groundwater from the Lower Gravelly Sand Unit at concentrations above screening levels.

Periodic groundwater monitoring performed since 2000 has confirmed that only limited reductions in dissolved PCE concentrations occurred after completion of the 2000 soil removal. These findings indicate that residual PCE present in saturated soil, below the depth of the 2000 excavation, was the primary source to groundwater. The ISB Pilot Test has reduced the PCE concentrations in groundwater to below screening levels suggesting

that the current rate of bioremediation of dissolved phase PCE in the treatment area exceeds the mass transfer rate from the residual-impacted soil to groundwater.

Migration of dissolved-phase COCs in groundwater

The dissolved phase PCE plume defines the Site boundary and represents the largest remediation challenge. The dissolved-phase plume in the Upper Silt Unit is currently limited to one monitoring well, MW-8S as a result of ISB Pilot Testing. Changes in groundwater flow direction in the Upper Gravelly Sand Unit have resulted in a broad, low concentration, diffuse PCE plume. A cis-DCE plume of smaller footprint exists on the RSD property that has not migrated beyond MW-16I.

Volatilization of COCs present in unsaturated zone soil or groundwater, and subsequent vapor-phase migration in soil gas

Volatilization of PCE and degradation products from the water table occurs throughout the groundwater plume. West of Stevens Drive, the water table is located within the Upper Silt Unit. East of Stevens Drive, the Upper Silt Unit becomes unsaturated and the water table occurs within the Upper Gravelly Sand Unit. Concentrations of PCE in subslab soil gas vary with seasonal changes in groundwater flow direction, barometric pressure fluctuations, and HVAC pressure changes within buildings. Indoor air samples collected in the NCC building were below proposed CULs indicate there is no exposure and no mitigation necessary.

6.2 Exposure Pathways and Receptors

6.2.1 Human Receptors

6.2.1.1 On Property - Current and Future Industrial/Commercial Worker

Commercial workers represent the most likely potential for exposure based on current land use and the proximity to potential exposure pathways at the Site. Current and future commercial workers include operational employees and future construction workers. Potential exposure pathways are direct soil contact, future use of groundwater, and vapor intrusion.

6.2.1.2 Off Property - Future Drinking Water Consumption

Though off Property groundwater within the Site is not currently used for potable supply, the maximum beneficial use of groundwater at the Site is considered potable supply. Future use of Site groundwater as drinking water is considered highly unlikely because the Site falls within the City of Richland's water service area. The City of Richland Municipal Code does not prohibit private water systems, but it does require that the owner of any occupied structure has a connection to the public water supply, where a water supply line exists within 300 feet of the property boundary (Richland Municipal Code 18.10.010). In the unlikely event that a private water supply is proposed, a dedicated permit is required to install and operate a water supply well within the service area (Richland Municipal Code 18.14.020).

6.2.2 Ecological Receptors

The potential exposure pathway for wildlife is direct soil contact. The majority of the Site is covered with buildings, asphalt, and concrete, thus limiting exposure to terrestrial

wildlife. However, the westernmost portion of the New City Cleaners property is a crushed gravel surface.

A Simplified Terrestrial Ecological Evaluation (Table 749-1 in WAC 173-340-900) was prepared to evaluate whether substantial wildlife exposure to Site COCs is likely. Appendix C includes the completed Table 749-1 Simplified Terrestrial Ecological Evaluation. Based on the results of this numerical evaluation, land use at the Site and the surrounding area makes wildlife exposure unlikely, and the Site is excluded further consideration of terrestrial exposure risk.

7 Cleanup Requirements

7.1 Applicable or Relevant and Appropriate Requirements (ARARs)

The MTCA (Chapter 70.105D Revised Code of Washington [RCW]) requires that cleanup actions comply with applicable state and federal laws (WAC 173-340-360(2)a(iii)), which include legally applicable requirements, as well as requirements that the department determines are relevant and appropriate. ARARs for cleanup actions often include various construction-related permits, air emission requirements, water discharge requirements, off-site disposal requirements, and other issues related to impacts in and around the site. ARARs can be categorized as follows:

- Chemical-specific ARARs are laws and requirements that establish health- or risk-based numerical values or methodologies for developing such values. These ARARs are used to establish the acceptable concentration of a chemical that may remain in or be discharged to the environment. As such, chemical-specific ARARs are considered in developing cleanup standards.
- **Action-specific ARARs** are performance, design, or other requirements that may place controls or restrictions on a particular remedial action.
- **Location-specific ARARs** are requirements that are triggered based on the location of the remedial action to be undertaken.

The MTCA Cleanup Regulation (Chapter 173-340 WAC) authorizes Ecology to adopt cleanup standards for groundwater, soil, surface water, and air at sites where hazardous substances are present, and establishes processes for identifying, investigating, and cleaning up these sites.

Other potentially applicable regulatory requirements for cleanup actions include:

- The federal Clean Water Act (33 United States Code [USC] Section 1251)
- The Washington Water Pollution Control Act (Chapter 90.48 RCW Chapter 173-201A WAC; Chapter 173-200 WAC)
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and All Appropriate Inquiries (AAI) (40 Code of Federal Regulations [CFR] Part 312)
- The Resource Conservation and Recovery Act (RCRA)
- Washington Hazardous Waste Management Act (Chapter 70.105 RCW; Chapter 173-303 WAC)
- Federal and state Clean Air Acts (42 USC 7401 et seq.; 40 CFR 50; RCW 70.94; WAC 173-400, 403)
- The State Environmental Policy Act (SEPA) (RCW 43.21C; WAC 197-11)

- The Occupational Safety and Health Act (OSHA) (Part 1910 of Title 29 of the Code of Federal Regulations [29 CFR 1910])
- General Occupational Health Standards (Chapter 296-62 WAC)
- Safety Standards for Construction Work (Chapter 296-155 WAC)
- Minimum Standards for Construction and Maintenance of Wells (Chapter 173-160 WAC)
- Underground Injection Control Program (Chapter 173-218 WAC)
- Permits from local municipalities, as required, for activities at the Site. Examples
 include Benton County and City of Richland permits for sewer discharges, and
 City of Richland grading permits, street-use permits, or shoreline permits; and air
 operating permits from the Benton Clean Air Agency

Many ARARs are commonly addressed through standard industry practices. For instance, construction of monitoring or remediation wells will be conducted by a Washington State licensed driller, and construction work is conducted under site-specific health and safety plans in compliance with applicable safety regulations. ARARs that are potentially relevant to the evaluation of remedial alternatives are identified for each alternative in Section 9.

7.2 Media and Areas for Remedial Action Evaluation

Figure 13 shows the documented extent of soil and groundwater with exceedances of proposed CULs. Residual soil exceedances of proposed CULs remain at the NCC building. The PCE plume in the Upper Silt Unit is limited to MW-08S in 2019. The PCE plume in the Upper Gravelly Sand Unit is the actionable area that will drive development of remedial alternatives in the FS. The cis-DCE plume in the Upper Gravelly Sand Unit is also integral to evaluating remedial alternatives in the FS.

7.3 Points of Compliance

Points of compliance for Site groundwater, soil, and indoor air are as follows:

- **Groundwater.** The points of compliance for groundwater are groundwater in the Upper Silt and Gravelly Sand Units throughout the Site.
- Soil. The points of compliance for soil, for groundwater protection, are all soil from the surface to the bottom of the Gravelly Sand Unit. The points of compliance for soil, for direct contact protection, are from the surface to fifteen feet below grade.
- **Indoor Air.** The points of compliance for indoor air are in any occupied structure potentially impacted by Site COCs.

7.4 Remedial Action Objectives

The remedial action objectives established for the FS are to:

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- Achieve soil cleanup standards
- Achieve groundwater cleanup standards
- Prevent exposure to soil and groundwater COCs through vapor intrusion

8 Remedial Technologies

Potentially applicable remediation technologies were previously identified and evaluated in the *Remediation Pilot Testing Technology Evaluation Memorandum* (Aspect, 2013b). This RI/FS includes evaluation of the previously identified technologies, and additional excavation and groundwater pumping technologies:

- Institutional Controls (IC)
- Excavation
- Air Sparging (AS)
- Soil Vapor Extraction (SVE)
- In situ Chemical Oxidation (ISCO)
- In situ Enhanced Anaerobic Bioremediation (EAB)
- *In situ* Chemical Reduction (ISCR)
- Groundwater Pump and Treat
- Dynamic Groundwater Recirculation (DGR)
- Monitored Natural Attenuation (MNA)

These remediation technologies are briefly described below and evaluated for the Site.

8.1 Institutional Controls

Institutional controls limit or prohibit activities that may interfere with the integrity of a remedial action and potentially result in exposure to hazardous substances. Institutional controls may include physical measures such as fences, and formal land use restrictions, such as deed restrictions, restrictive covenants, or maintenance requirements. MTCA describes criteria for inclusion of institutional controls in remedial actions in WAC 173-340-440(4) and (6). This section of MTCA indicates both that institutional controls cannot be the primary remedial technology, and that institutional controls must be put in place to reduce exposure where contamination remains in place above MTCA Method A or B cleanup levels.

For this Site, institutional controls would include restrictive environmental covenants limiting activities that could lead to potential human contact with hazardous substances. This technology can achieve RAOs by preventing activities that could result in exposure. Institutional controls do not contribute to achieving RAOs associated with reduction of contaminant mass. Institutional controls are retained as a component of the remedial alternatives.

8.2 Excavation

Excavation has previously been implemented at the Site. Removal of readily accessible COC-impacted soil in the vadose zone was completed on the west side of the NCC property between February and August 2000 (GeoEngineers, 2001). As shown on Figure 6, the area of excavation extended south onto the RSD property, north to the north property boundary, and west onto the former rail spur property.

Future excavation below the vadose zone would require dewatering to allow excavation into the Upper Silt and Gravelly Sand Units. The high permeability of the Gravelly Sand Unit would prohibit depressing the water table through either dewatering wells or sumps. Excavation dewatering is considered impracticable, and therefore excavation below the water table is also not retained.

The excavation of COC-impacted soil in the vadose zone beneath the NCC building is not retained. The source soil has been removed to the extent practicable, and additional excavation underneath the building would be difficult due to the inaccessibility of the soil.

8.3 Air Sparging

Air sparging (AS) entails the injection of air into the contaminated zone to remove contaminants in soil and groundwater and is typically paired with soil vapor extraction (SVE). Injected air travels horizontally and vertically through the soil column, creating a "stripping effect" that removes contaminants by volatilization. The contaminants are transported up to the vadose zone by the injected air, where they are removed by the applied vacuum from the SVE system. Extracted contaminants are collected for off-site disposal, treated on-site, or discharged to the ambient air when concentrations of contaminants are within permissible concentrations.

AS is effective for Site COCs, and is most effective in permeable, homogeneous soil. AS is typically applied to treat groundwater, but also can be used to treat impacted soil below the water table. The applicability of AS a potential remedial technology is largely dependent on soil types and hydrostratigraphy, which have been well characterized at the Site by numerous soil borings.

AS is not retained as a potential remedial technology at the Site for the following reasons:

- Remediating residual soil impacts by AS will be limited by low permeability of the saturated portion of the Upper Silt Unit
- The confined nature of the Upper Gravelly Sand Unit will prevent collection of air sparged into residual saturated soil sources in this unit, resulting in potential migration of sparged air away from the treatment area along the base of the Upper Silt Unit

8.4 Soil Vapor Extraction

SVE consists of the extraction and treatment of contaminated soil vapor from the vadose zone. A vacuum is applied to subsurface soil by the SVE system to remove soil vapor. Volatile constituents in unsaturated soil are removed in the vapor stream and are treated above ground as described in section 7.2.

SVE could be implemented at the Site by constructing shallow vertical wells, trenches, or horizontal wells beneath the building, and using a blower to depressurize and extract soil vapor from beneath the building. The SVE system would also include a moisture separator to collect soil vapor and a granular activated carbon (GAC) treatment system to treat the extracted contaminants. The infrastructure required for an SVE system can potentially be intrusive, but there is sufficient space for an equipment enclosure, and Site access for operations and maintenance visits is not an issue. SVE effectiveness could be limited in the lower permeability silty vadose zone soil and by the short-circuiting of ambient air through the non-paved permeable surface on the periphery of the building.

SVE is retained as a potential technology to remediate vadose zone soil beneath the NCC building. SVE can complement other soil and groundwater treatment technologies, including bioremediation technologies.

8.5 In Situ Chemical Oxidation

ISCO is a permanent remediation technology that involves injecting or mixing an oxidation agent with organic COCs in soil and groundwater, converting them to non-hazardous or less toxic compounds that are more stable, less mobile, and/or inert. Oxidants react with the organic COCs, causing the rapid and complete chemical destruction of many organic chemicals, and producing substances such as carbon dioxide and water. Oxidizing agents include permanganate, peroxide, persulfate, percarbonate, and ozone. These oxidants vary in strength and persistence and can potentially oxidize dissolved metals and sterilize native bacteria. Oxidants are often introduced to the subsurface through injection wells, direct-push injection points, sparge points, circulation wells, or infiltration galleries. ISCO technologies can be applied to both the vadose and saturated zones, though some reactants are not applicable in the vadose zone due to chemical or application constraints. ISCO oxidants can persist in the treatment area for a period of weeks to months, and multiple rounds of ISCO treatment are commonly required to fully treat impacted soil source areas.

ISCO is considered a viable treatment option for the Upper Silt Unit and the Upper Gravelly Sand Unit. However, the radius of influence in the Upper Silt Unit would be limited by the low permeability of this unit, and injected ISCO reagent would likely distribute non-uniformly into preferential pathways, requiring repeat applications. ISCO would also inhibit the documented natural reductive bioattenuation that is occurring at the Site by leaving residual competing electron acceptors in soil and groundwater.

ISCO treatment would be incomplete and would inhibit the natural bioattenuation in the near and long-term. Therefore, ISCO is not retained for further consideration.

8.6 In Situ Enhanced Anaerobic Bioremediation

EAB involves stimulating microorganisms in contaminated groundwater through injection of an electron donor to create reducing conditions and enhance the naturally occurring reductive dechlorination process. Electron donors serve as a source of food for bacteria and include substances such as simple sugars (molasses), lactate, vegetable oils, or engineered compounds specifically designed to promote enhanced biodegradation for extended time periods. Electron donors can be injected into existing wells, direct push

probes, or groundwater recirculation systems. Potentially, a large number of injection points could be required for large areas but can also be implemented as permeable reactive zones. Electron donors have variable properties where some donors have a limited radius of influence from the injection point while others dissolve readily in the saturated zone transporting hydrogen with groundwater, effectively increasing the treatment area.

In anaerobic conditions, microorganisms degrade PCE and TCE to ethene/ethane, limited amounts of carbon dioxide, and trace amounts of hydrogen gas. In these reactions, bacteria use the chlorinated COCs as electron acceptors, removing chlorine atoms that are replaced with hydrogen. Nitrate, ferric iron, manganese (IV), sulfate, carbon dioxide, oxidized metals, or other organic compounds also replace oxygen as an electron acceptor/energy source to fuel the reaction and growth of beneficial bacteria. The source of hydrogen is commonly associated with the fermentation of native organic material in the subsurface that serves as a food source, or electron donor.

During anaerobic biodegradation of chlorinated COCs, chloride ions are sequentially removed. The more highly chlorinated (more oxidized) compounds, such as PCE and TCE, are degraded more readily than the less chlorinated (less oxidized) compounds, such as DCE and vinyl chloride, which require more energy and a more highly anaerobic environment to support the bacterial strains capable of complete reductive dechlorination to ethene and ethane.

In some cases, regardless of introduction of biostimulation amendment, the bacteria required to support complete reductive dechlorination of DCE and vinyl chloride may not be present at sufficient quantities. Enhanced bioremediation remedies may also include bioaugmentation as a supplementary component of the technology application. Bioaugmentation would include injection of a consortium of beneficial bacteria that would increase the rate of biodegradation and result in complete reduction of vinyl chloride to ethene/ethane.

EAB is a proven technology for remediating the chlorinated COCs at the Site with a demonstrated reduction in PCE concentrations on the NCC property as a result of the ISB injections in 2014 and 2017. An increase and accumulation of cis-DCE has been observed on the RSD property; however, cis-DCE is attenuating as it moves outside of the biological reactive zone and the redox conditions recover to ambient conditions. EAB is retained for the development of remedial alternatives.

8.7 In Situ Chemical Reduction

ISCR is a permanent remedial technology that provides treatment of COCs primarily by chemical reduction, or abiotic processes. Indirect contaminant reduction via biotic processes can also play a role in ISCR technology. Reducing agents include zero valent iron (ZVI), ferrous iron, sodium dithionite, sulfide salts, and hydrogen sulfide. These reductants can cause the rapid establishment of highly reducing conditions in the aquifer (lowered oxidation-reduction potential [ORP]), resulting in treatment of metals and degradation or destruction of organic COCs. ISCR can be applied beneath the water table to either the source area or as a permeable reactive barrier to treat migrating groundwater. Application methods include permanent injection wells, direct push injection, trenching, soil mixing, and pneumatic fracturing. ZVI can have a long-term persistence in

groundwater, and its effectiveness decreases with the oxidation of the iron. ISCR is a viable treatment option for treating residual COCs in soil in both the Upper Silt and Upper Gravelly Sand Units.

ISCR is not retained for the development of remedial alternatives. ISCR is more expensive and no more effective than EAB in the source area. The application of ISCR as a treatment wall on the downgradient barrier of the NCC and RSD property would likely be ineffective due to its oxidation and deterioration in the aerobic groundwater and the treatment wall would not treat the highest concentrations of COCs upgradient on the NCC and RSD properties. Additionally, the implementation of a treatment wall in the Upper Gravelly Sand Unit would be present significant constructability challenges.

8.8 Groundwater Pump and Treat

Groundwater extraction through pumping with subsequent ex-situ treatment can be used to remove contaminant mass in groundwater and prevent downgradient migration of COC-impacted groundwater. For the NCC Site, pumping and treatment (using air stripping and/or granular activated carbon) would be capable of removing COCs in on-Property groundwater. However, pumping and treatment has the following shortfalls:

- It would not be effective for the removal of sorbed COCs.
- It would not be practical for application to off-Property areas.
- Continued desorption of COCs into groundwater would make pumping and treatment a long-term control remedy.
- Groundwater pumping could require securing water rights.
- Treated groundwater discharge would require a sanitary sewer discharge permit.

Given the above shortfalls, pumping and treatment is not retained as a technology for development of remedial alternatives.

8.9 Dynamic Groundwater Recirculation

Dynamic groundwater recirculation (DGR) is similar to conventional pump and treat, except the treated water is injected back into the contaminated area at strategic locations to direct contaminants toward extraction wells and increase groundwater flow through the plume. This process provides an efficient way to manage treated water, helps maintain water levels, and reduces restoration timeframes through enhanced hydraulic flushing. The DGR system performance can further be improved by dynamically varying pumping rates and locations in response to groundwater concentrations in extraction wells to maximize contaminant mass removal rates, while maintaining hydraulic control of the plume. Contaminant mass recovery is maximized by focusing groundwater extraction from the areas of highest mass flux within treatment areas of the plume, while injecting clean water on the edge of the plume to enhance flushing.

Implementation of DGR can achieve endpoints that historically were considered impossible or not cost-effective to reach with the conventional approach to pump and

treat. Water is forced through all pathways in the subsurface, not just the primary and most permeable pathways.

DGR is not retained for the development of remedial alternatives. The high permeability of the Upper Gravelly Sand Unit would result in a large volume of water being extracted and recirculated, which would require significant infrastructure to pre-treat and reinject the groundwater. Additionally, DGR would be difficult to implement, with constant operation and maintenance needed to keep the system running. This technology has similar shortcomings to traditional pump and treat and would not be practical for this Site.

8.10 Monitored Natural Attenuation

Natural attenuation (NA) is a proven technology that has been effective in reducing contaminant concentrations in groundwater when appropriate conditions are present. This process relies on the attenuation of COCs in groundwater by natural processes including biodegradation, abiotic degradation, adsorption, and dilution.

A formal monitored NA (MNA) remediation alternative includes a source control component followed by long-term groundwater monitoring to document remediation progress and verify plume stability (WAC 173-340-370(7)(a)). In the case of organic COCs, a biodegradation component must also be demonstrated to verify the COCs are being fully biodegraded to nonhazardous end products.

Because it does not include significant mechanical infrastructure, MNA can be readily implemented with minimal institutional issues such as permitting or arranging for access permissions, and generally has low maintenance requirements. At sites with slow degradation rates and relatively limited extent of contamination, MNA costs may be disproportionate relative to active remedies due to the expense of extended monitoring programs or may not meet requirements for remediation within a reasonable time frame.

NA processes occur in both the vadose zone and saturated zone. The degradation rates vary between these zones due to the differences in available moisture and oxygen and the specific metabolic pathway for biodegradation, and volatilization effects. Vadose zone biodegradation rates are often slower than in the saturated zone. In soils, monitoring of decreased soil concentrations is conducted through mechanical sample collection rather than groundwater monitoring.

MNA is typically implemented in association with source control or other remedial measures. Source area contaminant mass reduction can reduce the time required to achieve site remedial objectives. The relative remedial benefit and cost effectiveness of MNA and source control varies between sites and is typically evaluated as part of the DCA.

Based on the decreasing groundwater concentrations of COCs at the Site since 2014, NA processes including biodegradation are happening at a sufficient rate. Geochemical parameters collected also have provided supporting data that biodegradation of PCE and TCE are occurring. MNA is retained as a remedial technology for development of remedial alternatives.

8.11 Remedial Technology Screening

Technologies retained for development of remedial alternatives include:

- Institutional Controls (IC)
- Soil Vapor Extraction (SVE)
- In situ enhanced anaerobic bioremediation (EAB)
- Monitored Natural Attenuation (MNA)

9 Remedial Alternative Development

This section details three retained remedial technologies that build on previously performed interim actions on the NCC and RSD properties.

9.1 Completed Cleanup Actions

A significant amount of cleanup actions have been completed at the Site as detailed in Section 4.3. These actions have included excavation of between 75 to 100 cubic yards of impacted soil during UST removals in 1991 and 1992, excavation of approximately 5,100 tons of accessible PCE-impacted vadose soil in 2000, excavation of 59 tons of soil containing PCE and degradation products during sewer line repair, and the ISB pilot testing that began.

Continued performance monitoring of the biostimulation pilot testing was conducted in 2016 to further evaluate the fate and transport of PCE degradation products in groundwater. An additional *in situ* bioremediation injection event occurred in 2017, with performance monitoring through 2019 to identify potential trends in NA.

These activities have resulted in a significantly decreased extent of COC exceedances in groundwater. Close to the former source area at the NCC Building, recent groundwater results suggest the biodegradation rate of PCE outweighs the mass transfer rate of residual-impacted soil to groundwater. The completed cleanup actions are a significant component to the remedial alternative development.

9.2 Enhanced Anaerobic Bioremediation Applicability

The ISB pilot testing demonstrated the applicability of the EAB technology at the Site. The technology is capable of degrading PCE through all degradation products, to nontoxic end products. A key observation from ISB pilot testing is the rate of redox recovery which led to the accumulation of cis-DCE. Anaerobic redox conditions were temporarily created by the ISB injections and were sustained long enough to reduce PCE through TCE to cis-DCE, but the engineered redox conditions then recovered to ambient, more aerobic conditions leading to the temporary accumulation of cis-DCE. This can be mitigated through remediation engineering design of an injection program that consists of a series of injections approximately 2 years apart that will maintain the highly anaerobic conditions necessary for complete reductive dechlorination.

The Upper Sandy Gravelly Unit is highly transmissive and readily accommodates injection. Full-scale evaluation and implementation of this technology will significantly increase the scale of injection volume, with higher volumes and lower dosing to overwhelm the subsurface heterogeneities. This will establish a significantly larger reactive zone.

9.3 Natural Attenuation of Groundwater

Because of the significant cleanup actions already completed, continued Site groundwater monitoring suggests that no source to groundwater remains. The ISB pilot testing has

enhanced the natural attenuation of dissolved phase CVOCs in groundwater. This section evaluates the observed attenuation of COCs in groundwater and uses it as a basis of remedial alternative development and evaluation. The site-wide groundwater data was analyzed in two different ways to evaluate MNA trends.

9.3.1 Mann Kendall Trend Test

The Mann Kendall Trend Test is used to analyze data collected over time for consistently increasing or decreasing trends. Mann Kendall analysis was done on all available PCE and cis-DCE results at the 21 wells used for site-wide groundwater monitoring to assess the trends. A summary table of the results is included in Appendix G. For both shallow and intermediate wells on the NCC property in the active treatment zone, PCE concentrations were decreasing, stable, or had no trend. Downgradient wells on the RSD property, former Albertson's property, and south of Lee Boulevard all have decreasing trends, no trend, or stable trends in PCE concentrations, with one exception. The PCE concentration trend at MW-15I since 2010 is "probably increasing" according to the Mann Kendall analysis, but if only data since 2012 is taken into consideration, the trend is decreasing.

For Mann Kendall analysis of wells on the NCC property, the cis-DCE concentrations were decreasing or had no trend in the Upper Silt Unit wells, and stable, increasing, or decreasing at wells in the Upper Gravelly Sand Unit. At wells on the RSD property directly downgradient of NCC, cis-DCE concentrations were increasing at MW-10I and MW-16I. The remaining off-property wells were decreasing, stable, or showed no trend, with one exception. The cis-DCE concentration trend at MW-15I is "probably decreasing."

Based on the results of the Mann Kendall analysis, the PCE plume both on the NCC property and downgradient is stable and/or decreasing. The cis-DCE plume is also stable/decreasing, with the exception of MW-10I, MW-16I, and MW-32I, where cis-DCE production has increased as a result of pilot testing. The degradation of PCE has formed cis-DCE as a degradation product, and it is accumulating at higher concentrations and exhibiting an increasing trend at the treatment area and directly downgradient.

9.3.2 Site-Specific Degradation Rate Estimates

Site-specific PCE degradation rates were estimated from historical data outside of the active treatment area to calculate the restoration timeframe for natural attenuation. Wells with a decreasing trend from the Mann-Kendall analysis were included in these calculations. The natural log of PCE concentrations at MW-7I, MW-13I, MW-14I, MW-17I, MW-19I, MW-21I/2, MW-23I, MW-33I, and MW-03-LL were plotted over time and fitted using a log-linear regression, where the slope was the degradation rate. The plots and a summary of the degradation rates are included in Appendix H. Assuming first-order decay, the average PCE degradation rate in the Upper Gravelly Sand Unit is -0.0004 day

This degradation rate can then be used to estimate the restoration timeframe for natural attenuation at the site, by using first-order reaction kinetics. Currently, MW-15I has the highest PCE concentration that occurs outside the footprint of the pilot testing area.

Based on the current concentration of 33 ug/L at MW-15I, the CUL of 5 ug/L would be achieved in 13 years.

9.4 Remedial Alternative Development

This section develops the four remedial alternatives, including remedy components and how each component would be implemented. These alternatives are developed to achieve remedial action objectives and meet the cleanup standards. Many of the details of the alternatives presented in this section are preliminary design criteria developed using existing information. The preliminary design criteria are used to estimate remedial costs and to develop and compare remedial alternatives.

9.4.1 Alternative 1 – MNA

- MNA of groundwater at the 21 locations monitored during the Continued RI Data Gaps Work Plan (Aspect, 2019) activities (Figure 14). The estimated restoration time frame is 20 years.
- An environmental covenant (institutional controls) would likely be necessary for the NCC property to protect future users against direct exposure to residual soil exceedances, or exposure to soil vapor via indoor air pathway. Additional covenants may be necessary to protect off-property users against exposure to contaminated groundwater.

9.4.2 Alternative 2 – EAB and MNA

• The full-scale implementation of EAB at the former source area at the NCC building. The EAB technology has been demonstrated to be effective at the Site through pilot testing. Full-scale implementation would expand the injection network to target the full extent of groundwater exceedances and maintain biogeochemical conditions sufficiently long enough to achieve complete reductive dechlorination of PCE to nontoxic, end products ethene and ethane.

To achieve this objective, the existing injection well network would be supplemented with installation of 10 new injection wells in the upper gravelly sand unit, and two new injection wells in the Upper Silt Unit in vicinity of MW-8S (Figure 15). A total of three discrete injection events, occurring every 2 years, would maintain aquifer biogeochemical conditions necessary for EAB for an estimated total operating period of 6 years.

- MNA of groundwater as described in Alternative 1. With the EAB implementation, the restoration timeframe is estimated as 15 years.
- Institutional controls as described in Alternative 1.

9.4.3 Alternative 3 - SVE, EAB, and MNA

The residual PCE and TPH soil exceedances adjacent to and underneath the NCC building would be treated using SVE. The implementation of SVE would consist of nine SVE wells operating for an estimated period of 10 years (Figure 16). It is assumed that the NCC building would remain in place during this operating period.

After 10 years of operation, soil confirmation samples would be collected to demonstrate SVE effectiveness and compliance with soil cleanup standards. Assuming soil compliance is demonstrated, it is assumed that the institutional controls described in Alternatives 1 and 2 for the NCC property would not be necessary.

- EAB as described in Alternative 2.
- MNA of groundwater as described in Alternative 2. Adding SVE is not anticipated to reduce the restoration time frame, which is controlled by MNA of the groundwater plume.

9.4.4 Alternative 4 – SVE, Expanded EAB, and MNA

- SVE as described in Alternative 3.
- EAB at the NCC property as described in Alternatives 2 and 3.
- An Expanded EAB that would establish a downgradient EAB transect located in City of Richland right-of-way or Richland School District property. The transect would require installation of 14 new injection wells and five new performance monitoring wells (Figure 17). A total of three discrete injection events occurring every 2 years would establish and maintain biogeochemical conditions necessary for EAB, for an estimated total operating period of 6 years.
- MNA of groundwater as described in Alternative 3. Adding the Expanded EAB is intended to reduce the restoration time frame to 10 years.

The alternatives are summarized in Table 8. A detailed cost estimate for each remedial alternative is presented in Appendix I and summarized in Table 9.

10 Remedial Alternative Evaluation

10.1 Requirements for Cleanup Actions

WAC 173-340-360 establishes the minimum requirements for evaluating remedial alternatives under MTCA. The minimum requirements include threshold requirements, as well as a disproportionate cost analysis to determine the appropriate remedial action.

10.1.1 Threshold Requirements

Cleanup actions selected under MTCA must meet four threshold requirements identified in WAC 173-340-360(2)(a) to be accepted by Ecology. All cleanup actions must:

- Protect human health and the environment
- Comply with cleanup standards
- Comply with applicable state and federal laws
- Provide for compliance monitoring

When selecting from remedial alternatives that meet the threshold requirements, the following three criteria, identified in WAC 173-340-360(2)(b), must be evaluated:

- Use permanent solutions to the maximum extent practicable. Cleanup actions that achieve cleanup standards without requiring further action are preferred. A disproportionate cost analysis (DCA) is conducted to assess the extent to which the remedial alternatives address this criterion. The procedures and standards for conducting a DCA are described below.
- **Provide a reasonable restoration time frame.** Cleanup actions that can be implemented in a shorter period of time are preferred. WAC 173-340-360(4) sets forth the requirements and procedures for determining whether a cleanup alternative provides for a reasonable restoration time frame.
- Consider public concerns. Cleanup actions that consider public concerns are
 preferred. The extent to which a cleanup alternative considers public concerns is
 evaluated in the DCA.

10.1.2 Disproportionate Cost Analysis Requirements

The purpose of a DCA is to compare the costs and benefits of the remedial alternatives developed in the FS. According to MTCA, "Costs are disproportionate to benefits if the incremental costs of the alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative over that of the lower cost alternative" (WAC 173-340-360(3)(e)). The following seven criteria (described in WAC 173-340-360(3)(f)) must be used to evaluate and compare each cleanup alternative when conducting a DCA:

• **Protectiveness:** The overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, time required to reduce the risks and attain cleanup standards, on-site and off-site risks during implementation, and improvement in overall environmental quality.

- **Permanence:** The degree to which the alternative reduces the toxicity, mobility, or volume of hazardous substances, including the adequacy of destroying hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of treatment, and the characteristics and quantity of the treatment residuals.
- **Cost:** The cost to design, construct, and implement the alternative, plus the cost of long-term operation and maintenance (O&M) required for the alternative.
- Long-term effectiveness: The degree of certainty that the alternative will successfully and reliably address contamination that exceeds applicable cleanup levels until cleanup levels are attained, the magnitude of the residual risk with the alternative in place, and the effectiveness of controls to manage treatment residue and remaining wastes.
- **Short-term risk management:** The risks to human health and the environment during construction and implementation of the alternative, and the effectiveness of measures that will be taken to manage such risks.
- Implementability: This includes consideration of whether the alternative is technically possible; the availability of necessary off-site facilities, services, and materials; administrative and regulatory requirements; scheduling, size, and complexity of the alternative; monitoring requirements; access for construction, operations, and monitoring; and integration with existing facility operations and other current or potential remedial actions.
- Consideration of public concerns: The concerns of individuals, community groups, local governments, tribes, federal and state agencies, and other interested organizations will be considered.

10.2 Evaluation of Threshold Requirements

The elements of the remedial alternatives and the evaluation of the alternatives relative to the MTCA minimum requirements are summarized in Sections 10.2.1 through 10.2.4.

10.2.1 Protection of Human Health and the Environment

There are no current completed exposure pathways at the Site. Alternatives 1 and 2 ensure protection of human health and the environment through reliance on institutional controls. Alternatives 3 and 4 provide greater protectiveness than institutional controls through active remediation of soil to achieve CULs.

10.2.2 Compliance with Cleanup Standards

Alternative 1 will rely on natural attenuation to achieve groundwater cleanup standards. Alternatives 2 through 4 will rely on EAB and natural attenuation to achieve groundwater cleanup standards.

For Alternatives 1 and 2, soil cleanup standards will be met through natural attenuation, which could take an extended period of time. For Alternatives 3 and 4, soil cleanup standards are achieved through SVE.

Soil removal has been completed to the extent practicable. Soil exceedances adjacent to the stormwater pond were infeasible to remove. And, the bottom of the soil excavation was either close to the extent practicable or completed to a depth of 10 feet bgs based on the top of the groundwater table.

Additionally, outside of the NCC building footprint where the highest soil exceedances occurred, soil compliance monitoring would be necessary to verify attenuation of exceedances shown on Figure 8, and to demonstrate soil cleanup standards have been met.

10.2.3 Compliance with Applicable State and Federal Laws

The ARARs for identified for the cleanup action are presented in Section 7.1. Alternatives 1 through 4 would comply with ARARs. Compliance with the chemical-specific ARARs will be achieved through Ecology approval of this RI/FS and the cleanup action plan. Compliance with the location and action-specific ARARs will occur through standard industry practices, design, permitting, or construction management.

10.2.4 Compliance Monitoring

Under MTCA, compliance monitoring encompasses the following types of monitoring:

- Protection monitoring confirms that human health and the environment are adequately protected during construction and the O&M period of a cleanup action.
- **Performance monitoring** confirms that the cleanup action has attained cleanup levels and/or other performance standards, such as construction quality control measurements or monitoring necessary to demonstrate compliance with a permit.
- Confirmation monitoring confirms the long-term effectiveness of the cleanup action once cleanup levels and/or other performance standards have been attained.

In addition, outside of the NCC building footprint where the highest soil exceedances occurred, soil compliance monitoring would be necessary to verify attenuation of exceedances shown on Figure 8, and to demonstrate soil cleanup standards have been met.

Each alternative allows for compliance monitoring. For groundwater, all alternatives would incorporate MNA monitoring as performance monitoring.

10.2.5 Conclusion Regarding Threshold Requirements

Based on the above evaluation, Alternatives 1 through 4 are all expected to comply with the MTCA threshold criteria. Therefore, all four alternatives are carried forward to the DCA.

10.3 Disproportionate Cost Analysis (DCA)

A DCA quantifies the environmental benefits of each cleanup alternative, and then compares the cost of the alternative to its environmental benefits. Environmental benefits are quantified by first rating each cleanup alternative with respect to each of the six DCA criteria discussed in Section 10.1.2. Rating values are assigned on a scale of 1 to 10,

where 1 indicates the criterion is satisfied to a very low degree, and 10 indicates the criterion is satisfied to a very high degree. Because Ecology does not consider all criteria to be of equal importance, each criterion is assigned a weighting factor. Based on Ecology input for feasibility studies conducted at other sites, weighting factors are assigned as follows:

• Overall protectiveness: 30 percent

• Permanence: 20 percent

• Long-term effectiveness: 20 percent

• Short-term risk: 10 percent

• Implementability: 10 percent

• Consideration of public concerns: 10 percent

An environmental benefits ranking is calculated for each cleanup alternative by multiplying the six rating values by their corresponding weighting factors and summing the weighted values. The environmental benefits ranking of each alternative is then divided by the alternative's estimated cost (in \$10 million) to obtain a benefit/cost ratio, which is a relative measure of the cost-effectiveness of the alternative.

The following sections evaluate the five remedial alternatives against the DCA criteria. Table 10 contains the benefits rankings, estimated costs, and benefit/cost ratio for each cleanup alternative. A summary of the DCA is shown on Figure 18. Detailed cost estimates are included in Appendix I.

10.3.1 Overall Protectiveness

Alternative 1 provides a low degree of protectiveness because of its reliance on institutional controls, and the long timeframe required to achieve groundwater CULs.

Alternative 2 provides a greater degree of protectiveness than Alternative 1 because it reduces the groundwater restoration timeframe with EAB, thereby reducing the period that institutional controls and MNA are relied upon to ensure protectiveness.

Alternative 3 is slightly more protective with the addition of SVE, but there are reduced protections associated with the construction and operation of the SVE system.

Alternative 4 provides no greater degree of protectiveness than Alternative 3.

10.3.2 Permanence

Significant cleanup actions have completed at the Site, including complete source removal, to the extent practicable.

MNA mechanisms require time to achieve cleanup levels; however, the attenuation mechanisms are permanent. The reductive dechlorination process does result in the generation of degradation products.

The reliance of institutional controls in Alternatives 1 and 2 does not provide a high degree of permanence.

SVE in Alternatives 3 and 4 provides more permanent treatment through removal of vapor phase COCs to achieve soil cleanup standards.

10.3.3 Long-Term Effectiveness

Overall compliance is expected to be driven in the long-term by groundwater compliance.

Alternative 1 has a low degree of long-term effectiveness because of the reliance on MNA to achieve groundwater CULs requiring a long restoration timeframe.

Alternatives 2 and 3 have a higher degree of protectiveness because they enhance MNA through EAB, which will reduce the restoration timeframe.

Alternative 4 is ranked highest for long-term effectiveness because it could further enhance MNA off-Property and reduce the overall restoration timeframe.

10.3.4 Short-Term Risk

Alternative 1 has the least short-term risk, because this alternative requires no construction or implementation beyond groundwater sampling.

Alternative 2 has slightly more short-term risk, but it is still low with EAB conducted on the NCC property and being relatively non-invasive.

Both Alternatives 3 and 4 have higher short-term risk, with the disruption of the NCC business required for implementation of SVE.

10.3.5 Implementability

Alternative 1 is the most implementable alternative, but it still requires obtaining signed access agreements to conduct sampling on surrounding properties.

EAB has been implemented at the Site since 2014 and Alternative 2 employs the same technology through a larger well network and is readily implementable.

The implementation of SVE for Alternatives 3 and 4 would provide some challenges due to the active dry cleaner operations, required vapor conveyance piping, and discharge permitting and operations.

Alternative 4 implementability is lower due to the off-Property installation of a well network and the difficulty of conducting repeated injections adjacent to a busy street.

10.3.6 Consideration of Public Concerns

Potential public concerns for each alternative will be addressed in the Public Comment period. All Alternatives are given a ranking of 10 for this category.

10.3.7 Conclusion Regarding Disproportionate Cost Analysis

Based on the results of the DCA, Alternative 1 has the highest environmental benefits ranking, and the highest benefit/cost ratio ranking.

10.3.8 Evaluation of Restoration Time Frame

WAC 173-340-360 (4) sets forth the requirements and procedures for determining whether a cleanup alternative provides for a reasonable restoration timeframe. This section estimates restoration timeframe for each of the remedial alternatives and

evaluates these restoration timeframe estimates relative to the MTCA requirements and procedures.

Overall compliance at the Site is expected to be driven in the long-term by groundwater compliance. For MNA in Alternative 1, the current data set demonstrates that cis-DCE is attenuating downgradient of MW-16I. However, the rate of attenuation of concentrations remaining in wells upgradient is currently unclear. For purposes of costing, 20 years is assumed as the operations and maintenance period for this alternative, but the reliance on MNA alone may not result in a reasonable restoration timeframe.

The restoration timeframe for groundwater in Alternatives 2 and 3 would address the cis-DCE groundwater plume on RSD property and overall restoration timeframe would be based on MNA outside of this cis-DCE plume. The site-specific degradation rate (0.0004 day⁻¹) was calculated as described in Section 9.3.2, and the data is shown in Appendix H. Currently, MW-15I has the highest PCE concentration that occurs outside the footprint of EAB and would rely on MNA. With the current concentration of 33 ug/L at MW-15I, the CUL would be achieved in 13 years.

For Alternatives 3 and 4, the estimated O&M period for SVE is assumed to be 10 years. The Site-specific performance of SVE is not understood and pilot testing would be necessary to determine the site-specific parameters of radius of influence, pore-volume exchange rates, and mass removal efficiencies necessary to estimate soil restoration timeframe, which is assumed to be less than the groundwater restoration time frame.

11 Preferred Remedial Alternative

While the DCA suggest that Remedial Alternative 1 provides the greatest environmental benefit to cost ratio, it is unclear if MNA alone would achieve a reasonable restoration timeframe. The demonstration of natural attenuation processes at the Site support MNA of groundwater is occurring at the Site; therefore, MNA monitoring is also a component of Alternatives 2, 3, and 4.

Alternative 2 is more protective and more effective over the long-term than Alternative 1 by enhancing MNA through EAB at the NCC building and RSD property. However, soil CULs may not be achieved in the vicinity of and underneath the NCC building, unlike Alternative 3 that would achieve soil CULs using SVE. The performance of SVE at the Site is not well understood, nor is it known if the full-scale SVE operation assumed in Alternative 3 is necessary to achieve soil CULs.

Therefore, the preferred remedial Alternative for the Site is Alternative 2 plus the implementation of an SVE pilot test (Figure 19). The results of the proposed SVE pilot test would be used to determine if full-scale SVE operation is warranted, as outlined in Alternative 3. This determination would be approved by Ecology before selection of a final cleanup action for the Site.

12 References

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Limitations

Work for this project was performed for the HLH, Inc. c/o Beveridge & Diamond P.C., and Landye Bennett Blumstein, LLP (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

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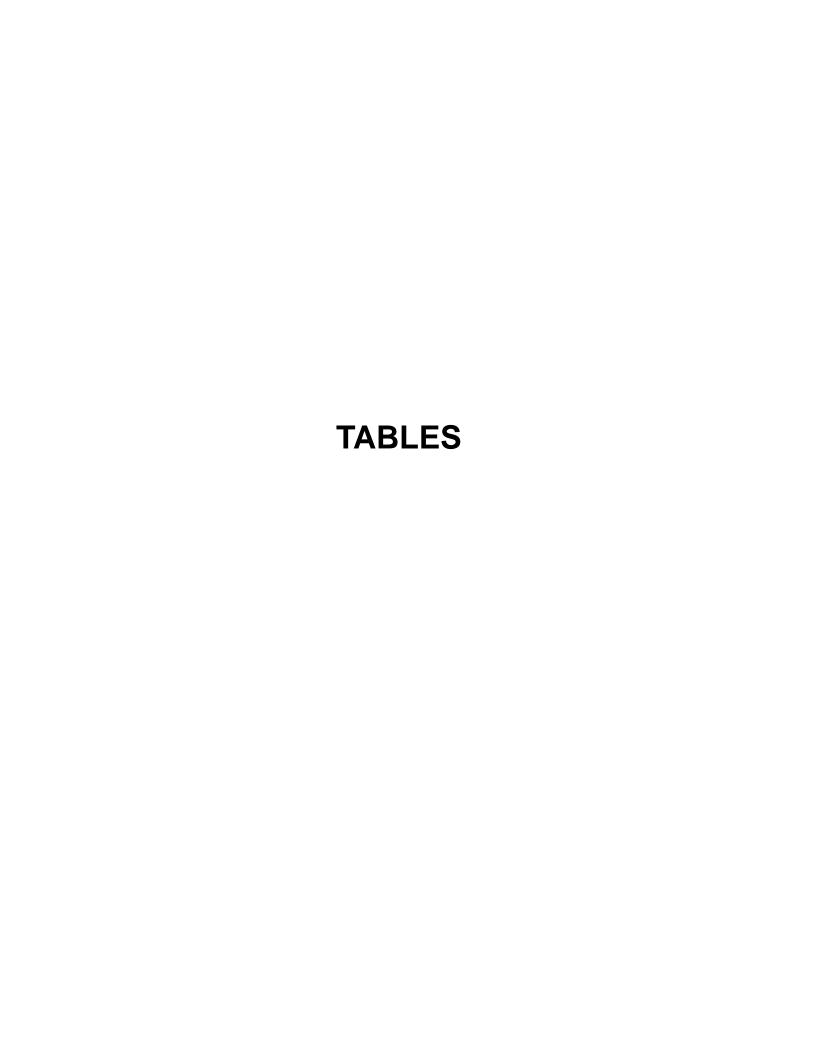


Table 1. Monitoring Well Completion Summary Project No. 090018, New City Cleaners, Richland, Washington

Name	Shallow Into	erval Monito	rina Wells -	Upper Silt Unit			
MW-SS 19482040 3460446 359.16 19.0 5.0 Monitoring Well MW-SS 19483229 3460506 359.02 20.9 5.0 Monitoring Well MW-SS 19483528 3460508 359.02 20.9 5.0 Monitoring Well MW-SS 19483528 3460508 359.06 16.0 5.0 Monitoring Well MW-SS 19482658 346136.1 359.54 20.2 5.0 Monitoring Well MW-D 19483068 346002.1 357.38 15.5 5.0 Monitoring Well MW-SS 1948268 346902.1 359.38 19.0 5.0 Monitoring Well MW-SS 1948268 346902.1 359.38 19.0 5.0 Monitoring Well MW-SS 19482832 346018.7 359.07 30.0 5.0 Monitoring Well MW-SS 1948332.1 346018.7 359.07 30.0 5.0 Monitoring Well MW-101 19483479 346050.2 359.51 27.1 5.0 Monitoring Well MW-11 1948014.7 346050.2 359.51 27.1 5.0 Monitoring Well MW-11 1948014.7 346059.0 357.66 24.7 5.0 Monitoring Well MW-12 1948466, 3 346023.3 359.78 19.8 5.0 Monitoring Well MW-13 1948466, 3 346023.3 359.78 19.8 5.0 Monitoring Well MW-14 1948279.2 345961.3 359.96 19.4 5.0 Monitoring Well MW-14 1948279.2 345961.3 359.96 19.4 5.0 Monitoring Well MW-15 1948260, 3 34598.1 360.23 20.0 5.0 Monitoring Well MW-16 1948267, 3 34598.1 360.23 20.0 5.0 Monitoring Well MW-16 1948263, 3 34598.1 360.23 20.0 5.0 Monitoring Well MW-16 1948263, 3 34598.1 360.23 20.0 5.0 Monitoring Well MW-18 1948563, 3 34598.1 360.23 20.0 5.0 Monitoring Well MW-18 1948563, 3 34598.1 360.23 20.0 5.0 Monitoring Well MW-18 1948263, 3 34608						Screen Length	Well Type
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IW-5 1948196.7 346042.9 359.26 20.0 10.0 Injection Well IW-6 1948217.7 346055.3 359.18 20.0 10.0 Injection Well IW-7 1948198.0 346036.8 359.17 20.0 10.0 Injection Well IW-8 1948196.2 346026.3 359.13 20.0 10.0 Injection Well IW-9 1948218.2 346035.9 359.23 20.0 10.0 Injection Well IW-10 1948225.1 346024.0 359.25 20.0 10.0 Injection Well							•
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IW-8 1948196.2 346026.3 359.13 20.0 10.0 Injection Well IW-9 1948218.2 346035.9 359.23 20.0 10.0 Injection Well IW-10 1948225.1 346024.0 359.25 20.0 10.0 Injection Well							
IW-9 1948218.2 346035.9 359.23 20.0 10.0 Injection Well IW-10 1948225.1 346024.0 359.25 20.0 10.0 Injection Well							
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		.0.0220.1	J.0321.0	555. <u>E</u> 6	_5.0	. 5.5	,000.011 11011

Notes:
TOC = top of casing.
Total Depth and Screen Length in feet.

		Location Date	MW-03-LL 05/29/2014	MW-03-LL 08/26/2014	MW-03-LL 11/25/2014	MW-03-LL 02/19/2015	MW-03-LL 07/13/2016	MW-03-LL 11/14/2016	MW-03-LL 03/20/2018	MW-03-LL 09/18/2018	MW-03-LL 03/19/2019	MW-04-LL 05/29/2014	MW-04-LL 08/26/2014	MW-04-LL 11/25/2014	MW-04-LL 02/19/2015	MW-05-LL 05/29/2014
		Sample								MW-03-LL-091818		MW-04-LL-03	MW-04-LL-04	MW-04-LL-05	MW-04-LL-06	MW-05-LL-03
		Proposed														
		Cleanup														l
Analyte	Unit	Levels														l I
VOCs																
Tetrachloroethene (PCE)	ug/L	5	10.8	11.2	11.5	8.9	5.5	6.5	3.4	6.5	4.8	2.1	6.29	<1U	< 1 U	6.91
Trichloroethene (TCE)	ug/L	2.5	< 1 U	< 1 U	< 1 U	< 1 U	0.6	0.91	< 0.20 U	0.51	0.47	< 1 U	<1U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene (DCE)	ug/L	16					< 0.2 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	-				
trans-1,2-Dichloroethene	ug/L						< 0.2 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U					
Vinyl Chloride	ug/L	0.15		5.4			< 0.02 U	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U				-	
Dissolved Gasses																
Ethane	mg/L															
Ethene	mg/L															
Methane	mg/L															
General Chemistry																
Chloride	mg/L															
Total Organic Carbon	mg/L															
Dissolved Organic Carbon	mg/L															
Iron	mg/L															
Nitrate as Nitrogen	mg/L															
Nitrite as Nitrogen	mg/L															
Sulfate	mg/L															
Field Parameters		ı	1	T									<u> </u>			
Temperature	deg C						18.5	19.2	17	18.7	17.1					
Specific Conductance	uS/cm						820	612	760	775	853					
Dissolved Oxygen	mg/L						1.67	0.26	1.54	0.52	0.9					
рН	pH units						7.52	7.71	7.63	7.34	7.3					
Oxidation Reduction Potential	mV						60.9	135.7	107.7	62.8	96.9					
Turbidity	NTU						1.04	1.07	0.39	0.93	0.2					

Bold - detected above reporting limit
Blue - exceeded proposed cleanup level
U - not detected at or above reporting limit shown J - estimated

		Location Date Sample	MW-05-LL 08/26/2014 MW-05-LL-04	MW-05-LL 11/25/2014 MW-05-LL-05	MW-05-LL 02/19/2015 MW-05-LL-06	MW-05-LL 07/13/2016 MW 5-071316	MW-05-LL 11/14/2016 MW-5-111416	MW-05-LL 03/20/2018 MW-05-LL-032018	MW-05-LL 09/18/2018 MW-05-LL-091818	MW-05-LL 03/19/2019 MW-05LL-031919	MW-05S 03/12/2014 MW-5S-031214	MW-05S 06/16/2014 MW-5S-061614	MW-05S 09/10/2014 MW-5S-091014	MW-05S 12/16/2014 MW-5S-121614	MW-05S 07/12/2016 MW5S-071216	MW-05S 07/12/2016 MW-5S-071116
		Proposed Cleanup														
Analyte	Unit	Levels														
VOCs											·					
Tetrachloroethene (PCE)	ug/L	5	4.25	6.29	5.4	4.8	5.2	4.6	8.2	5.3	27	4.9	0.68	0.13		< 0.5 U
Trichloroethene (TCE)	ug/L	2.5	< 1 U	1.05	< 1 U	0.76	0.87	0.58	0.7	0.63	5.3	2.3	0.53	0.46		2.8
cis-1,2-Dichloroethene (DCE)	ug/L	16				< 0.2 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	0.1	22	24	29		19
trans-1,2-Dichloroethene	ug/L					< 0.2 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U		< 0.2 U
Vinyl Chloride	ug/L	0.15				< 0.02 U	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U	0.078	0.15		0.054
Dissolved Gasses																
Ethane	mg/L										< 0.005 U	< 0.0050 U	< 0.005 U	< 0.005 U		< 0.005 U
Ethene	mg/L										< 0.005 U	< 0.0050 U	< 0.005 U	< 0.005 U		< 0.005 U
Methane	mg/L										< 0.005 U	0.024	0.92	3.3		0.79
General Chemistry																
Chloride	mg/L											19	11	9		22 J
Total Organic Carbon	mg/L															
Dissolved Organic Carbon	mg/L										2					
Iron	mg/L											2.3	1.4	2.6		1.1
Nitrate as Nitrogen	mg/L											< 0.10 UJ	< 0.9 U	< 0.9 U		< 0.2 U
Nitrite as Nitrogen	mg/L							-				< 0.10 UJ	3.2	8.1		< 0.4 U
Sulfate	mg/L											< 1.0 U	1.3	3.6		21 J
Field Parameters																
Temperature	deg C					18.9	19.4	16.5	19.1	16.4	13.6	15.2	17.7	16.6	17.3	
Specific Conductance	uS/cm					997	90	929	983	939	435.6	879	501.4	499.8	434.7	
Dissolved Oxygen	mg/L					0.11	0.36	0.21	0.14	1.5	2.35	0.16	0.08	0.18	0.06	
рН	pH units					7.65	7.73	7.78	7.45	7.6	7.5	6.56	7.06	7.1	7.44	
Oxidation Reduction Potential	mV					72.4	143.4	112.4	65.3	91	78	-34.9	-164.3	-127.8	-108.7	
Turbidity	NTU					3.47	8.4	5.1	5.27	4.5	0.45		1.45	3.44	2.35	

Notes

Bold - detected above reporting limit Blue - exceeded proposed cleanup level U - not detected at or above reporting limit shown J - estimated

		Location Date Sample	MW-05S 11/15/2016 MW-5S-111516	MW-05S 10/03/2017 MW-5S-100317	MW-05S 12/12/2017 MW5S-121217	MW-05S 03/19/2018 MW-5S-031918	MW-05S 06/19/2018 MW-05S-061918	MW-05S 09/19/2018 MW-5S-091918	MW-05S 03/20/2019 MW-5S-032019	MW-06I 03/11/2014 MW-6I-031114	MW-06I 06/16/2014 MW-6I-061614	MW-06I 09/10/2014 MW-6I-091014	MW-06I 12/16/2014 MW-6I-121614	MW-06I 07/13/2016 MW6I-071316	MW-06I 11/15/2016 MW-6I-111516	MW-06I 10/04/2017 MW-6I-100417
		Proposed							00 002010							
		Cleanup														ı
Analyte	Unit	Levels														1
VOCs																
Tetrachloroethene (PCE)	ug/L	5	< 0.50 U	1.1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.5 UJ	< 0.5 U	1.4	< 0.10 U	0.11	3.4	< 0.5 U	< 0.50 U	< 0.50 U
Trichloroethene (TCE)	ug/L	2.5	0.7	2.5	< 0.20 U	< 0.20 U	0.34	< 0.2 UJ	0.43	59	46	48	73	43	58	44
cis-1,2-Dichloroethene (DCE)	ug/L	16	15	19	7.9	3.1	3.2	1.1 J	2.1	74	63	67	71	79	110	99
trans-1,2-Dichloroethene	ug/L		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.2 UJ	< 0.2 U	9.6	10	10	13	14	20	18
Vinyl Chloride	ug/L	0.15	0.062	3.5	4.8	2.9	2.2	0.96 J	1.2	0.79	0.8	0.89	0.69	0.84	0.77	0.77
Dissolved Gasses																
Ethane	mg/L		< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.005 U	< 0.005 U		-				-	< 0.0050 U
Ethene	mg/L		< 0.0050 U	< 0.0050 U	0.0052	0.0058	< 0.0050 U	< 0.005 U	< 0.005 U		-			-	-	< 0.0050 U
Methane	mg/L		0.6	3.1	13	16	12	6.7	1.6							0.018
General Chemistry			1	ı												
Chloride	mg/L		9.8	28	38	36	39	14	24	29	29	29	29	28	26	28
Total Organic Carbon	mg/L							8.6								
Dissolved Organic Carbon	mg/L			44	17 J	14	15		1.6							2
Iron	mg/L		0.87	6.1	18	21	14	4.8	3.7	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.50 U
Nitrate as Nitrogen	mg/L		< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	0.23	< 0.2 U	< 0.9 UJ	< 0.10 UJ	< 0.9 U	< 0.9 U		< 0.20 U	< 0.20 U
Nitrite as Nitrogen	mg/L		< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.4 U	< 0.4 U	3.1 J	< 0.10 UJ	3.1	7.6		< 0.40 U	< 0.40 U
Sulfate	mg/L		15	< 1.2 U	< 1.2 U	< 1.2 U	4.2	7.3	9.8	30	30	29	28	26	26	25
Field Parameters			T	·						T						
Temperature	deg C		17.8	17.2	16.9	15.5	17.6	17.7	15.6	16	16.2	17.7	15.9	18	18.2	18
Specific Conductance	uS/cm		354.7	876	1566	1874	1291	548.3	527.8	659	586.9	627	606	604	610	509
Dissolved Oxygen	mg/L		0.29	0.53		0.68	0.32	0.09	0.2	0.15	0.25	0.08	0.15	0.17	0.26	0.15
pH	pH units		7.23	6.62	6.89	6.86	6.64	6.73	6.9	7.47	7.66	7.74	7.78	7.75	7.93	7.78
Oxidation Reduction Potential	mV		-19.4	-22	-115.9	-90.9	27.8	0.5	-99.6	116.7	78.9	-17.4	3.9	-15.5	-69.7	-14.8
Turbidity	NTU		1.84	28.1	14	43.3	5.5	3.79	2.8	< 2 UJ	< 2 UJ	0.91	0.46	0.69	1.2	2.19

Bold - detected above reporting limit
Blue - exceeded proposed cleanup level
U - not detected at or above reporting limit shown

J - estimated

		Location Date	MW-06I 12/12/2017	MW-06I 03/19/2018	MW-06I 06/19/2018	MW-06I 09/19/2018	MW-06I 03/20/2019	MW-06S 03/11/2014	MW-06S 03/11/2014	MW-06S 06/16/2014	MW-06S 09/10/2014	MW-06S 12/16/2014	MW-07I 07/12/2016	MW-07I 11/15/2016	MW-07I 12/11/2017	MW-07I 03/19/2018
		Sample	MW6I-121217	MW-6I-031918	MW-06I-061918	MW-06I-091918	MW-6I-032019	MW6S-031114	MW-6S-031114	MW-6S-061614	MW-6S-091014	MW-6S-121614	MW-7I-071116	MW-7I-111516	MW7I-121117	MW-7I-031918
Analyte	Unit	Proposed Cleanup Levels														
VOCs		<u>'</u>		L			L		L						L	l.
Tetrachloroethene (PCE)	ug/L	5	< 5.0 U	5.2	< 0.50 U	< 0.5 U	< 0.5 U	3.9	3.9	4.3	3.2	3.8	< 0.5 U	< 0.50 U	< 0.50 U	< 0.50 U
Trichloroethene (TCE)	ug/L	2.5	48	71	27	18 J	26	3.5	3.5	2.4	2.3	1.9	79	72	20	12
cis-1,2-Dichloroethene (DCE)	ug/L	16	55	48	100	91 J	110	0.57	0.57	0.29	0.25	0.26	30	33	12	9.2
trans-1,2-Dichloroethene	ug/L		9.8	8.8	20	18	21	0.39	0.39	0.15	0.15	0.12	1.8	1.9	0.44	0.26
Vinyl Chloride	ug/L	0.15	0.35	0.3	0.88	0.78	0.83	0.03	0.03	< 0.020 U	< 0.02 U	< 0.02 U	0.12	0.14	0.03	0.04
Dissolved Gasses																
Ethane	mg/L		< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.005 U	< 0.005 U									
Ethene	mg/L		< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.005 U	< 0.005 U									
Methane	mg/L		0.39	0.66	0.021	0.017	0.0071									
General Chemistry																
Chloride	mg/L		68	50	27	26	25		22	26	25	17	24 J	25		
Total Organic Carbon	mg/L		-			2.3										
Dissolved Organic Carbon	mg/L		1.6 J	2	2		1.5		3							
Iron	mg/L		< 0.50 U	< 0.50 U	< 0.50 U	< 0.5 U	< 0.5 U		< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.50 U		
Nitrate as Nitrogen	mg/L		< 0.20 UJ	0.35	< 0.20 U	0.2	< 0.2 U		1.6 J	1.3 J	< 0.9 U	< 0.9 U	< 0.2 U	< 0.20 U		
Nitrite as Nitrogen	mg/L		< 0.40 U	< 0.40 U	< 0.40 U	< 0.4 U	< 0.4 U		2.7 J	< 0.10 UJ	2.5	6.3	< 0.4 U	< 0.40 U		
Sulfate	mg/L		20	28	25	23	24		32	38	28	22	19 J	17		
Field Parameters		T T		T			T								T	T
Temperature	deg C		16.7	16.1	18.4	18.4	16.1		16.1	16.6	18.9	17.7	17.1	17.3	16.7	16
Specific Conductance	uS/cm		662	640	572	591	546.9		565.7	525.4	665	427.7	460.1	458.6	498.9	689
Dissolved Oxygen	mg/L			0.3	0.15	0.13	0.4		1	1.03	0.36	0.37	0.11	0.25		0.36
pH	pH units		7.77	7.6	7.35	7.59	7.5		7.52	7.61	7.58	7.77	7.75	8.06	7.67	7.46
Oxidation Reduction Potential	mV		-45.3	11.4	124.3	63	24.6		138.6	95.2	37.9	0.2	-80.2	-97.6	-135.4	11.9
Turbidity	NTU		0.95	1.03	3.65	1.6	0.7		< 2 UJ	< 2 UJ	0.54	3.5	1.24	1.28	0.73	14.4

Bold - detected above reporting limit
Blue - exceeded proposed cleanup level
U - not detected at or above reporting limit shown
J - estimated

		Location Date Sample	MW-07I 09/18/2018 MW-7I-091818	MW-07I 03/19/2019 MW-7I-031919	MW-08S 07/13/2016 MW 8S-071316	MW-08S 11/16/2016 MW-8S-111616	MW-08S 04/11/2018 MW8S-041118	MW-08S 09/18/2018 MW-8S-091818	MW-08S 03/19/2019 MW-8S-031919	MW-10I 03/12/2014 MW-10I-031214	MW-10I 06/17/2014 MW-10I-061714	MW-10I 09/10/2014 MW-10I-091014	MW-10I 12/16/2014 MW-10I-121614	MW-10I 07/13/2016 MW10I-071316	MW-10I 11/15/2016 MW-10I-111516	MW-10I 10/04/2017 MW-10I-100417
		Proposed Cleanup	WW-71-091010	14144-71-031919	WW 65-07 1516	WW-03-111616	WW05-041116	MIVV-03-091010	MAA-02-021212	101-031214	WIVV-101-061714	WW-101-091014	19199-101-121614	MVV 101-07 1316	WWW-101-111516	WWV-101-100417
Analyte	Unit	Levels														
VOCs																
Tetrachloroethene (PCE)	ug/L	5	0.87	< 0.5 U	61	71	37	36	24	200	280	320	250	90	120	80
Trichloroethene (TCE)	ug/L	2.5	53	36	4	3.8	1	1	0.68	320	420	230	200	98	120	100
cis-1,2-Dichloroethene (DCE)	ug/L	16	36	34	6.4	4.1	1.1	0.38	0.32	76	120	330	150	260	120	110
trans-1,2-Dichloroethene	ug/L		4.1	1.8	< 0.2 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	1.3	2.1	1.7	0.71	1.6	0.84	1.1
Vinyl Chloride	ug/L	0.15	0.037	0.075	< 0.02 U	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U	0.095	0.11	< 0.02 U	0.047	0.11	0.06	< 0.020 U
Dissolved Gasses																
Ethane	mg/L							-					-			< 0.0050 U
Ethene	mg/L		-										-			< 0.0050 U
Methane	mg/L															0.28
General Chemistry																
Chloride	mg/L							-		24	27	30	15	20	15	24
Total Organic Carbon	mg/L		-													
Dissolved Organic Carbon	mg/L															1.5
Iron	mg/L		-							< 0.5 U	< 0.50 U	0.61	0.63	< 0.5 U	< 0.50 U	< 0.50 U
Nitrate as Nitrogen	mg/L									< 0.9 UJ	< 0.10 UJ	< 0.9 U	< 0.9 U		< 0.20 U	< 0.20 U
Nitrite as Nitrogen	mg/L		-							3.1 J	< 0.10 UJ	< 0.6 U	7.3		< 0.40 U	< 0.40 U
Sulfate	mg/L									27	29	20	12	17	15	20
Field Parameters																
Temperature	deg C		17.6	16.2	19.3	19.3	15.2	19.9	15	15.4	16	17.8	15.4	18.2	17.8	16.5
Specific Conductance	uS/cm		492	463.5	607	735	887	798	771	539.3	614	804	508	547.6	483.1	428.4
Dissolved Oxygen	mg/L		0.11	0.3	1.63	1.23	3.89	1.42	5.2	0.09	0.26	0.27	0.16	0.12	0.23	0.48
рН	pH units		7.46	7.8	7.17	7	7.12	7.08	7.1	7.7	7.64	7.48	7.67	7.59	7.9	7.7
Oxidation Reduction Potential	mV	_	71.6	95.7	77.7	134.6	156.6	29	106.1	-72	-63.3	42.2	-78.8	-72.1	-106	-28.8
Turbidity	NTU		30.5	3.2		12.2	0.9	2.06	1.4	0.39	0.34	0.79	1.63	1.19	1.32	1.66

Notes

Bold - detected above reporting limit Blue - exceeded proposed cleanup level U - not detected at or above reporting limit shown J - estimated

		Location	MW-10I	MW-10I	MW-10I	MW-10I	MW-10I	MW-12I	MW-12I	MW-13I	MW-13I	MW-13I	MW-14I	MW-14I	MW-14I	MW-14I
		Date	12/12/2017	03/19/2018	06/19/2018	09/19/2018	03/20/2019	03/11/2014	12/16/2014	04/11/2018	09/18/2018	03/19/2019	03/11/2014	09/09/2014	07/12/2016	11/15/2016
		Sample	MW10I-121217	MW-10I-031918	MW-10I-061918	MW-10I-091918	MW-10I-032019	MW-12I-031114	MW-12I-121614	MW13I-041118	MW-13I-091818	MW-13I-031919	MW-14I-031114	MW-14I-090914	MW-14I-071116	MW-14I-111516
		Proposed														1
		Cleanup														1
Analyte	Unit	Levels														1
VOCs																
Tetrachloroethene (PCE)	ug/L	5	46	33	29	36	27	< 0.1 U	< 0.1 U	7.7	12	7.5	6.6	8.2	15	14
Trichloroethene (TCE)	ug/L	2.5	76	90	130	55 J	69	< 0.1 U	< 0.1 U	0.42	0.24	0.28	0.98	1	1.3	0.93
cis-1,2-Dichloroethene (DCE)	ug/L	16	78	56	130	170 J	240	< 0.1 U	< 0.1 U	< 0.20 U	< 0.2 U	< 0.2 U	< 0.1 U	< 0.1 U	1.9	0.23
trans-1,2-Dichloroethene	ug/L		0.77	0.96	2.2	1.4	2.5	< 0.1 U	< 0.1 U	< 0.20 U	< 0.2 U	< 0.2 U	< 0.1 U	< 0.1 U	< 0.2 U	< 0.20 U
Vinyl Chloride	ug/L	0.15	0.052	0.049	< 0.020 U	< 0.02 U	0.36	< 0.02 U	< 0.02 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U
Dissolved Gasses					-											
Ethane	mg/L		< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.005 U	< 0.005 U									
Ethene	mg/L		< 0.0050 U	< 0.0050 U	< 0.0050 U	0.0067	< 0.005 U									
Methane	mg/L		0.17	0.077	0.16	1.1	1.1									
General Chemistry				T							T			Ī		
Chloride	mg/L		40	20	20	25	26								110 J	67
Total Organic Carbon	mg/L					2										
Dissolved Organic Carbon	mg/L		1.5 J	2.1	1.6		2.3									
Iron	mg/L		< 0.50 U	< 0.50 U	< 0.50 U	< 0.5 U	< 0.5 U								< 0.5 U	< 0.50 U
Nitrate as Nitrogen	mg/L		< 0.20 UJ	0.41	< 0.20 U	< 0.2 U	< 0.2 U								5.5 J	3.7
Nitrite as Nitrogen	mg/L		< 0.40 U	< 0.40 U	< 0.40 U	< 0.4 U	< 0.4 U								< 0.4 U	< 0.40 U
Sulfate	mg/L		23	29	25	22	20								36 J	31
Field Parameters	1 0					4- 4	44.4									
Temperature	deg C		16.2	16.3	17.8	17.2	16.3		17.4	16.4	20.5	16		20.4	18.4	20.5
Specific Conductance	uS/cm		498.5	483.6	491.6	545.1	577.8		874	1351	1122	1112		894	964	848
Dissolved Oxygen	mg/L			0.3	0.15	0.13	0.2		0.17	3.98	2.51	4.9		2.1	3.81	1.77
PH Ovidation Daduction Datasetics	pH units		7.82	7.64	7.26	7.42	7.5		7.32	7.03	7.02	7.2		7.13	7.18	7.43
Oxidation Reduction Potential	mV		-104.9	-12	81.4	35.6	-60.1		-25.4	144.9	10.8	104.9		138.4	146.9	-43.7
Turbidity	NTU		1.46	2.31	3.68	2.4	2.1		0.43	75.4	0.94	0.6		0.22	1.46	1.3

Bold - detected above reporting limit
Blue - exceeded proposed cleanup level
U - not detected at or above reporting limit shown

		Location Date Sample	MW-14I 12/12/2017 MW-14I-121217	MW-14I 03/19/2018 MW-14I-031918	MW-14I 09/18/2018 MW-14I-091818	MW-14I 03/19/2019 MW-14I-031919	MW-15I 07/13/2016 MW 15I-071316	MW-15I 11/15/2016 MW-15I-111516	MW-15I 12/11/2017 MW15I-121117	MW-15I 03/19/2018 MW-15I-031918	MW-15I 09/18/2018 MW-15I-091818	MW-15I 03/19/2019 MW-15I-031919	MW-16I 03/11/2014 MW-16I-031114	MW-16I 06/17/2014 MW-16I-061714	MW-16I 09/10/2014 MW-16I-091014	MW-16I 12/17/2014 MW-16I-121714
		Proposed Cleanup														
Analyte	Unit	Levels														
VOCs							<u> </u>			<u> </u>	<u> </u>					
Tetrachloroethene (PCE)	ug/L	5	2.6	3.1	8.4	4.9	78	75	45	41	54 J	33	34	11	6.1	27
Trichloroethene (TCE)	ug/L	2.5	< 0.20 U	0.24	0.46	0.25	34	39	20	16	28	23	67 J	19	12	100
cis-1,2-Dichloroethene (DCE)	ug/L	16	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	20	25	12	9.9	26	19	17	4	7	28
trans-1,2-Dichloroethene	ug/L		< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	0.54	0.89	0.4	0.35	0.92	0.57	0.41	< 0.10 U	0.13	0.84
Vinyl Chloride	ug/L	0.15	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U	0.11	< 0.020 U	0.027	0.22
Dissolved Gasses																
Ethane	mg/L															
Ethene	mg/L															
Methane	mg/L															
General Chemistry				T												
Chloride	mg/L															
Total Organic Carbon	mg/L							-				-				
Dissolved Organic Carbon	mg/L							-				-				
Iron	mg/L							-				-				
Nitrate as Nitrogen	mg/L															
Nitrite as Nitrogen	mg/L															
Sulfate	mg/L															
Field Parameters																
Temperature	deg C		19.6	16.7	20.9	16.2	17.7	17.5	17.1	16.5	18.4	16		16.8	18.3	16.8
Specific Conductance	uS/cm		438.2	1107	1156	986	693	741	727	810	782	835		925	1097	913
Dissolved Oxygen	mg/L		1.81	5.4	1.6	5.7	0.23	0.11		0.29	0.15	0.3		0.74	0.3	0.08
рН	pH units		7.3	7.23	7.08	7.1	7.53	7.53	7.55	7.57	7.45	7.5		7.8	7.64	8.07
Oxidation Reduction Potential	mV		95.4	35.8	91.8	109.7	88.2	-14.3	123.7	5.2	21.3	101.6		100	167.5	111.9
Turbidity	NTU		0.5	1.19	5.6	0.3	0.46	11.1	6.56	2.82	4.05	5.9		0.27	0.44	0.24

Bold - detected above reporting limit
Blue - exceeded proposed cleanup level
U - not detected at or above reporting limit shown J - estimated

Note			Location Date Sample	MW-16I 07/13/2016 MW 16I-071316	MW-16I 11/15/2016 MW-16I-111516	MW-16I 10/04/2017 MW-16I-100417	MW-16I 12/12/2017 MW16I-121217	MW-16I 03/19/2018 MW-16I-031918	MW-16I 06/19/2018 MW-16I-061918	MW-16I 09/19/2018 MW-16I-091918	MW-16I 03/20/2019 MW-16I-032019	MW-17I 03/11/2014 MW-17I-031114	MW-17I 06/17/2014 MW-17I-061714	MW-17I 09/09/2014 MW-17I-090914	MW-17I 12/16/2014 MW-17I-121614	MW-17I 07/13/2016 MW 17I-071316	MW-17I 11/16/2016 MW-17I-111616
VOCs	Analida	1114	Cleanup														
Tetrachroethene (PCE) ug/L 5 39 30 22 52 49 32 25 21 29 6.7 3.1 9.8 17 17 inchloreshene (TCE) ug/L 2.5 170 200 J 130 190 190 150 78 J 140 <0.1 U 0.12 <0.1 U <0.1 U <0.1 U <0.1 U <0.2 U <0.2 U <0.2 U insert. 2-Dischloreshene (DCE) ug/L 16 44 68 78 110 70 52 40 130 <0.1 U <0.2 U <0.2 U insert. 2-Dischloreshene (DCE) ug/L 0.79 1.2 1 1 1.3 0.83 0.63 0.65 1.2 <0.1 U <0.1 U <0.1 U <0.1 U <0.1 U <0.1 U <0.0 U <0.1 U <0.0 U <0		Unit	Levels														
Trichlorethene (TCE) ug/L 16 44 68 78 110 70 52 40 130 < 0.11		110/1	Е	20	20	22	E0	40	22	25	24	20	6.7	2.4	0.0	47	47
Cis-1,2-Dichloroethene CUCE Ug/L 16	` '		~			==		.0	-				***	-			
Tans-1,2-Dichloroethene Ug/L 0.79 1.2 1 1.3 0.83 0.63 0.65 1.2 < 0.1 U < 0.1 U < 0.1 U < 0.1 U < 0.2 U < 0.02 U																	
Viny Chloride	, ,		10			10			-	-							
Dissolved Gasses Ethane	,		0.15			< 0.020 U											
Ethane			0.10	0.02 0	0.001	0.020 0	0.000	0.020 0	0.020 0	0.02 0	0.02 0	0.02 0	0.020 0	0.02 0	0.02 0	0.02 0	0.020 0
Ethene		mg/L				< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.005 U	< 0.005 U						
Chloride	Ethene					< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.005 U	< 0.005 U						
Chloride	Methane	mg/L				0.019	0.081	0.0076	< 0.0050 U	0.021	0.22						
Total Organic Carbon mg/L	General Chemistry																
Dissolved Organic Carbon mg/L 1.8 1.6 J 1.5 1.5 1.1 -	Chloride	mg/L				69	33	23	35	71	36						
Iron mg/L < 0.50 U < 0.20 U < 0.40	Total Organic Carbon	mg/L								1.9							
Nitrate as Nitrogen mg/L < 0.20 U < 0.20 UJ < 0.31	Dissolved Organic Carbon																
Nitrite as Nitrogen mg/L < 0.40 U				-													
Sulfate mg/L 39 29 28 33 38 31																	
Field Parameters Temperature deg C 18.7 17.9 15.8 17.7 17.9 16.1 17.2 19.9 18.4 18.5 18.8 Specific Conductance uS/cm 884 939 908 695 609 717 949 726 1019 1040 1017 1052 1006 Dissolved Oxygen mg/L 0.39 0.1 0.12 2.63 0.93 0.25 2.1 2.9 3.33 3.34 4.29 2.55 pH pH units 7.8 7.85 7.9 8.07 7.98 7.49 7.8 7.36 7.22 7.43 7.41 7.57 Oxidation Reduction Potential mV 87.1 -53.6 92.7 154.8 19.8 75.5 108.7 3.2 71.5 212.8 -4.1 94.5 114.5																	
Temperature deg C 18.7 17.9 17.5 17 15.8 17.7 17.9 16.1 17.2 19.9 18.4 18.5 18.8 Specific Conductance uS/cm 884 939 908 695 609 717 949 726 1019 1040 1017 1052 1006 Dissolved Oxygen mg/L 0.39 0.1 0.12 2.63 0.93 0.25 2.1 2.9 3.33 3.34 4.29 2.55 pH pH units 7.8 7.85 7.9 8.07 7.98 7.49 7.8 7.36 7.22 7.43 7.41 7.57 Oxidation Reduction Potential mV 87.1 -53.6 92.7 154.8 19.8 75.5 108.7 3.2 71.5 212.8 -4.1 94.5 114.5		mg/L				39	29	28	33	38	31						
Specific Conductance uS/cm 884 939 908 695 609 717 949 726 1019 1040 1017 1052 1006 Dissolved Oxygen mg/L 0.39 0.1 0.12 2.63 0.93 0.25 2.1 2.9 3.33 3.34 4.29 2.55 pH pH units 7.8 7.85 7.9 8.07 7.98 7.49 7.8 7.36 7.22 7.43 7.41 7.57 Oxidation Reduction Potential mV 87.1 -53.6 92.7 154.8 19.8 75.5 108.7 3.2 71.5 212.8 -4.1 94.5 114.5		T	 						T	I	T			T	T	T	
Dissolved Oxygen mg/L 0.39 0.1 0.12 2.63 0.93 0.25 2.1 2.9 3.33 3.34 4.29 2.55 pH pH units 7.8 7.85 7.9 8.07 7.98 7.49 7.8 7.36 7.22 7.43 7.41 7.57 Oxidation Reduction Potential mV 87.1 -53.6 92.7 154.8 19.8 75.5 108.7 3.2 71.5 212.8 -4.1 94.5 114.5																	
pH pH units 7.8 7.85 7.9 8.07 7.98 7.49 7.49 7.8 7.36 7.22 7.43 7.41 7.57 Oxidation Reduction Potential mV 87.1 -53.6 92.7 154.8 19.8 75.5 108.7 3.2 71.5 212.8 -4.1 94.5 114.5	•																
Oxidation Reduction Potential mV 87.1 -53.6 92.7 154.8 19.8 75.5 108.7 3.2 71.5 212.8 -4.1 94.5 114.5	Dissolved Oxygen															_	
	Ovidation Reduction Referries		1												-		
	Turbidity	MV NTU	 	87.1 0.14	-53.6 3.99	92.7	154.8 0.42	19.8 0.47	75.5 1.05	108.7 0.54	0.2		/1.5	212.8 0.87	-4.1 1.87	94.5 0.89	114.5 2.74

Notes

Bold - detected above reporting limit
Blue - exceeded proposed cleanup level
U - not detected at or above reporting limit shown

J - estimated

		Location Date Sample	MW-17I 12/12/2017 MW-17I-121217	MW-17I 03/20/2018 MW-17I-032018	MW-17I 09/18/2018	MW-17I 03/19/2019 MW-17I-031919	MW-18I 03/11/2014 MW/18/03/14/4	MW-18I 09/09/2014 MW-18I-090914	MW-18I 07/13/2016	MW-18I 11/16/2016	MW-19I 03/11/2014 MW-19I-031114	MW-19I 06/17/2014	MW-19I 09/09/2014	MW-19I 12/17/2014 MW-19I-121714	MW-19I 07/13/2016	MW-19I 11/16/2016
		Proposed Cleanup	WW-171-121217	WW-171-032016	WW-171-031616	WW-171-031919	WW 101031114	WW-101-030314	WWW 101-071316	WIVV-101-111010	WW-191-031114	WW-191-061714	WW-191-030314	WIVV-191-121714	WW 191-071316	MIVV-191-111010
Analyte	Unit	Levels														
VOCs																
Tetrachloroethene (PCE)	ug/L	5	5.7	4.3	5.7	5.4	3.9	4.1	3.7	4.9	3.8	6.2	5.1	6.5	6.2	4.8
Trichloroethene (TCE)	ug/L	2.5	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	0.61	0.49	0.28	0.47	1.3	0.95	0.66	1.2	1.8	2
cis-1,2-Dichloroethene (DCE)	ug/L	16	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	< 0.1 U	< 0.1 U	< 0.2 U	< 0.20 U	0.14	< 0.10 U	< 0.1 U	0.12	0.22	0.83
trans-1,2-Dichloroethene	ug/L		< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	< 0.1 U	< 0.1 U	< 0.2 U	< 0.20 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.2 U	< 0.20 U
Vinyl Chloride	ug/L	0.15	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U	< 0.02 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U
Dissolved Gasses																
Ethane	mg/L															
Ethene	mg/L															
Methane	mg/L															
General Chemistry		Ī								Ī						
Chloride	mg/L															
Total Organic Carbon	mg/L															
Dissolved Organic Carbon	mg/L															
Iron	mg/L															
Nitrate as Nitrogen	mg/L															
Nitrite as Nitrogen	mg/L															
Sulfate	mg/L															
Field Parameters	1 0	I		4							I			1 10 1		22.2
Temperature	deg C		18.7	15.8	20.2	16.4		20.2	19.1	19.4		17.2	20.7	19.1	19.2	20.2
Specific Conductance	uS/cm		883	1024	1037	1123		1176	1186	911		955	1154	997	1130	1076
Dissolved Oxygen	mg/L		1.39	1.75	4.29	5.6		5.76	9.15	6.13		7.08	2.29	1.7	3 7.00	3.03
Origination Doducation Determine	pH units		7.36	7.51	7.21	7.2		7.47	7.35	7.41		7.32	7.1	7.51	7.38	7.24
Oxidation Reduction Potential	mV		39.7	104.9	86.4	103.2		239.3	90.7	141.7		-5.1	1350	122.2	124.6	140.4
Turbidity	NTU		0.95	0.54	2.06	2.3		3.92	1.67	5.88		0.54	0.24	0.56	1.83	7.19

Notes

		Location Date Sample	MW-19I 03/20/2018 MW-19I-032018	MW-19I 09/18/2018 MW-19I-091818	MW-19I 03/19/2019 MW-19I-031919	MW-21I 03/20/2018 MW-21I-032018	MW-21I/2 03/11/2014 MW21/2-031114	MW-211/2 06/17/2014 MW-21/2I-061714	MW-21I/2 09/09/2014 MW-21I/2-090914	MW-211/2 12/17/2014 MW-21112-121714	MW-211/2 07/13/2016 MW 21 1/2-071316	MW-21I/2 11/16/2016 MW-21I/2-111616	MW-211/2 03/20/2018 MW-211/2-032018	MW-21I/2 09/18/2018 MW-21I/2-091818	MW-21I/2 03/19/2019 MW-21I/2-031919
		Proposed Cleanup													
Analyte	Unit	Levels													
VOCs		_		I I									I		
Tetrachloroethene (PCE)	ug/L	5	2.9	4.5	0.97	5.6	5.2	7.7	4.7	7.3	7.1	7.1	4.8	5.9	4
Trichloroethene (TCE)	ug/L	2.5	1.4	1.5	0.29	0.28	1.1	1.1	0.88	1	0.9	1	0.65	0.77	0.9
cis-1,2-Dichloroethene (DCE)	ug/L	16	0.97	0.52	< 0.2 U	< 0.20 U	0.11	0.1	0.11	< 0.1 U	< 0.2 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U
trans-1,2-Dichloroethene	ug/L		< 0.20 U	< 0.2 U	< 0.2 U	< 0.20 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.2 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U
Vinyl Chloride	ug/L	0.15	< 0.020 U	< 0.02 U	< 0.02 U	< 0.020 U	< 0.02 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U
Dissolved Gasses		T		T						T T		T	T T		
Ethane	mg/L														
Ethene	mg/L														
Methane	mg/L														
General Chemistry				Ī						T			T		T
Chloride	mg/L														
Total Organic Carbon	mg/L														
Dissolved Organic Carbon	mg/L														
Iron	mg/L														
Nitrate as Nitrogen	mg/L														
Nitrite as Nitrogen	mg/L														
Sulfate	mg/L														
Field Parameters															
Temperature	deg C		16.8	20.5	16.5	17		18.8	20.2	18.3	19.6	18.2	18.2	19.8	17.3
Specific Conductance	uS/cm		1378	962	1230	795	-	809	881	903	757	711	647	612	691
Dissolved Oxygen	mg/L		5.2	1.72	7.8	1.82	-	0.96	0.1	0.16	0.4	0.28	0.98	0.18	0.9
	pH units		7.55	7.19	7.3	7.72	-	7.6	7.6	7.75	7.65	7.88	7.63	7.46	7.6
Oxidation Reduction Potential	mV		122.1	79.1	105.3	114.4	-	84.9	232.5	88.9	52.4	111.2	136.5	55.4	88.5
Turbidity	NTU		0.47	5.2	0.6	0.68			2.75	7.55	4.4	13	5.35	12.2	6.8

Notes

		Location Date	MW-22I 03/11/2014	MW-22I 06/17/2014	MW-22I 09/09/2014	MW-22I 12/17/2014	MW-22I 11/16/2016	MW-23I 03/11/2014	MW-23I 06/17/2014	MW-23I 09/09/2014	MW-23I 12/17/2014	MW-23I 07/13/2016	MW-23I 11/16/2016	MW-23I 03/20/2018	MW-23I 09/18/2018	MW-23I 03/19/2019
		Sample	MW22I031114	MW-22I-061714	MW-22I-090914	MW-22I-121714	MW-22I-111616	MW23I-031114	MW-23I-061714	MW-23I-090914	MW-23I-121714	MW 23I-071316	MW-23I-111616	MW-23I-032018	MW-23I-091818	MW-23I-031919
		Proposed														
		Cleanup														
Analyte	Unit	Levels														
VOCs																
Tetrachloroethene (PCE)	ug/L	5	0.32	0.34	0.19	0.36	< 0.50 U	2.8	3.9	2.9	3.9	4.4	4	2.6	8.1	0.82
Trichloroethene (TCE)	ug/L	2.5	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.20 U	0.43	0.44	0.38	0.36	0.44	0.4	< 0.20 U	0.33	< 0.2 U
cis-1,2-Dichloroethene (DCE)	ug/L	16	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.20 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.2 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U
trans-1,2-Dichloroethene	ug/L		< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.20 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.2 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U
Vinyl Chloride	ug/L	0.15	< 0.02 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.020 U	< 0.02 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U
Dissolved Gasses																
Ethane	mg/L															
Ethene	mg/L															
Methane	mg/L			-								-				
General Chemistry								I		1						
Chloride	mg/L															
Total Organic Carbon	mg/L															
Dissolved Organic Carbon	mg/L															
Iron	mg/L															
Nitrate as Nitrogen	mg/L															
Nitrite as Nitrogen	mg/L															
Sulfate	mg/L									<u></u>						
Field Parameters			T I					T		1						
Temperature	deg C			17.3	20.5	18.6	19		17.3	20.7	19.2	19.7	19.5	16.6	20.4	16.3
Specific Conductance	uS/cm			1163	1271	1211	1122		981	1000	1009	889	843	957	988	1577
Dissolved Oxygen	mg/L			7.12	5.93	0.08	5.37		0.9	1.14	1.4	0.94	1.52	4.71	0.23	7.3
pH	pH units		-	7.82	7.64	7.84	7.94		7.57	7.49	7.67	7.52	7.68	7.67	7.34	7.6
Oxidation Reduction Potential	mV			92.6	148.3	135.4	115.6		84.9	214.7	124	94.8	112.9	116.2	72	96.4
Turbidity	NTU			1.52	1.55	2.14	2.7		5.84	1.04	1.2	4.73	3.13	5.37	2.74	5.5

Notes

		Location	MW-25I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I								
		Date	03/11/2014	06/17/2014	09/10/2014	12/17/2014	07/13/2016	11/16/2016	03/19/2018	09/18/2018	03/19/2019	03/12/2014	06/17/2014	09/10/2014	12/16/2014	07/12/2016
	•	Sample	MW-25I-031114	MW-25I-061714	MW-25I-091014	MW-25I-121714	MW 25I-071316	MW-25I-111616	MW-25I-031918	MW-25I-091818	MW-25I-031919	MW-26I-031214	MW-26I-061714	MW-26I-091014	MW-26I-121614	MW26I-071216
		Proposed														1
		Cleanup														1
Analyte	Unit	Levels														1
VOCs																
Tetrachloroethene (PCE)	ug/L	5	0.51	0.65	0.61	0.64	< 0.5 U	< 0.50 U	< 0.50 U	< 0.5 U	< 0.5 U	47	11	17	6.8	2.1
Trichloroethene (TCE)	ug/L	2.5	1.4	1.2	2	1.9	0.42	0.5	0.36	0.37	0.39	460	62	210	98	67
cis-1,2-Dichloroethene (DCE)	ug/L	16	0.21	0.22	0.92	0.66	< 0.2 U	0.38	0.26	< 0.2 U	< 0.2 U	620	140	640	670	340
trans-1,2-Dichloroethene	ug/L		< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.2 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	3	0.77	4.2	2.5	1.5
Vinyl Chloride	ug/L	0.15	< 0.02 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U	0.47	0.077	0.61	0.36	0.18
Dissolved Gasses																
Ethane	mg/L		-		-	-			-		-	< 0.005 U	< 0.0050 U	< 0.005 U	< 0.005 U	< 0.005 U
Ethene	mg/L		-					-	-			< 0.005 U	< 0.0050 U	< 0.005 U	< 0.005 U	< 0.005 U
Methane	mg/L		-					-	-			0.16	0.011	0.057	0.32	0.73
General Chemistry																
Chloride	mg/L		-		-	-			-		-	52	12	35	33	29 J
Total Organic Carbon	mg/L															
Dissolved Organic Carbon	mg/L		-		-	-			-		-		-			
Iron	mg/L		-		-	-			-		-	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U
Nitrate as Nitrogen	mg/L		-		-				-		-	< 0.9 UJ	< 0.10 U	< 0.9 U	< 0.9 U	0.56 J
Nitrite as Nitrogen	mg/L		-		-	-			-		-	4.1 J	< 0.10 U	< 0.6 U	9.2	< 0.4 U
Sulfate	mg/L		-		-	-			-		-	56	15	31	23	25 J
Field Parameters																
Temperature	deg C			16	16.8	16.3	18.5	17.6	16.3	18	15.8	15	15.6	16.6	14.2	16.9
Specific Conductance	uS/cm			799	876	900	706	730	690	428.7	579.4	887	67.3	863	737	606
Dissolved Oxygen	mg/L			2.74	1.22	0.16	1.68	0.71	2.65	0.14	3.8	0.16	7.76	0.06	0.17	1.04
рН	pH units			7.64	7.46	7.85	7.58	7.43	7.69	6.98	7.5	7.63	6.94	7.63	7.65	7.78
Oxidation Reduction Potential	mV			96.5	20.6	82.5	86.4	129.6	12.2	54.6	93.2	-22.7	88.2	-175.6	-163	-83.4
Turbidity	NTU			0.75	1.09	2.4		5.71	0.67	2.13	1.1	0.78	< 2 UJ	6.35	1.47	1.52

Bold - detected above reporting limit
Blue - exceeded proposed cleanup level
U - not detected at or above reporting limit shown

J - estimated

		Location Date	MW-26I 11/15/2016	MW-26I 10/03/2017	MW-26I 12/12/2017	MW-26I 03/19/2018	MW-26I 06/19/2018	MW-26I 06/19/2018	MW-26I 09/19/2018	MW-26I 03/20/2019	MW-26S 03/12/2014	MW-26S 06/16/2014	MW-26S 09/10/2014	MW-26S 12/16/2014	MW-26S 07/12/2016
		Sample	MW-26I-111516	MW-26I-100317	MW26I-121217	MW-26I-031918	MW-100I-061918	MW-26I-061918	MW-26I-091918	MW-26I-032019	MW-26S-031214	MW-26S-061614	MW-26S-091014	MW-26S-121614	MW26S-071216
		Proposed													1
		Cleanup													1
Analyte	Unit	Levels													1
VOCs															
Tetrachloroethene (PCE)	ug/L	5	3.3	1.1	< 0.50 U	< 0.50 U	1.6	1.4	1.3	0.78	74	12	3.8 J	3.1	
Trichloroethene (TCE)	ug/L	2.5	44	39	5.3	4.6	32	33	19	46	180	31	13 J	7.9	
cis-1,2-Dichloroethene (DCE)	ug/L	16	570	630	330	250	380	490	360 J	760	9.7	48	330 J	510	
trans-1,2-Dichloroethene	ug/L		1.5	1.5	0.61	0.6	0.93	11	1	2.4	0.31	0.27	0.93 J	1.4	
Vinyl Chloride	ug/L	0.15	0.29	0.45	0.21	0.16	0.26	0.25	< 0.02 U	0.49	< 0.02 U	0.34	5.5 J	5.2	
Dissolved Gasses															
Ethane	mg/L		< 0.0050 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.0050 U	< 0.005 U	< 0.005 U						
Ethene	mg/L		< 0.0050 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.0050 U	< 0.005 U	< 0.005 U						
Methane	mg/L		1	0.58	0.4	0.4	1.1	1.1	0.82	1.7	< 0.005 U	0.0058	1	3.8	
General Chemistry	1														
Chloride	mg/L		23	44	48	43	36	38	34	26	25	11	19	21	
Total Organic Carbon	mg/L					-			2.4						
Dissolved Organic Carbon	mg/L			2	2.2 J	2.1	2.3	2.3		1.8	3				
Iron	mg/L		< 0.50 U	0.52	< 0.5 U	< 0.5 U	4.7	41	57						
Nitrate as Nitrogen	mg/L		< 0.20 U	< 0.20 U	< 0.20 UJ	0.28	< 0.20 U	< 0.20 U	0.24	0.31	< 0.9 UJ	< 0.10 UJ	< 0.9 U	< 0.9 U	
Nitrite as Nitrogen	mg/L		< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.4 U	< 0.4 U	3.1 J	< 0.10 UJ	< 0.6 U	24	
Sulfate	mg/L		19	16	17	19	21	21	17	18	35	10	< 1.2 U	< 1.2 U	
Field Parameters															
Temperature	deg C		15.9	16.1	14.7	16.1		17.4	16.9	15.8	14.3	14.6	16.1	15.6	16.1
Specific Conductance	uS/cm		660	710	608.1	589.6		686	799	837	549.9	536.4	2491	2520	2357
Dissolved Oxygen	mg/L		0.12	0.13	0.15	1.94		1.57	0.21	0.2	0.92	0.09	0.26	0.09	0.09
рН	pH units		7.58	7.58	7.44	7.61		7.28	7.54	7.3	7.6	6.65	6.75	6.8	6.93
Oxidation Reduction Potential	mV		-115.6	31.2	-80.3	-59.2		86.8	-11.3	-43.4	91.4	-26	-66.1	-91.9	-126.5
Turbidity	NTU		3.67	1.9	0.96	1.23	-	0.76	2.5	0.4	0.88	< 2 UJ	2.91	32.5	46

Notes

		Location Date Sample	MW-26S 07/12/2016 MW-26S-071116	MW-26S 11/16/2016 MW-26S-111616	MW-26S 10/03/2017 MW-26S-100317	MW-26S 12/12/2017 MW26S-121217	MW-26S 03/19/2018 MW-26S-031918	MW-26S 06/19/2018 MW-26S-061918	MW-26S 09/19/2018 MW-26S-091918	MW-26S 03/20/2019 MW-26S-032019	MW-27I 03/11/2014 MW-27I-031114	MW-27I 12/17/2014 MW-27I-121714	MW-28I 03/12/2014 MW-28I-031214	MW-28I 06/17/2014 MW-28I-061714	MW-28I 09/10/2014 MW-28I-091014
		Proposed Cleanup	200 0	200 111010	200 100011		200 00:010						20. 00.21.	20.00	201 30 13 1 1
Analyte	Unit	Levels													
VOCs															
Tetrachloroethene (PCE)	ug/L	5	< 0.5 U	0.95	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.5 U	< 0.5 U	2.3	0.26	8.3	0.25	0.18
Trichloroethene (TCE)	ug/L	2.5	0.35	0.44	0.38	< 0.20 U	< 0.20 U	< 0.20 U	0.2	< 0.2 U	0.3	0.23	11	3	5.4
cis-1,2-Dichloroethene (DCE)	ug/L	16	400	350	260	86	0.67	0.62	0.81 J	0.8	0.1	5.1	1.5	4.3	47
trans-1,2-Dichloroethene	ug/L		0.89	0.95	0.55	0.51	0.37	0.3	0.4	0.26	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	0.1
Vinyl Chloride	ug/L	0.15	4.2	4.3	4.5	41	3	1.5	< 0.02 U	0.82	0.021	0.16	< 0.02 U	0.07	1.2
Dissolved Gasses															
Ethane	mg/L		< 0.005 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.005 U	< 0.005 U		-	< 0.005 U	< 0.0050 U	< 0.005 U
Ethene	mg/L		0.0053	< 0.0050 U	< 0.0050 U	0.018	0.0091	0.016	0.042	0.0064			< 0.005 U	< 0.0050 U	< 0.005 U
Methane	mg/L		12	5.3	7.1	14	15	13	11	12			0.049	< 0.0050 U	0.1
General Chemistry															
Chloride	mg/L		20 J	20	< 90 U	17	18	19	18	17	14	12	20	66	16
Total Organic Carbon	mg/L								13						
Dissolved Organic Carbon	mg/L				100	33 J	27	18		6.8					
Iron	mg/L		36		27	32	37	34	26	26			< 0.5 U	30	29
Nitrate as Nitrogen	mg/L		< 0.2 U	< 0.20 U	< 20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	< 0.9 UJ	< 0.9 U	< 0.9 UJ	< 0.10 UJ	< 0.9 U
Nitrite as Nitrogen	mg/L		< 0.4 U	< 2.0 UJ	< 40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.4 U	< 0.4 U	3.1 J	9.6 J	3.2 J	< 0.10 UJ	< 0.6 U
Sulfate	mg/L		< 1.2 U	< 1.2 U	< 120 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	1.2	8.9	< 1.2 U	24	< 1.0 U	< 1.2 U
Field Parameters															
Temperature	deg C			16.8	16	15.7	15.6	16.8	16.5	15.9	14.7	15.1	14.4	14.9	16.1
Specific Conductance	uS/cm			1940	1506	1773	1974	2013	1984	1633	542	1401	517.4	1595	1175
Dissolved Oxygen	mg/L		-	0.34	0.09	0.1	0.41	0.31	0.53	0.2	0.16	0.35	0.1	0.18	0.17
рН	pH units			7.02	6.49	6.76	6.82	6.64	6.66	6.5	7.4	5.99	7.66	5.89	5.66
Oxidation Reduction Potential	mV			-109.6	-101.2	-123.9	-100.5	-28.2	-24.3	-97.9	71.4	21.9	79.2	10.3	37.6
Turbidity	NTU		-	8.74	63.2	14.9	40.2		31.8	12.2	4.71	397	< 2 UJ	158	31.9

Notes

Bold - detected above reporting limit
Blue - exceeded proposed cleanup level
U - not detected at or above reporting limit shown

J - estimated

		Location Date	MW-28I 12/16/2014	MW-28I 07/12/2016	MW-28I 7/11/2016	MW-28I 11/15/2016	MW-28I 10/03/2017	MW-28I 12/12/2017	MW-28I 03/19/2018	MW-28I 06/19/2018	MW-28I 09/19/2018	MW-28I 03/20/2019	MW-29I 03/11/2014	MW-29I 12/17/2014	MW-30I 03/12/2014	MW-30I 12/17/2014
			MW-28I-121614					MW28I-121217		MW-28I-061918	MW-28I-091918				MW-30I-031214	
		Proposed														
		Cleanup														1
Analyte	Unit	Levels														
VOCs																
Tetrachloroethene (PCE)	ug/L	5	0.25		0.89	1.1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	0.53	< 0.5 U	7.4	1.3	4	0.75
Trichloroethene (TCE)	ug/L	2.5	7.5		3.9	2.7	0.62	0.4	0.55	0.7	0.79	0.74	7.5	12	2	8.8
cis-1,2-Dichloroethene (DCE)	ug/L	16	81		100	72	23	12	14	15	14 J	11	2.1	47	0.78	33
trans-1,2-Dichloroethene	ug/L		0.15		< 0.2 U	< 0.20 U	< 0.2 U	< 0.2 U	< 0.1 U	0.18	< 0.1 U	< 0.1 U				
Vinyl Chloride	ug/L	0.15	1.7		1.4	0.71	5.7	2.6	1.6	0.83	< 0.02 U	< 0.02 U	0.053	2.3	0.025	1.2
Dissolved Gasses																
Ethane	mg/L		< 0.005 U		< 0.005 U	< 0.0050 U	< 0.005 U	< 0.005 U								
Ethene	mg/L		< 0.005 U		< 0.005 U	0.012	< 0.0050 U	0.0064	< 0.0050 U	< 0.0050 U	0.0055	0.021				
Methane	mg/L		2.3		6.8	8.3	8.3	16	11	8	8.6	4.6				
General Chemistry									T	T				T		
Chloride	mg/L		14		22 J	10	110	25	18	13	17	5	32	26	59	29
Total Organic Carbon	mg/L							840			500					
Dissolved Organic Carbon	mg/L		<u></u>				960	850 J	1600	1300		670				
Iron	mg/L		71		27	26	52	110	160	130	110	18				
Nitrate as Nitrogen	mg/L		< 0.9 U	-	< 0.2 U	< 0.20 U	< 20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	< 0.9 UJ	< 0.9 U	< 0.9 U	< 0.9 U
Nitrite as Nitrogen	mg/L		6.3		< 0.4 U	< 0.40 U	< 40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.4 U	< 0.4 U	3 J	7.2	2.8	10
Sulfate	mg/L		< 1.2 U		3.8 J	6.8	< 120 U	3.2	< 1.2 U	< 1.2 U	1.5	9.5	22	< 1.2 U	23	< 1.2 U
Field Parameters		1				44.4				1	1 4-4					111
Temperature	deg C		14.7	18.4	18.4	16.6	16.7	15.5	15.7	19.4	17.2	15.9	14.2	13.7	14.2	14.1
Specific Conductance	uS/cm		1302	753	753	591.3	1808	1860	2084	1595	1758	219.6	664	1317	555.8	1449
Dissolved Oxygen	mg/L		0.05	0.06	0.06	0.2	0.41	 - 70	0.53	0.29	0.27	0.1	2.6	0.14	0.07	0.2
Ovidation Reduction Retartial	pH units		5.89	6.08	6.08	6.04	5.77	5.79	5.5	5.17	5.1	4.2	7.68	5.9	8.33	5.72
Oxidation Reduction Potential	mV		-19.6	-61.2	-61.2	-114.2	2	-61	30	95.9	51	154.6	-29.9	29.1	-616.6	61.6
Turbidity	NTU		111	22.1	22.1	11.5	622	555	19.2	20.7	21.2	8.2	5.38	261	4.66	388

Notes

		Location Date	MW-31I 03/12/2014	MW-31I 06/17/2014	MW-31I 09/10/2014	MW-31I 12/16/2014	MW-31I 07/12/2016	MW-31I 07/12/2016	MW-31I 11/15/2016	MW-31I 10/03/2017	MW-31I 12/12/2017	MW-31I 03/19/2018	MW-31I 06/19/2018	MW-31I 09/19/2018	MW-31I 03/20/2019	MW-32I 03/12/2014
		Sample Proposed	MIVV-311-031214	MW-31I-061714	MVV-311-091014	MW-31I-121614	MW311-0/1216	MW-31I-071116	MW-311-111516	MW-311-100317	MW31I-121217	MW-31I-031918	MW-311-061918	MW-31I-091918	MW-31I-032019	WW-32I-031214
Analyta	Unit	Cleanup Levels														
Analyte VOCs	Ullit	Leveis														
Tetrachloroethene (PCE)	ug/L	5	19	7.4	6.4	13		0.6	< 0.50 U	0.63	1.3	1.3	25	47	< 0.5 U	52
Trichloroethene (TCE)	ug/L	2.5	70	590	750	420		2.8	2.4	2.4	2.7	3.2	5	14	0.44	68
cis-1.2-Dichloroethene (DCE)	ug/L	16	12	310	2900	3200		260	340	330	340	15	7.6	5.7 J	2	45
trans-1.2-Dichloroethene	ug/L		0.13	4.4	12	9.8		0.28	0.34	1.2	1.5	1.2	1.9	4.7	4.5	0.31
Vinyl Chloride	ug/L	0.15	0.21	2.4	49	63		1.4	2.3	140	100	22	9.5	3.5	4.1	0.49
Dissolved Gasses	J			-						•						
Ethane	mg/L							< 0.005 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.005 U	< 0.005 U	
Ethene	mg/L							< 0.005 U	0.01	0.006	0.016	0.0067	< 0.0050 U	0.011	0.0053	
Methane	mg/L							8.8	11	12	15	6.6	7.6	11	14	
General Chemistry																
Chloride	mg/L		23	52	40	34		57 J	28	< 90 U	39	41	41	38	38	52
Total Organic Carbon	mg/L										960			62		
Dissolved Organic Carbon	mg/L		3.4	260	600	570		27	15	780	1100 J	300	93		23	3.4
Iron	mg/L		< 0.5 U	17	72	110		26	22	73	140	69	62	48	38	< 0.5 U
Nitrate as Nitrogen	mg/L		< 0.9 U	< 0.10 UJ	< 0.9 U	< 0.9 U		< 0.2 U	< 0.20 U	< 20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	0.34	0.21	< 0.9 UJ
Nitrite as Nitrogen	mg/L		3.2	< 0.10 UJ	3.2	6.4	-	< 0.4 U	< 0.40 U	< 40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.4 U	< 0.4 U	3.1 J
Sulfate	mg/L		24	10	< 1.2 U	< 1.2 U		12 J	13	< 120 U	3	1.2	< 1.2 U	< 1.2 U	< 1.2 U	27
Field Parameters	d C		45.0	455	40.7	440	40.0	40.0	40.0	47.0	450	40.0	40.0	47.0	40	140
Temperature Specific Conductance	deg C uS/cm		15.3 532.8	15.5 921	16.7 1475	14.9 1700	16.8 1002	16.8 1002	16.3 818	17.8 2035	15.9 2250	16.2 1550	18.9 1427	17.3 1389	16 1213	14.8 618.8
Dissolved Oxygen	mg/L		0.07	921 0.14	0.34	0.07	0.05	0.05	0.09	0.11		0.48	0.24	0.27	0.1	0.14
nH	pH units		7.69	6.05	5.49	5.46	6.77	6.77	6.62	5.82	 5.88	6.4	6.18	6.29	6.5	7.88
Oxidation Reduction Potential	mV		-28	-3.6	66.7	76.7	-142.5	-142.5	-129.6	-47.7	-81.1	-66.1	-13.4	-58.3	-31.2	-108.2
Turbidity	NTU		2.39	41.6	24.5	22.5	18.7	18.7	16.2	553	36.8	63.5	-13.4	20.6	10.3	2.75
raibiaity	1110		2.00	71.0	47.0	££.U	10.7	10.7	10.2	300	55.5	00.0		20.0	10.0	2.10

Notes

		Location Date Sample	MW-32I 06/16/2014 MW-32I-061614	MW-32I 09/10/2014 MW-32I-091014	MW-32I 12/16/2014 MW-32I-121614	MW-32I 07/12/2016 MW32I-071216	MW-32I 07/12/2016 MW-32I-071116	MW-32I 11/15/2016 MW-32I-111516	MW-32I 10/03/2017 MW-32I-100317	MW-32I 12/12/2017 MW32I-121217	MW-32I 03/19/2018 MW-32I-031918	MW-32I 06/19/2018 MW-32I-061918	MW-32I 09/19/2018 MW-32I-091918	MW-32I 03/20/2019 MW-32I-032019	MW-33I 07/11/2016 MW-33I-071116	MW-33I 11/14/2016 MW-33I-111416
		Proposed Cleanup	02. 00.01.					02: 111010				02. 00.00.0	02. 00.10.10	02. 002010		
Analyte	Unit	Levels														
VOCs																
Tetrachloroethene (PCE)	ug/L	5	28	0.92	2.8		< 0.5 U	< 0.50 U	23	0.83	< 0.50 U	< 0.50 U	4.1	< 0.5 U	6.1	6.9
Trichloroethene (TCE)	ug/L	2.5	120	35	< 0.1 U		40	< 20 U	65	13	1.8	< 4.0 U	41	17	0.37	0.85
cis-1,2-Dichloroethene (DCE)	ug/L	16	52	340	300		820	1000	980	690	460	430	530 J	570	< 0.2 U	< 0.20 U
trans-1,2-Dichloroethene	ug/L		0.42	0.78	0.59		5.3	3.1	3	2.7	2.1	1.7	1.7	1.5	< 0.2 U	< 0.20 U
Vinyl Chloride	ug/L	0.15	< 0.020 U	0.74	0.57		1.9	2.5	2.5	7.9	12	9	16	25	< 0.02 U	< 0.020 U
Dissolved Gasses																
Ethane	mg/L						0.0058	0.019	< 0.0050 U	0.0054	< 0.0050 U	< 0.0050 U	< 0.005 U	0.028		
Ethene	mg/L						< 0.005 U	< 0.0050 U	< 0.0050 U	0.007	0.018	0.04	0.063	0.036		
Methane	mg/L						4.6	4	2.2	4.2	3	4.2	6.3	5.4		
General Chemistry																
Chloride	mg/L		56	54	45		45 J	39	48	43	44	43	43	37		
Total Organic Carbon	mg/L												2.4			
Dissolved Organic Carbon	mg/L		6.8	4.9	2.8		2.4	3.1	5.1	2.2 J	2.1	2.2		1.7		
Iron	mg/L		< 0.50 U	< 0.5 U	< 0.5 U		0.82	0.63	0.62	0.81	0.92	0.85	0.79	0.59		
Nitrate as Nitrogen	mg/L		< 0.10 UJ	< 0.9 U	< 0.9 U		< 0.2 U	< 0.20 U	< 0.20 U	< 0.20 UJ	0.32	< 0.20 U	< 0.2 U	< 0.2 U		
Nitrite as Nitrogen	mg/L		< 0.10 UJ	< 0.6 U	9.4		< 0.4 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.4 U	< 0.4 U		
Sulfate	mg/L		26	10	8.4		14 J	9.5	7.9	9.6	13	7	4.9	8.2		
Field Parameters																
Temperature	deg C		15.9	16.9	14.9	16.7	16.7	16.3	16.3	15.4	16.2	18.1	16.6	14.1	19.3	19.5
Specific Conductance	uS/cm		749	844	808	849	849	844	767	756	752	778	846	743	794	768
Dissolved Oxygen	mg/L		0.33	0.09	0.17	0.13	0.13	0.09	0.27	0.1	0.16	0.16	0.12	0.1	0.1	0.24
pH	pH units		7.5	7.77	7.84	7.84	7.84	7.68	7.59	7.39	7.64	7.36	7.51	7.6	8.28	7.73
Oxidation Reduction Potential	mV		-76.9	-150.2	-117.5	-119.1	-119.1	-185.5	-87.1	-100	-65.3	119.2	5	87.6	-194.3	141.4
Turbidity	NTU		1.59	0.84	1.17	8.7	8.7	3.24	3.21	9.25	3.03	4.5	0.86	0.6	1.73	1.84

Notes

		Location Date Sample	MW-33I 12/11/2017 MW33I-121117	MW-33I 03/20/2018 MW-33I-032018	MW-33I 09/18/2018 MW-33I-091818	MW-33I 03/19/2019 MW-33I-031919	MW-34I 07/11/2016 MW-34I-071116	MW-34I 11/14/2016 MW-34I-111416	MW-34I 12/11/2017 MW34I-121117	MW-34I 03/20/2018 MW-34I-032018	MW-34I 09/18/2018 MW-34I-091818	MW-34I 03/19/2019 MW-34I-031919
Analyte	Unit	Proposed Cleanup Levels										
VOCs												
Tetrachloroethene (PCE)	ug/L	5	6	5.7	5.8	5.5	6.5	5.1	4.3	5.7	7.2	6
Trichloroethene (TCE)	ug/L	2.5	0.75	1.4	0.49	0.99	0.39	0.36	0.3	0.39	0.37	0.42
cis-1,2-Dichloroethene (DCE)	ug/L	16	< 0.20 U	0.6	< 0.2 U	0.24	< 0.2 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U
trans-1,2-Dichloroethene	ug/L		< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.2 U	< 0.2 U
Vinyl Chloride	ug/L	0.15	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.02 U	< 0.02 U
Dissolved Gasses												
Ethane	mg/L			-	-			-	-	-		
Ethene	mg/L			-	-			-	-	-		-
Methane	mg/L			-				-		-		
General Chemistry											,	
Chloride	mg/L			-				-				
Total Organic Carbon	mg/L			-	-			-	-	-		
Dissolved Organic Carbon	mg/L			-	-			-	-	-		
Iron	mg/L			-	-			-	-	-		
Nitrate as Nitrogen	mg/L			-	-			-	-	-		-
Nitrite as Nitrogen	mg/L			-	-			-	-	-		-
Sulfate	mg/L											
Field Parameters											,	
Temperature	deg C		18.4	16.9	19	16.2	19.8	19.9	19.1	16.8	19.8	17.1
Specific Conductance	uS/cm		868	903	789	968	1013	1019	924	954	1081	925
Dissolved Oxygen	mg/L			0.46	0.42	0.7	0.44	1.65	-	0.85	1.11	0.9
pH	pH units		7.48	7.67	7.15	7.4	7.94	7.36	7.4	7.6	7.32	7.3
Oxidation Reduction Potential	mV		133.3	114.9	113.4	100.6	-157.6	142	149.6	111.6	61.7	100.7
Turbidity	NTU		2.89	1.48	8.38	1.4	20.4	2.83	13.8	1.39	0.02	0.4

Bold - detected above reporting limit
Blue - exceeded proposed cleanup level
U - not detected at or above reporting limit shown

J - estimated

Table 3. Soil Sample Results SummaryProject No. 090018, New City Cleaners, Richland, Washington

Analyte	Number of Sampled Locations	Number of Samples	Number of Samples with Detected Concentration	Frequency of Detection	Last Sample Date with Detected Concentration	Maximum Detected Concentration	Average Detected Concentration
PAHs		T	1	101	I		1
Naphthalene	59	127	1	1%	2/11/2014	0.0064	0.0064
TPHs Diesel Range Organics	30	32	3	9%	3/7/2000	11000	9400
Gasoline Range Organics	18	20	0	0%	3/1/2000		9400
Motor Oil Range Organics	30	32	0	0%			
VOCs	30	32	U	0 70			
1,1,1,2-Tetrachloroethane	59	127	0	0%			
1,1,1-Trichloroethane	59	127	0	0%			
1,1,2,2-Tetrachloroethane	59	127	6	5%	12/16/2014	0.0025	0.0021
1.1.2-Trichloroethane	59	127	7	6%	12/16/2014	0.03	0.0061
1.1-Dichloroethane	59	127	0	0%			
1,1-Dichloroethene	59	127	0	0%			
1,1-Dichloropropene	59	127	0	0%			
1,2,3-Trichlorobenzene	59	127	0	0%			
1,2,3-Trichloropropane	59	127	7	6%	12/16/2014	0.0013	0.0011
1,2,4-Trichlorobenzene	59	127	0	0%			
1,2,4-Trimethylbenzene	59	127	1	1%	2/11/2014	0.0031	0.0031
1,2-Dibromo-3-chloropropane	59	127	0	0%			
1,2-Dibromoethane (EDB)	59	127	0	0%			
1,2-Dichlorobenzene	59	127	0	0%			
1,2-Dichloroethane (EDC)	59	127	0	0%			
1,2-Dichloropropane	59	127	0	0%			
1,3,5-Trimethylbenzene	59	127	0	0%			
1,3-Dichlorobenzene	59	127	0	0%			
1,3-Dichloropropane	59	127	0	0%			
1,4-Dichlorobenzene	59	127	0	0%			
2,2-Dichloropropane	59	127	0	0%			
2-Chlorotoluene	59	127	0	0%			
4-Chlorotoluene	59	127	0	0%			
Acetone	12	25	8	32%	5/24/2007	1.55	0.237
Bromobenzene	59	127	0	0%			
Bromochloromethane	20	33	0	0%		-	
Bromodichloromethane	71	152	1	1%	12/16/2014	0.0013	0.0013
Bromoform	59	127	0	0%			
Bromomethane	59	127	0	0%		-	
Carbon Tetrachloride	59	127	0	0%		-	
Chlorobenzene	59	127	0	0%			
Chloroethane	59	127	0	0%			
Chloroform	71	152	0	0%			
Chloromethane	71	152	0	0%			
cis-1,2-Dichloroethene (DCE)	71	152	29	19%	12/16/2014	0.37	0.069
cis-1,3-Dichloropropene	59	127	0	0%			
Dibromochloromethane	59	127	0	0%			
Dibromomethane	59	127	6	5%	12/16/2014	0.0013	0.0011
Dichlorodifluoromethane	59	127	0	0%		-	
Isopropylbenzene	59	127	0	0%			
m,p-Xylenes	20	33	1	3%	2/11/2014	0.003	0.003
Methyl tert-butyl ether (MTBE)	59	127	6	5%	12/16/2014	0.0013	0.0011
Methylene Chloride	59	127	0	0%			
n-Butylbenzene	59	127	0	0%			
n-Propylbenzene	59	127	0	0%			
o-Xylene	20	33	0	0%			
p-Isopropyltoluene	59	127	0	0%			
sec-Butylbenzene	59	127	1	1%	12/16/2014	0.0078	0.0078
Styrene	59	127	0	0%			
tert-Butylbenzene	59	127	0	0%			
Tetrachloroethene (PCE)	140	225	93	41%	12/16/2014	11.34	0.5164
trans-1,2-Dichloroethene	59	127	3	2%	12/16/2014	0.0033	0.0019
trans-1,3-Dichloropropene	59	127	0	0%	40/40/0044		
Trichloroethene (TCE)	71	152	40	26%	12/16/2014	5.5	0.35
Trichlorofluoromethane	59	127	0	0%			
Vinyl Chloride	71	152	0	0%			

Notes:

Statistical summary inlcudes detected analytes from all Site data collected from 2000 to 2019.

Statistical summary does not include Field Duplicates or other Quality Assurance/Quality Control samples.

Chemicals highlighted in blue are identified as site COCs in soil.

mg/kg = milligrams per kilogram

Table 4. Groundwater Sample Results SummaryProject No. 090018, New City Cleaners, Richland, Washington

Analyte	Number of Sampled Locations	Number of Samples	Number of Samples with Detected Concentration	Frequency of Detection	Last Sample Date with Detected Concentration	Maximum Detected Concentration	Average Detected Concentration
BTEX	77	F02	25	5%	2/20/2040	726	20.2
Benzene Ethylbenzene	77 77	503 503	25 2	0.4%	3/20/2019 8/15/2012	117	29.3 58.6
Toluene	77	503	38	8%	3/20/2019	1590	42.5
Total Xylenes	27	27	1	4%	4/10/1992	357	357
Conventionals Chloride	15	116	114	98%	3/20/2019	110	32
Dissolved Organic Carbon	18	70	70	100%	3/20/2019	6400	270
Nitrate as Nitrogen	20	121	17	14%	3/20/2019	5.5	1.2
Nitrite as Nitrogen Silica (SiO2)	20 3	121 3	27 3	22% 100%	12/17/2014 11/17/2010	24 51	5.8 42
Sulfate	20	123	95	77%	3/20/2019	73	21
Total Organic Carbon	9	11	11	100%	9/19/2018	960	220
Total Suspended Solids Dechlor Bacteria	10	10	10	100%	3/12/1997	5630	1440
Dehalococcoides (DHC)	2	2	2	100%	7/12/2016	168	92.9
Dissolved Gases	_				17.1-2.15		5
Ethane	9	83	4	5%	3/20/2019	0.028	0.015
Ethene Methane	9 9	83 83	24 79	29% 95%	3/20/2019 3/20/2019	0.063 16	0.016 4.5
Field Parameters	<u> </u>	00	13	3370	3/20/2013	10	7.0
Dissolved Oxygen	50	449	449	100%	3/20/2019	33	1.53
Oxidation Reduction Potential	50	478	478	100%	3/20/2019	1350	18.64
pH Specific Conductance	50 50	478 478	478 478	100% 100%	3/20/2019 3/20/2019	8.8 7008	7.42 905.9
Specific Conductance Temperature	50	478	478	100%	3/20/2019	21	17.17
Turbidity	50	416	404	97%	3/20/2019	882	15.5
Metals Argania	2	40	7	700/	4414010040	0.00	0.017
Arsenic Cadmium	3 3	10 10	7 0	70% 0%	11/16/2016	0.08	0.017
Cadmium	3	10	0	0%			
Iron	17	116	55	47%	3/20/2019	160	34
Manganese	9	17	16	94%	11/16/2016	8.7	0.69
Selenium Other SVOCs	3	10	0	0%			
Hexachlorobutadiene	70	496	0	0%			
PAHs			-				
Naphthalene	70	496	0	0%			
PLFA Anaerobic metal reducers (BrMonos)	2	4	2	50%	11/14/2016	0.38	0.29
Decreased Permeability	2	4	3	75%	11/14/2016	0.074634928	0.068873178
Eukaryotes (polyenoics)	2	4	4	100%	11/14/2016	27.6	15.96
Firmicutes (TerBrSats)	2	4	2	50%	7/12/2016	13.57	9.885
Normal Saturated (Nsats) Proteobacteria (Monos)	2 2	4	4	100% 100%	11/14/2016 11/14/2016	20.45 72.42	18.95 59.79
Slowed Growth	2	4	4	100%	11/14/2016	0.274659634	0.13667974
SRB/Actinomycetes (MidBrSats)	2	4	2	50%	7/12/2016	0.6	0.42
Total Biomass	2	4	4	100%	11/14/2016	465000	228000
TPHs Gasoline Range Organics	7	7	2	29%	11/16/2010	0.13	0.1
VFA	,	,	2	2570	11/10/2010	0.10	0.1
Acetic Acid	6	12	7	58%	11/16/2016	82	24
Butyric Acid	6	12	4	33%	11/15/2016	18	6.1
Formic Acid Hexanoic Acid	6 6	12 12	3	33% 25%	11/16/2016 11/15/2016	3.3 8.4	1.2 3.7
Isocaproic Acid	6	12	0	0%			
Isovaleric Acid	6	12	3	25%	11/15/2016	2.9	1.5
Lactic Acid	6	12	1	8%	7/12/2016	0.63	0.63
Pentanoic Acid Propionic Acid	6 6	12 12	3 4	25% 33%	11/15/2016 11/15/2016	14 78	6.5 36
Pyruvic Acid	6	12	4	33%	11/15/2016	4.5	1.9
VOCs							
1,1,1,2-Tetrachloroethane	70	496	0	0%			
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	70 70	510 510	0	0% 0.2%	 4/16/2013	0.5	0.5
1,1,2-Trichloroethane	70	510	2	0.4%	3/12/2014	1	0.77
1,1-Dichloroethane	70	510	0	0%		-	
1,1-Dichloroethene	70 70	510	97 0	19%	3/20/2019	5	0.43
1,1-Dichloropropene 1,2,3-Trichlorobenzene	70 70	496 496	0	0% 0%			
1,2,3-Trichloropropane	70	496	0	0%			
1,2,4-Trichlorobenzene	70	496	0	0%			
1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane	80 70	506 496	23	5% 0%	3/20/2019	490	110
1,2-Dibromo-3-chioropropane 1,2-Dibromoethane (EDB)	70 70	496 496	1	0%	3/12/2014	0.12	0.12
1,2-Dichlorobenzene	70	510	0	0%		-	
1,2-Dichloroethane (EDC)	77	517	8	2%	5/30/2012	842	105
1,2-Dichloropropane 1,3,5-Trimethylbenzene	70 70	510 496	2	0.4% 0%	12/16/2014	0.27	0.25
1,3,5-1 rimethylbenzene 1,3-Dichlorobenzene	70 70	510	34	7%	6/28/2011	1.2	0.35
1,3-Dichloropropane	70	496	0	0%			
1,4-Dichlorobenzene	70	510	0	0%			
2,2-Dichloropropane 2-Butanone	70 11	496 11	1 1	0.2% 9%	11/17/2010 6/21/2007	0.17	0.17 24.6
2-Butanone 2-Chlorotoluene	11 70	11 496	0	9% 0%	6/21/2007	24.6	24.6
4-Chlorotoluene	70	496	0	0%			
Acetone	11	11	1	9%	6/21/2007	122	122
Bromoblerzene Bromoblerzenethene	70	496	0	0%			
Bromochloromethane Bromodichloromethane	50 70	476 521	0 11	0% 2%	9/18/2018	2.4	0.64
Bromoform	70	510	1	0.2%	6/28/2011	0.51	0.51
Bromomethane	70	510	0	0%			
Carbon Disulfide	11	11	2	18%	6/21/2007	1.74	1.71
Carbon Tetrachloride Chlorobenzene	70 70	510 510	0	0% 0%			
Chloropenzene Chloroethane	70 70	510	13	3%	3/20/2019	2.3	1.1
	74	539	132	24%	3/20/2019	46	2.14
Chloroform	74	333	132	24%	3/20/2019	40	2.17

Table 4. Groundwater Sample Results Summary

Project No. 090018, New City Cleaners, Richland, Washington

Analyte	Number of Sampled Locations	Number of Samples	Number of Samples with Detected Concentration	Frequency of Detection	Last Sample Date with Detected Concentration	Maximum Detected Concentration	Average Detected Concentration
cis-1,2-Dichloroethene (DCE)	91	556	346	62%	3/20/2019	3200	100
cis-1,3-Dichloropropene	70	510	0	0%			
Dibromochloromethane	70	510	1	0.2%	6/28/2011	0.57	0.57
Dibromomethane	70	496	0	0%			
Dichlorodifluoromethane	70	496	0	0%			
Isopropylbenzene	70	496	3	1%	12/16/2014	0.19	0.17
m,p-Xylenes	50	476	3	1%	8/15/2012	0.43	0.35
Methyl tert-butyl ether (MTBE)	70	496	22	4%	3/11/2014	1.1	0.29
Methylene Chloride	70	510	21	4%	6/19/2018	9.3	2.6
n-Butylbenzene	70	496	3	1%	6/19/2018	0.6	0.57
n-Propylbenzene	70	496	10	2%	3/20/2019	0.73	0.36
o-Xylene	50	476	16	3%	3/20/2019	1.8	0.61
p-Isopropyltoluene	70	496	1	0.2%	7/23/2013	0.2	0.2
sec-Butylbenzene	70	496	11	2%	7/12/2016	0.69	0.38
Styrene	70	496	2	0.4%	12/16/2014	0.12	0.11
tert-Butylbenzene	70	496	1	0.2%	1/26/2012	0.13	0.13
Tetrachloroethene (PCE)	92	574	484	84%	3/20/2019	15280	113.7
trans-1,2-Dichloroethene	70	510	172	34%	3/20/2019	21	2.6
trans-1,3-Dichloropropene	70	510	0	0%			
Trichloroethene (TCE)	92	574	461	80%	3/20/2019	3500	49.3
Trichlorofluoromethane	70	510	0	0%			
Vinyl Chloride	70	521	155	30%	3/20/2019	140	3.95

Notes:

Statistical summary inloudes detected analytes from all Site data collected from 1992 to 2019.

Statistical summary does not include Field Duplicates or other Quality Assurance/Quality Control samples.

Chemicals highlighted in blue are identified as site COCs, in groundwater.

 μ g/L = micrograms per liter

Table 5. Soil Vapor Sample Results Summary

Project No. 090018, New City Cleaners, Richland, Washington

		Location Date Sample	VP-01 11/16/2010 VS-1-111610	VP-01 02/29/2012 VP-01-022912	VP-01 08/21/2012 VP-1-082112	VP-01 04/15/2013 VP-1-041513	VP-01 10/31/2013 VP-1-103113	VP-02 11/16/2010 VS-2-111610	VP-02 02/29/2012 VP-02-022912	VP-02 08/21/2012 VP-2-082112	VP-02 04/15/2013 VP-2-041513	VP-02 10/31/2013 VP-2-103113	VP-03 11/16/2010 VS-3-111610	VP-03 02/29/2012 VP-03B-022912	VP-03 08/21/2012 VP-3B-082112
Analyte	Unit	Soil Gas Screening Level													
APHs															
C5 - C8 Aliphatic Hydrocarbons	ug/m3	90000													
C9 - C12 Aliphatic Hydrocarbons	ug/m3	4700													
C9 - C10 Aromatic Hydrocarbons	ug/m3	6000													
BTEX															
Benzene	ug/m3	11													
Toluene	ug/m3	76000							-						
Ethylbenzene	ug/m3	15000										-			
Total Xylenes	ug/m3	1500													
Other															
Helium	%								-			-		-	
Helium	ug/m3								-			-		-	
PAHs															
Naphthalene	ug/m3	2.5													
VOCs															
1,1,1-Trichloroethane	ug/m3	76000													
1,1,2-Trichloroethane	ug/m3	3													
1,1-Dichloroethane	ug/m3	52													
1,1-Dichloroethene	ug/m3	3000													
1,2-Dichloroethane (EDC)	ug/m3	3.2													
Chloroethane	ug/m3	150000													
cis-1,2-Dichloroethene (cDCE)	ug/m3		< 150 U	< 0.15 U	< 0.15 U	< 0.15 U	< 0.14 U	< 26 U	< 0.18 U	< 0.30 U	< 0.23 U	< 0.32 U	< 78 U	< 0.14 U	< 0.15 U
Isopropyl Alcohol	ug/m3		78000					17000 E					340000 E		
m,p-Xylenes	ug/m3	1500													
Methylene Chloride	ug/m3	8300													
o-Xylene	ug/m3	1500													
Tetrachloroethene (PCE)	ug/m3	320	< 260 U	45	67	85	46	330	270	310	270	210	< 130 U	88	92
trans-1,2-Dichloroethene	ug/m3		< 150 U	< 0.15 U	< 0.15 U	< 0.15 U	< 0.14 U	< 26 U	< 0.18 U	< 0.30 U	< 0.23 U	< 0.32 U	< 78 U	< 0.14 U	< 0.15 U
Trichloroethene (TCE)	ug/m3	12	< 210 U	0.091	0.083	0.16	0.062	< 35 U	2.9	2.6	1.8	1.1	< 100 U	0.1	0.068
Vinyl Chloride	ug/m3	9.4	< 99 U	< 0.049 U	< 0.048 U	< 0.048 U	< 0.046 U	< 17 U	< 0.060 U	< 0.096 U	< 0.075 U	< 0.10 U	< 50 U	< 0.047 U	< 0.049 U

Notes:

Bold - Analyte Detected

Blue Shaded - Detected result exceeded screening level

U - Analyte not detected at or above reporting limit shown

- UJ Analyte not detected and the reporting limit is an estimate
- J Result value estimated
- E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

Table 5. Soil Vapor Sample Results Summary Project No. 090018, New City Cleaners, Richland, Washington

		Location Date Sample	VP-03 04/15/2013 VP-3B-041513	VP-03 10/31/2013 VP-3B-103113	VP-04 07/14/2016 VP-04-071416	VP-04 11/17/2016 VP-04-111716	VP-05 07/14/2016 VP-05-071416	VP-05 11/17/2016 VP-05-111716	VP-06 07/14/2016 VP-06-071416	VP-06 11/17/2016 VP-06-111716	VP-07 07/14/2016 VP-07-071416	VP-07 11/17/2016 VP-07-111716
Analida	11-14	Soil Gas Screening										
Analyte APHs	Unit	Level										
C5 - C8 Aliphatic Hydrocarbons	ug/m3	90000							1300	< 1200 U	6100	1300
C9 - C12 Aliphatic Hydrocarbons	ug/m3	4700							< 880 U	< 1800 U	2200	< 1800 U
C9 - C10 Aromatic Hydrocarbons	ug/m3	6000							< 630 U	< 1300 U	< 630 U	< 1300 U
BTEX	ug/IIIo	0000							1 000 0	1 1 1 1 1 1 1 1 1	10000	10000
Benzene	ug/m3	11							< 8 U	< 8 U	< 8 U	< 8 U
Toluene	ug/m3	76000							< 9.4 U	11	< 9.4 U	< 9.4 U
Ethylbenzene	ug/m3	15000							< 11 U	< 11 U	< 11 U	< 11 U
Total Xylenes	ug/m3	1500							< 22 U	< 22 U	< 22 U	< 22 U
Other												
Helium	%					< 0.6 U						
Helium	ug/m3				< 0.7 U							
PAHs												
Naphthalene	ug/m3	2.5							< 25 U	< 13 U	< 25 U	< 13 U
VOCs												
1,1,1-Trichloroethane	ug/m3	76000			< 2.7 U	< 5.5 U	< 2.7 U	< 5.5 U	< 14 U	< 14 U	< 14 U	< 14 U
1,1,2-Trichloroethane	ug/m3	3			< 2.7 U	< 5.5 U	< 2.7 U	< 5.5 U	< 14 U	< 14 U	< 14 U	< 14 U
1,1-Dichloroethane	ug/m3	52			< 2 U	< 4 U	< 2 U	< 4 U	< 10 U	< 10 U	< 10 U	< 10 U
1,1-Dichloroethene	ug/m3	3000			< 2 U	< 4 U	< 2 U	< 4 U	< 9.9 U	< 9.9 U	< 9.9 U	< 9.9 U
1,2-Dichloroethane (EDC)	ug/m3	3.2			< 2 U	< 4 U	< 2 U	< 4 U	< 10 U	< 10 U	< 10 U	< 10 U
Chloroethane	ug/m3	150000			< 1.3 U	< 2.6 U	< 1.3 U	< 2.6 U	< 6.6 U	< 6.6 U	< 6.6 U	< 6.6 U
cis-1,2-Dichloroethene (cDCE)	ug/m3		< 0.15 U	< 0.14 U	< 2 U	< 4 U	< 2 U	< 4 U	< 9.9 U	< 9.9 U	570	540
Isopropyl Alcohol	ug/m3											
m,p-Xylenes	ug/m3	1500							< 22 U	< 22 U	< 22 U	< 22 U
Methylene Chloride	ug/m3	8300			< 430 U	1400 J	< 430 U	< 870 U	< 2200 U	< 2200 U	< 2200 U	< 2200 U
o-Xylene	ug/m3	1500							< 11 U	< 11 U	< 11 U	< 11 U
Tetrachloroethene (PCE)	ug/m3	320	150	77	78	< 6.8 U	< 3.4 U	41	630	730	3300	1100
trans-1,2-Dichloroethene	ug/m3		< 0.15 U	< 0.14 U	< 2 U	< 4 U	< 2 U	< 4 U	< 9.9 U	< 9.9 U	< 9.9 U	< 9.9 U
Trichloroethene (TCE)	ug/m3	12	0.078	0.034	5.5	< 5.4 U	< 2.7 U	< 5.4 U	83	120	2000	1200
Vinyl Chloride	ug/m3	9.4	< 0.049 U	< 0.044 U	< 1.3 U	< 2.6 U	< 1.3 U	< 2.6 U	< 6.4 U	< 6.4 U	< 6.4 U	< 6.4 U

Notes:

Bold - Analyte Detected

Blue Shaded - Detected result exceeded screening level

U - Analyte not detected at or above reporting limit shown

UJ - Analyte not detected and the reporting limit is an estimate

J - Result value estimated

E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

Table 5

Table 6. Indoor Air Analytical Results

Project No. 090018, New City Cleaners, Richland, Washington

			Location Date		IA-06 03/20/2018	IA-07 03/20/2018
			Sample		IA-06-032018	IA-07-032018
			Proposed Cleanup			
Analyte	Fraction	Unit	Level			
VOCs						
1,1,1-Trichloroethane	Т	ug/m3	2290	< 0.55 U	< 0.55 U	< 0.55 U
1,1,2-Trichloroethane	Т	ug/m3	0.156	< 0.055 U	< 0.055 U	< 0.055 U
1,1-Dichloroethane	Т	ug/m3	1.56	< 0.4 U	< 0.4 U	< 0.4 U
1,1-Dichloroethene	T	ug/m3	91.4	< 0.4 U	< 0.4 U	< 0.4 U
1,2-Dichloroethane (EDC)	T	ug/m3	0.0962	0.073	0.11	0.089
Chloroethane	Т	ug/m3	4570	< 0.26 U	< 0.26 U	< 0.26 U
cis-1,2-Dichloroethene (DCE)	T	ug/m3		< 0.4 U	< 0.4 U	< 0.4 U
Tetrachloroethene (PCE)	Т	ug/m3	9.62	< 0.68 U	2	1.7
trans-1,2-Dichloroethene	Т	ug/m3	27.4	< 0.4 U	< 0.4 U	< 0.4 U
Trichloroethene (TCE)	Т	ug/m3	0.37	< 0.27 U	< 0.27 U	< 0.27 U
Vinyl Chloride	Т	ug/m3	0.28	< 0.26 U	< 0.26 U	< 0.26 U

Notes

Bold - detected

Blue - exceededs proposed cleanup level

U - not detected at or above reporting limit shown

Table 8. Summary of Remedial AlternativesProject No. 090018 New City Cleaners, Richland, Washington

Design Concept Elements of Remedial Alternative	* Evaluate monitored natural attenuation (MNA) of groundwater at 19 locations for 20 years. * Institutional controls, such as an environmental covenant for the NCC property and RSD property to protect future users against direct exposure to residual soil exceedances, or exposure to soil vapor via indoor air pathway.	*Full-scale implementation of enhanced anaerobic bioremediation (EAB) at the former source area at the NCC building. Install 10 new injection wells in the upper gravelly sand unit. *Conduct a total of three discrete injection events at the existing injection wells and new injection wells cocurring every 2 years, for an estimated total operating period of 6 years. *Evaluate MNA of groundwater at 19 locations for 15 years. Institutional controls as described in Alternative 1.	* Install an SVE system adjacent to and underneath the NCC building. The system would include nine SVE wells operating for an estimated person of 10 years. The NCC building would remain in place during this operating period. * After 10 years of SVE operation, collect soil confirmation samples to demonstrate SVE effectiveness and compliance with soil cleanup standards. * Full-scale implementation of enhanced anaerobic bioremediation (EAB) at the former source area at the NCC building. Install 10 new injection wells in the upper gravelly sand unit. * Conduct a total of three discrete injection events at the existing injection wells and new injection wells, occurring every 2 years, for an estimated total operating period of 6 years. * Evaluate MNA of groundwater at 19 locations for 15 years.	Alternative 4 SVE, Expanded EAB and Groundwater MNA Figure 17 Install an SVE system adjacent to and underneath the NCC building. The system would include nine SVE wells operating for ar estimated period of 10 years. The NCC building would remain in place during this operating period. After 10 years of SVE operation, collect soil confirmation samples to demonstrate SVE effectiveness and compliance with soil cleanup standards. Full-scale implementation of enhanced anaerobic bioremediation (EAB) at the former source area at the NCC building. Install 10 new injection wells in the upper gravelly sand unit. Conduct a total of three discrete injection events at the existing injection wells and new injection wells, occurring every 2 years, for an estimated total operating period of 6 years. Implement additional EAB located in City of Richland right-of-way or Richland School District property. The transect would require installation of 14 new injection wells and five new performance monitoring wells. A total of three discrete injection events occurring every 2 years would establish and maintain biogeochemical conditions necessary for EAB, for an estimated total operating period of 6 years.
		Remedial Alternative Evaluation with Respect to MTC	A Threshold Criteria ¹	
MTCA Threshold Criteria (WAC 173-340-360(2)(a))		•	y with Threshold Criterion?	
Protect human health and the environment	Yes	Yes	Yes	Yes
Comply with cleanup standards	Yes	Yes	Yes	Yes
Comply with applicable state and federal laws	Yes	Yes	Yes	Yes
Provide for compliance monitoring	Yes	Yes	Yes	Yes
Evaluation Results	Carried forward to detailed evaluation	Carried forward to detailed evaluation	Carried forward to detailed evaluation	Carried forward to detailed evaluation

1. Refer to Section 10.2 for evaluation with respect to the MTCA threshold criteria.

MNA = monitored natural attenuation

NCC = New City Cleaners

RSD = Richland School District

EAB = enhanced anaerobic bioremediation

SVE = soil vapor extraction

O&M - Operations & Maintenance

Table 9. Alternative Cost Estimate Summary

Project No. 090018 New City Cleaners, Richland, Washington

Remedial Alternative	Estimated Capital Cost	Estimated O&M Period (years)	Estimated Total Alternative Cost (NPV) ¹
Institutional Controls, and Groundwater MNA	\$ 68,000	20	\$ 470,000
Institutional Controls, EAB and Groundwater MNA	\$ 371,000	15	\$ 960,000
3) SVE, EAB and Groundwater MNA	\$ 539,000	15	\$ 1,520,000
4) SVE, Expanded EAB and Groundwater MNA	\$ 722,000	10	\$ 1,770,000

Notes:

1. Cost are in 2019 dollars. Costs were estimated using Net Present Value (NPV) analysis, assuming a discount rate of 2.0%. The costs presented are preliminary, Feasibility Study-level estimates based on existing information and are estimated to be within +50/-30% of actual costs.

MNA = monitored natural attenuation

EAB = enhanced anaerobic bioremediation

SVE = soil vapor extraction

O&M - Operations & Maintenance

Table 10. Disproportionate Cost Analysis

Project No. 090018 New City Cleaners, Richland, Washington

			Alternative 1	Alternative 2	Alternative 3	Alternative 4
	Remedia	al Alternatives:	Institutional Controls, and Groundwater MNA	Institutional Controls, EAB and Groundwater MNA	SVE, EAB and Groundwater MNA	SVE, Expanded EAB and Groundwater MNA
	11004.0	Weighting				
e		Factor	(Note 1)	(Note 1)	(Note 1)	(Note 1)
ons to th	Overall Protectiveness	30%	3	6	7	7
aluate Use of Permanent Solutions to the Maximum Extent Practicable	Permanence	20%	2	3	6	6
tent Pract	Long-Term Effectiveness	20%	1	6	6	8
Maximum Ey	Short-Term Risk Management	10%	9	7	5	4
Ž	Implementability	10%	8	6	4	3
	Consideration of Public Concerns	10%	10 (Note 2)	10 (Note 2)	10 (Note 2)	10 (Note 2)
	MTCA Bene	efits Ranking ⁽³⁾	4.2	5.9	6.4	6.6
	Es	timated Cost ⁽⁴⁾	\$470,000	\$960,000	\$1,520,000	\$1,770,000
	Benef	fit/Cost Ratio ⁽⁵⁾	8.9	6.1	4.2	3.7

DCA = Disproportionate cost analysis

IC = institutional control

MNA = monitored natural attenuation

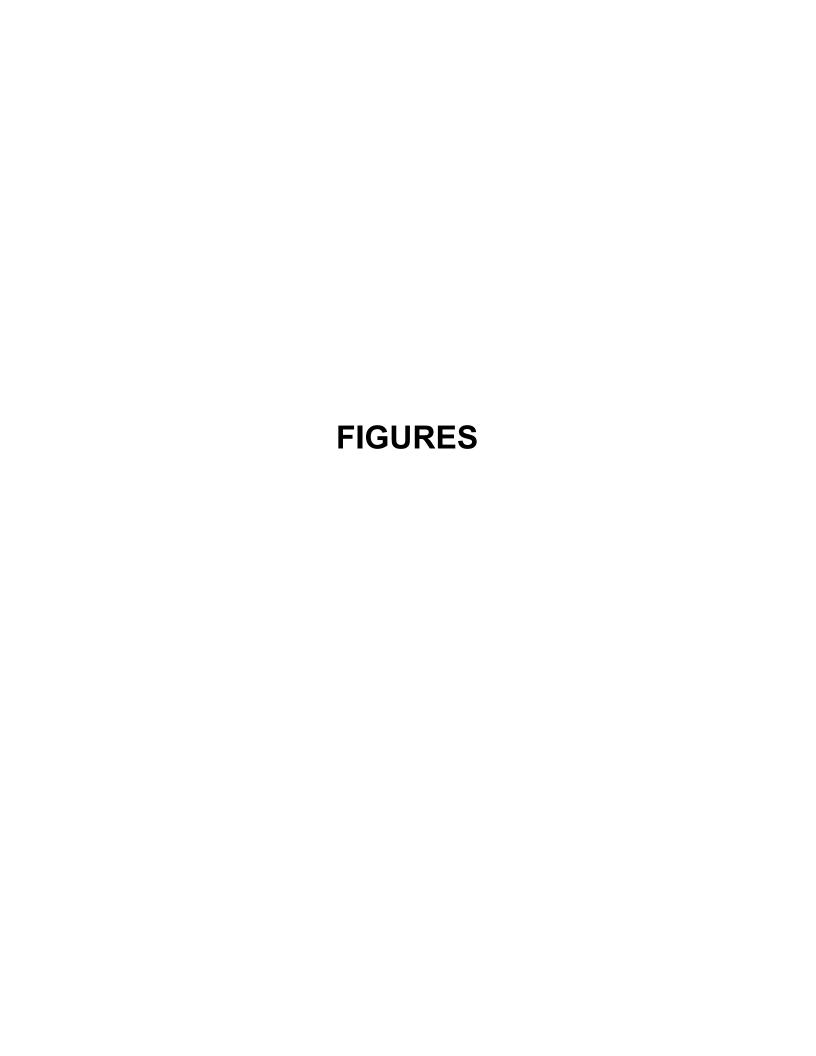
MTCA = Model Toxics Control Act EAB = enhanced anaerobic bioremediation

SVE = soil vapor extraction

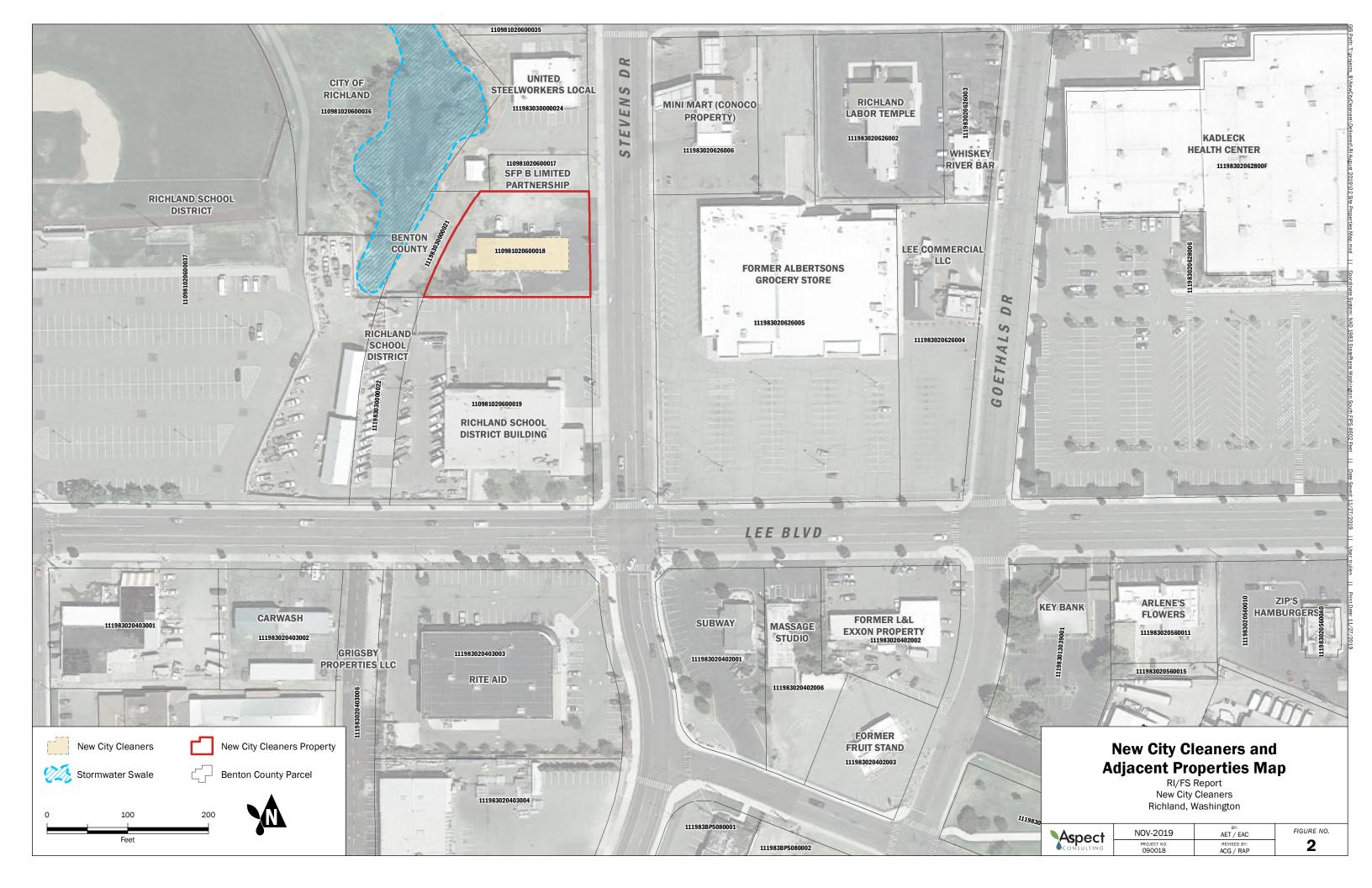
Notes:

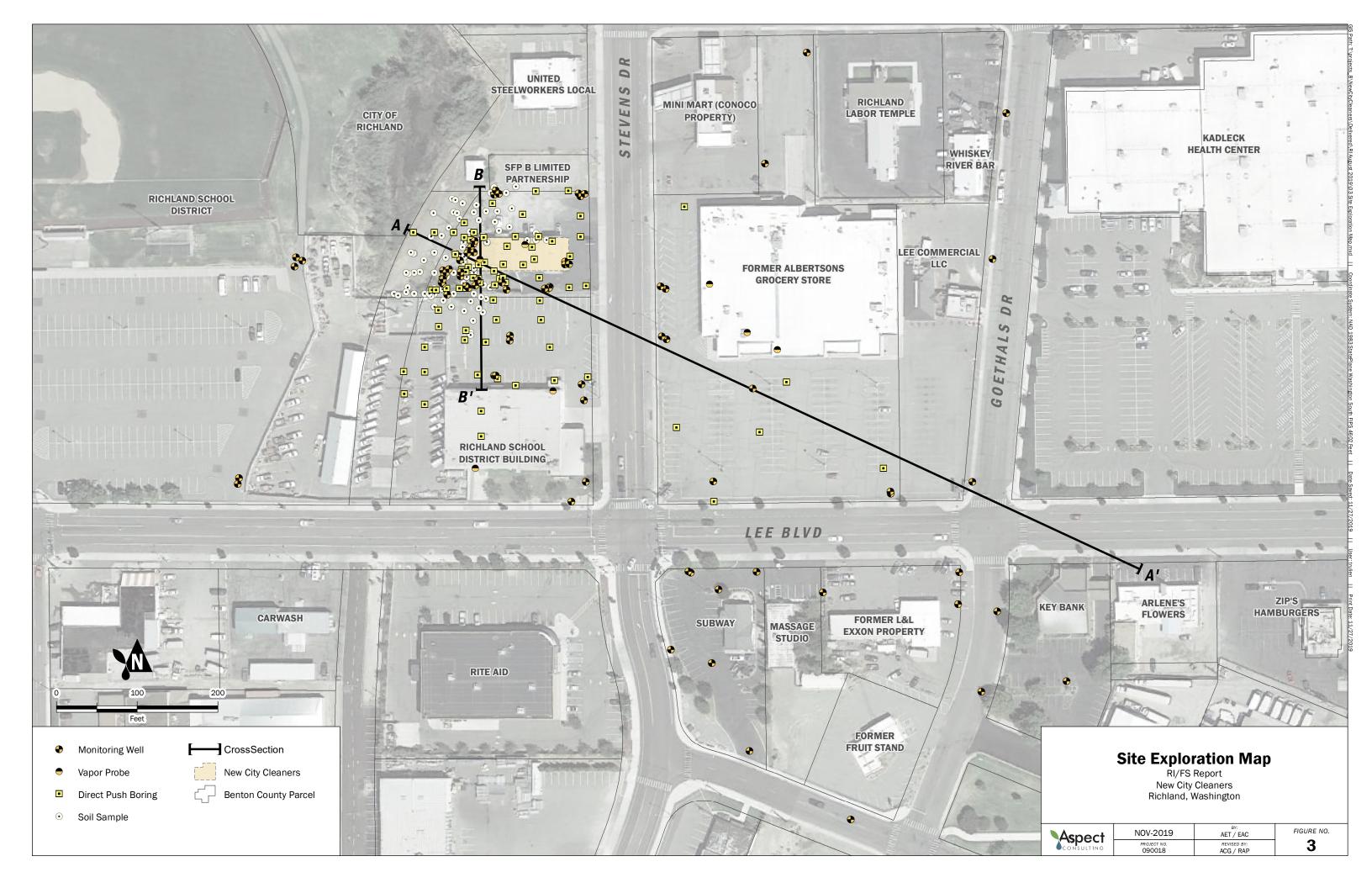
1. A scale of 1 to 10 is used to rate the alternatives with respect to the MTCA benefits criteria, where "1" indicates the criterion is satisfied to a very low degree, and "10" to a very high degree. Benefits rating values are shown in red. Refer to text for discussion of benefits ranking rationale.

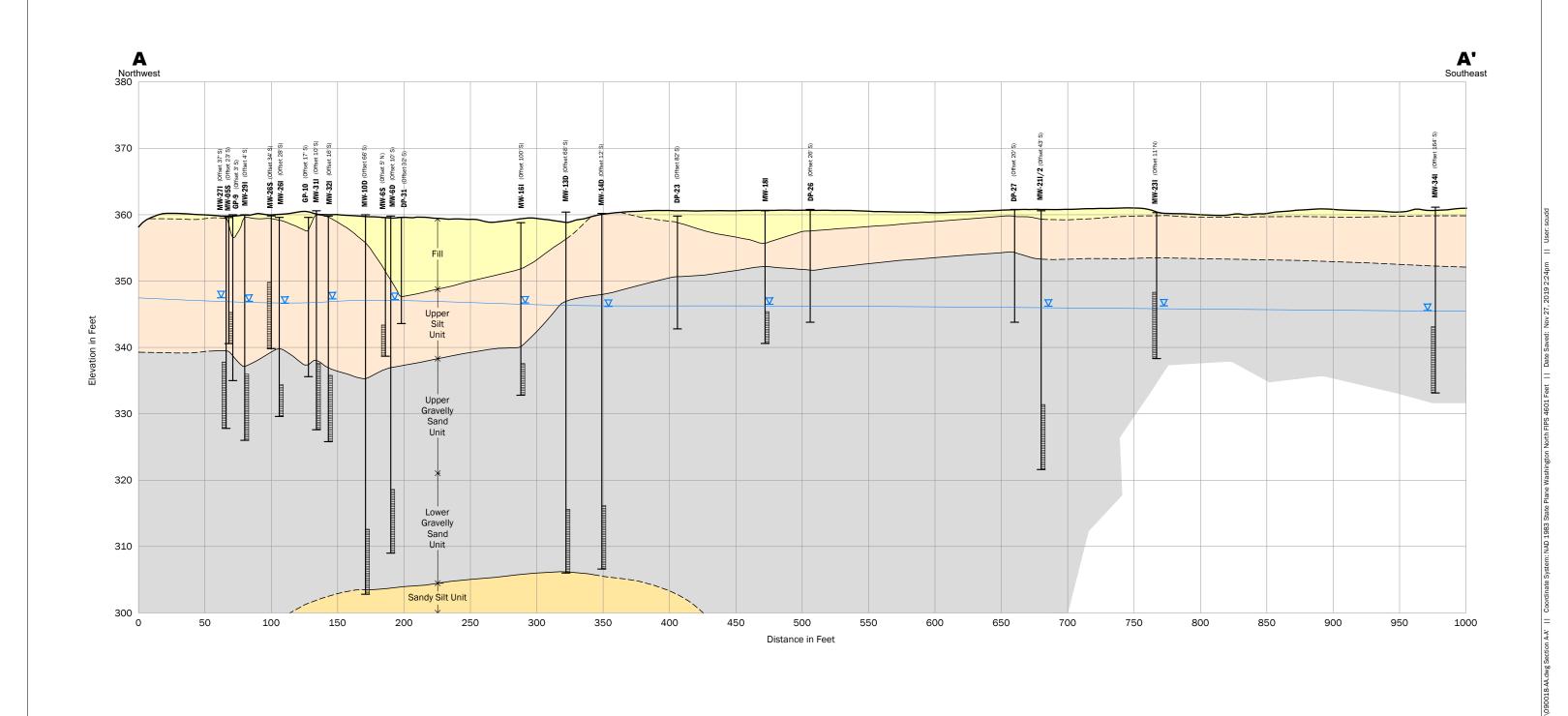
- 2. Ecology considers and responds to public or other stakeholder comments if received on the Draft Cleanup Action Plan. Therefore, for purposes of this FS, all alternatives are given a rating of 5 for consideration of public concerns.
- 3. The MTCA benefits ranking for each alternative is obtained by multiplying the rating for each criterion by its assigned weighting factor and summing the results for the six criteria.
- 4. Cost are in 2019 dollars. Costs were estimated using Net Present Value (NPV) analysis, assuming a discount rate of 2.0%. The costs presented are preliminary, Feasibility Study-level estimates based on existing information and are estimated to be within +50 / -30% of actual costs.



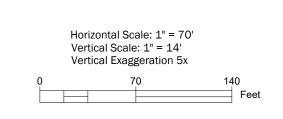








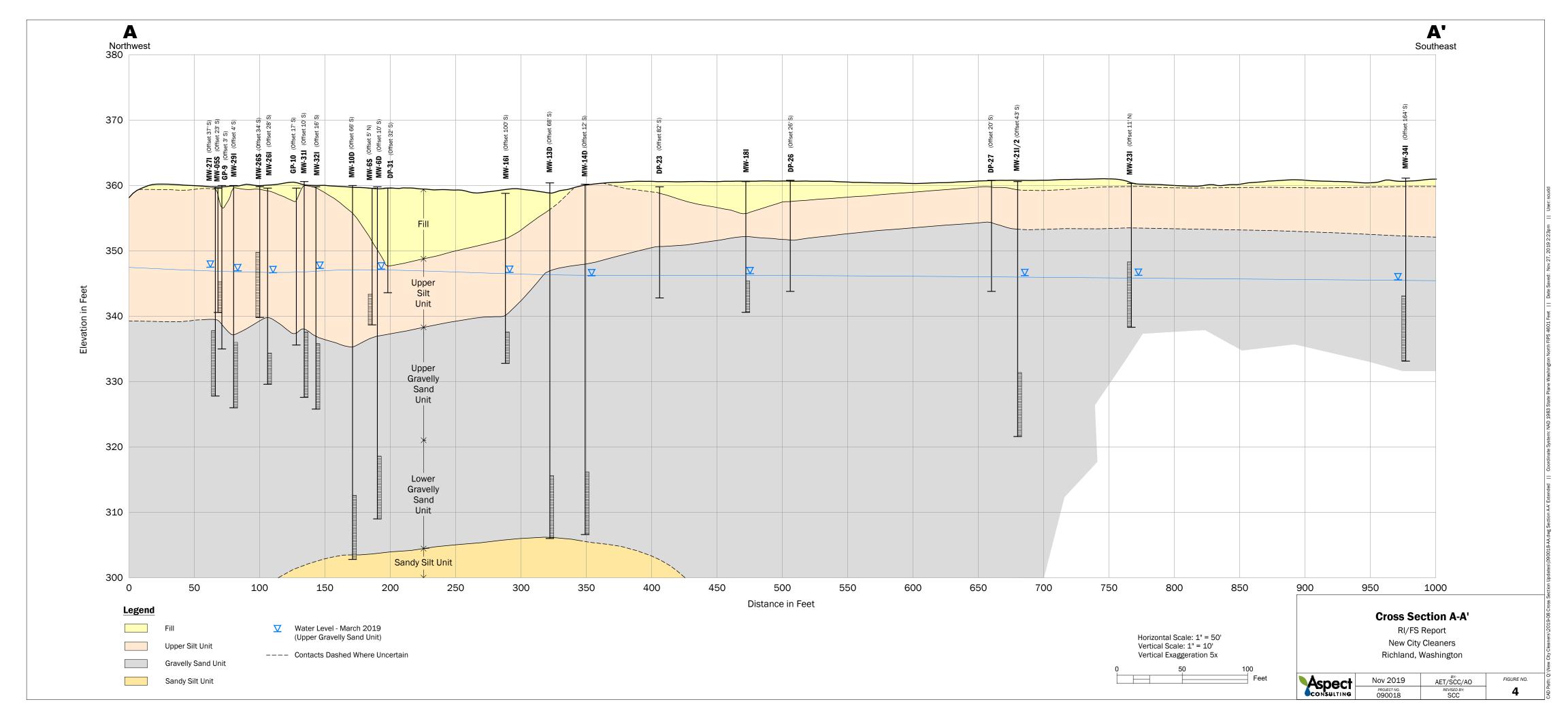


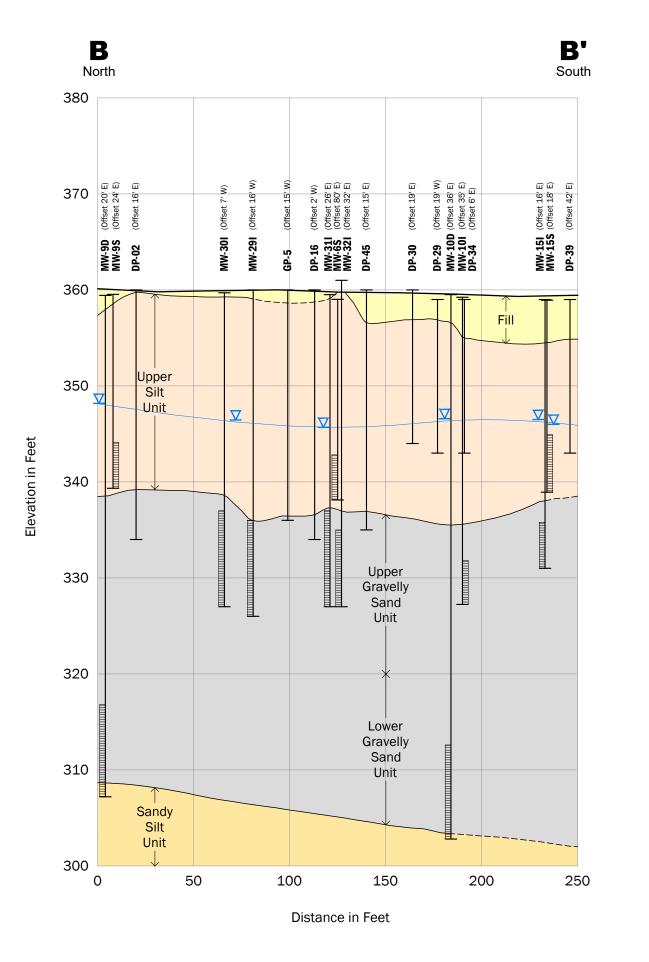


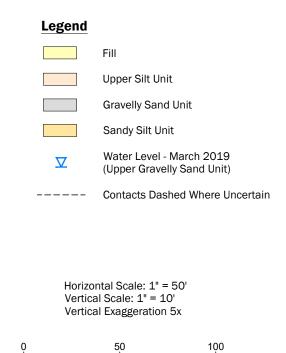
Cross Section A-A'

RI/FS Report New City Cleaners Richland, Washington

Aspect	Nov 2019	AET/SCC/AO	FIGURE NO.
CONSULTING	PROJECT NO. 090018	REVISED BY: SCC	4







Cross Section B-B'

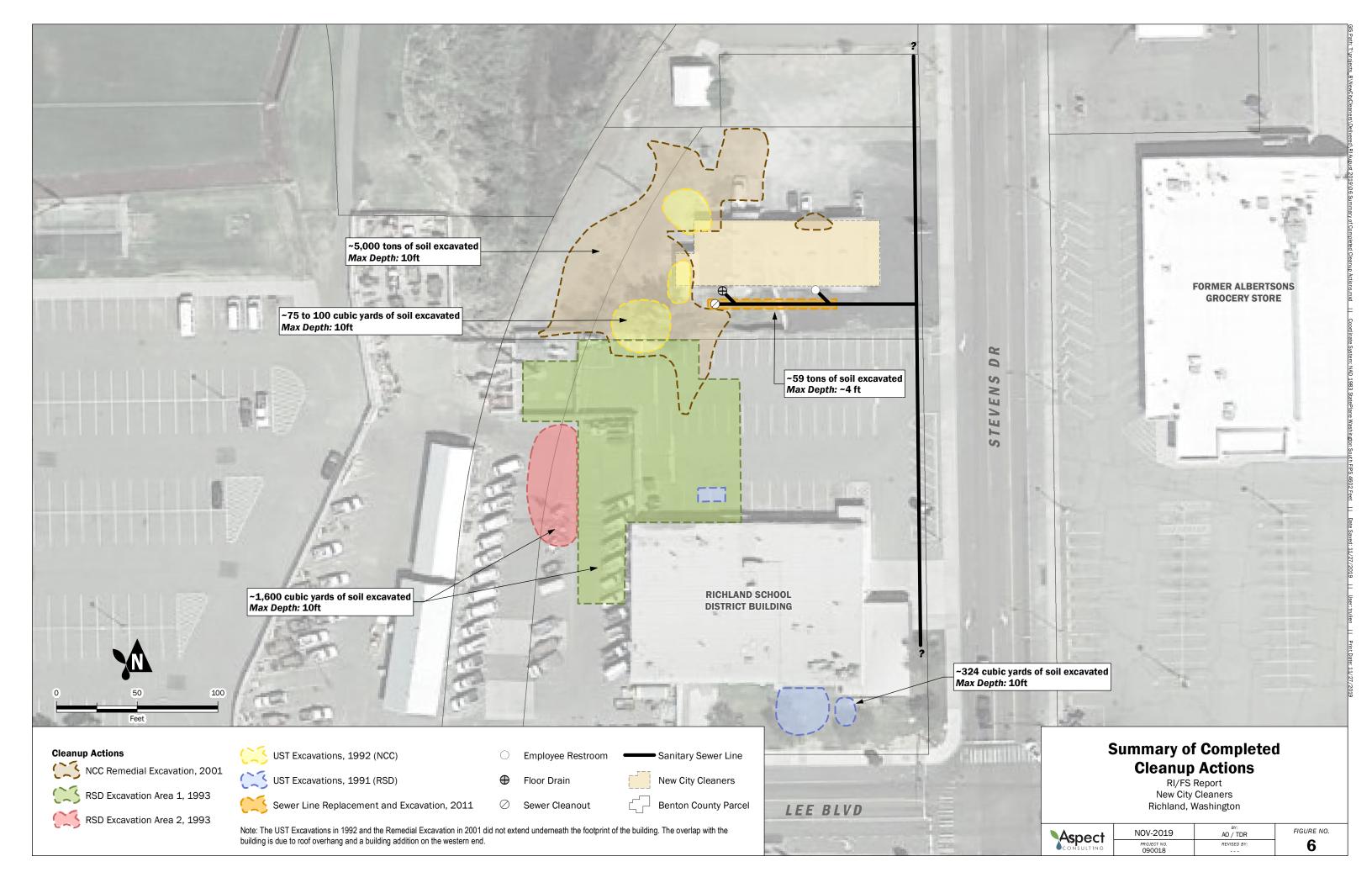
RI/FS Report New City Cleaners Richland, Washington

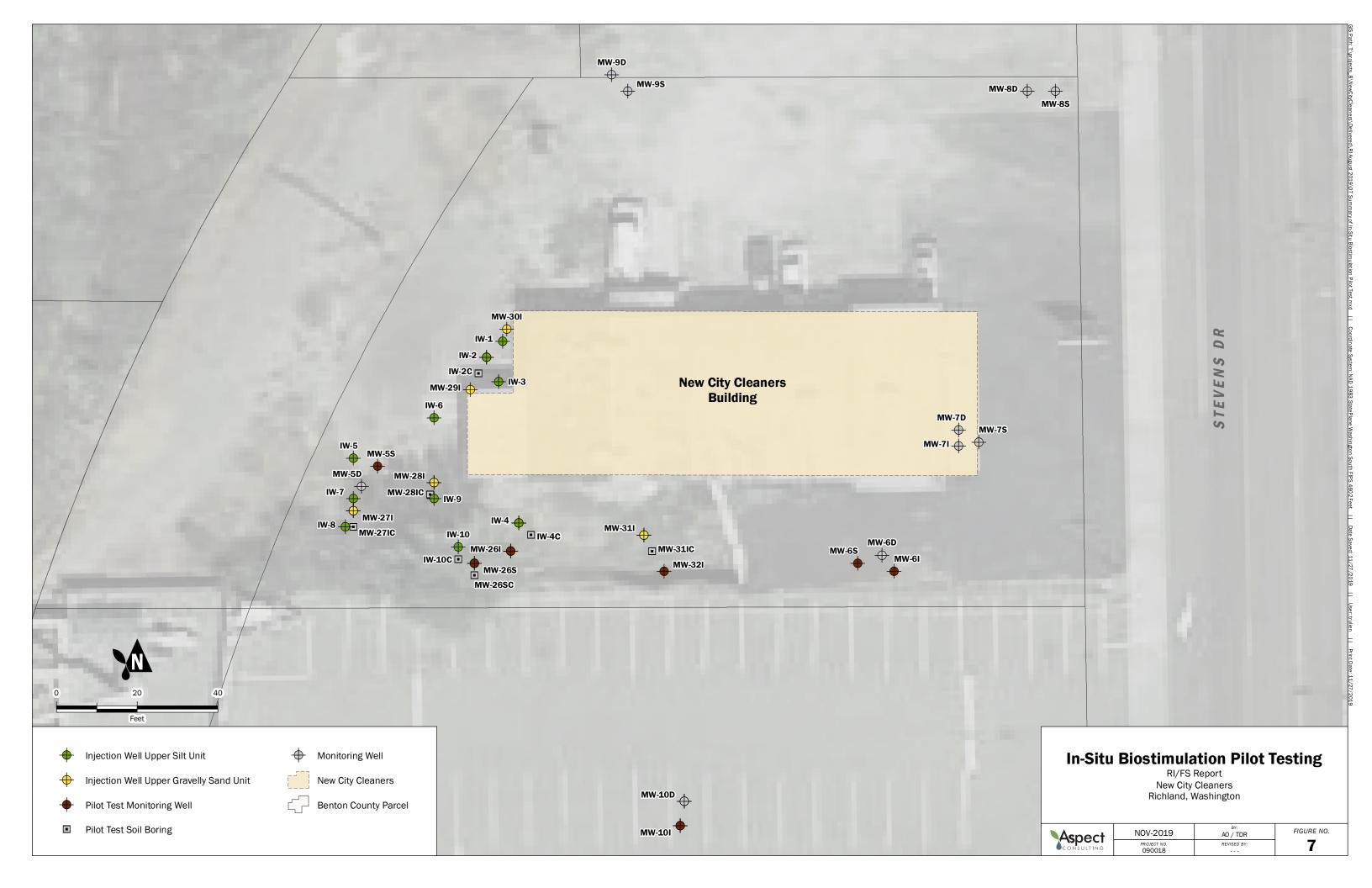
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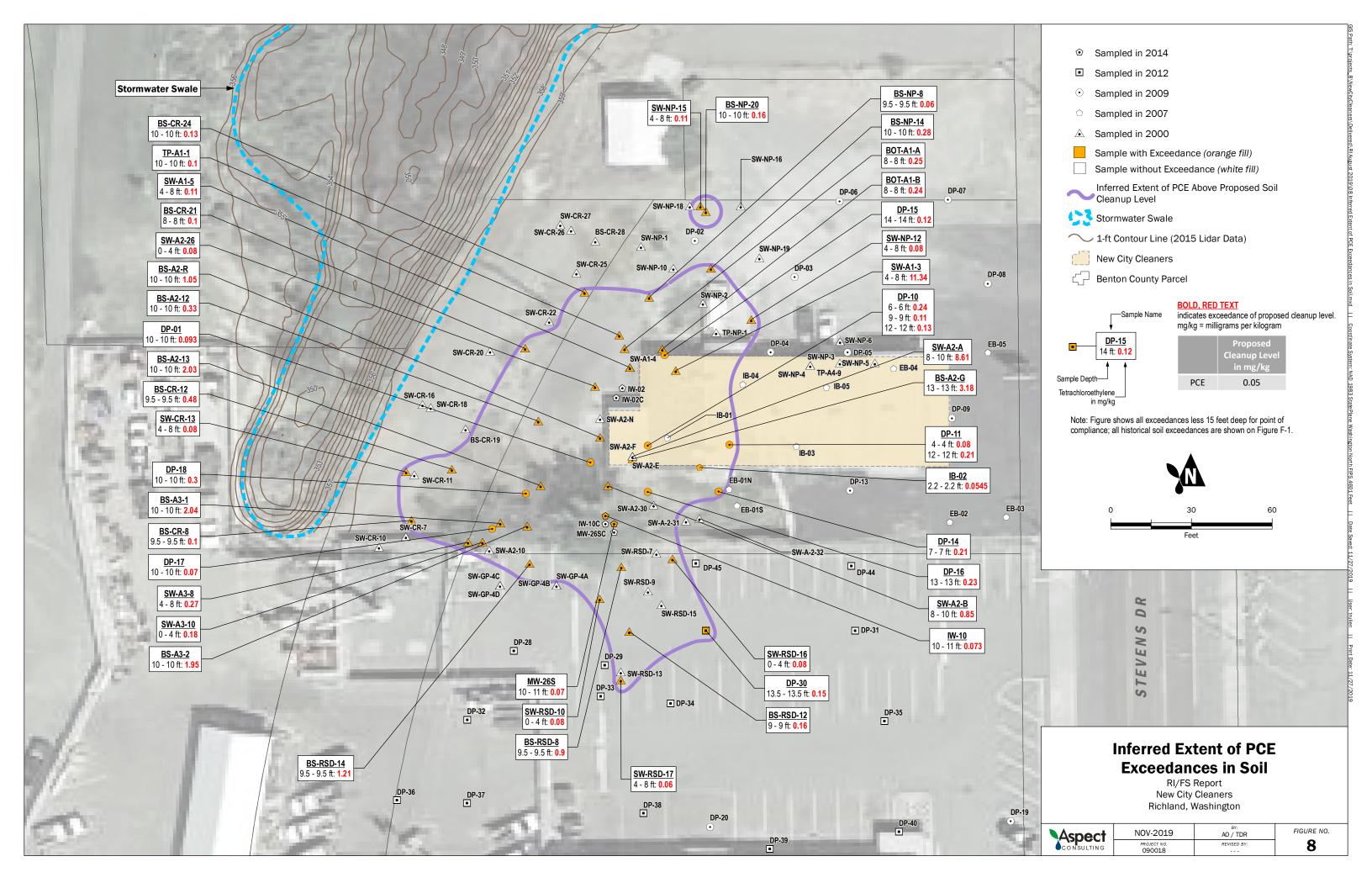
Nov 2019	AET/SCC
PROJECT NO.	REVISED BY:
090018	SCC

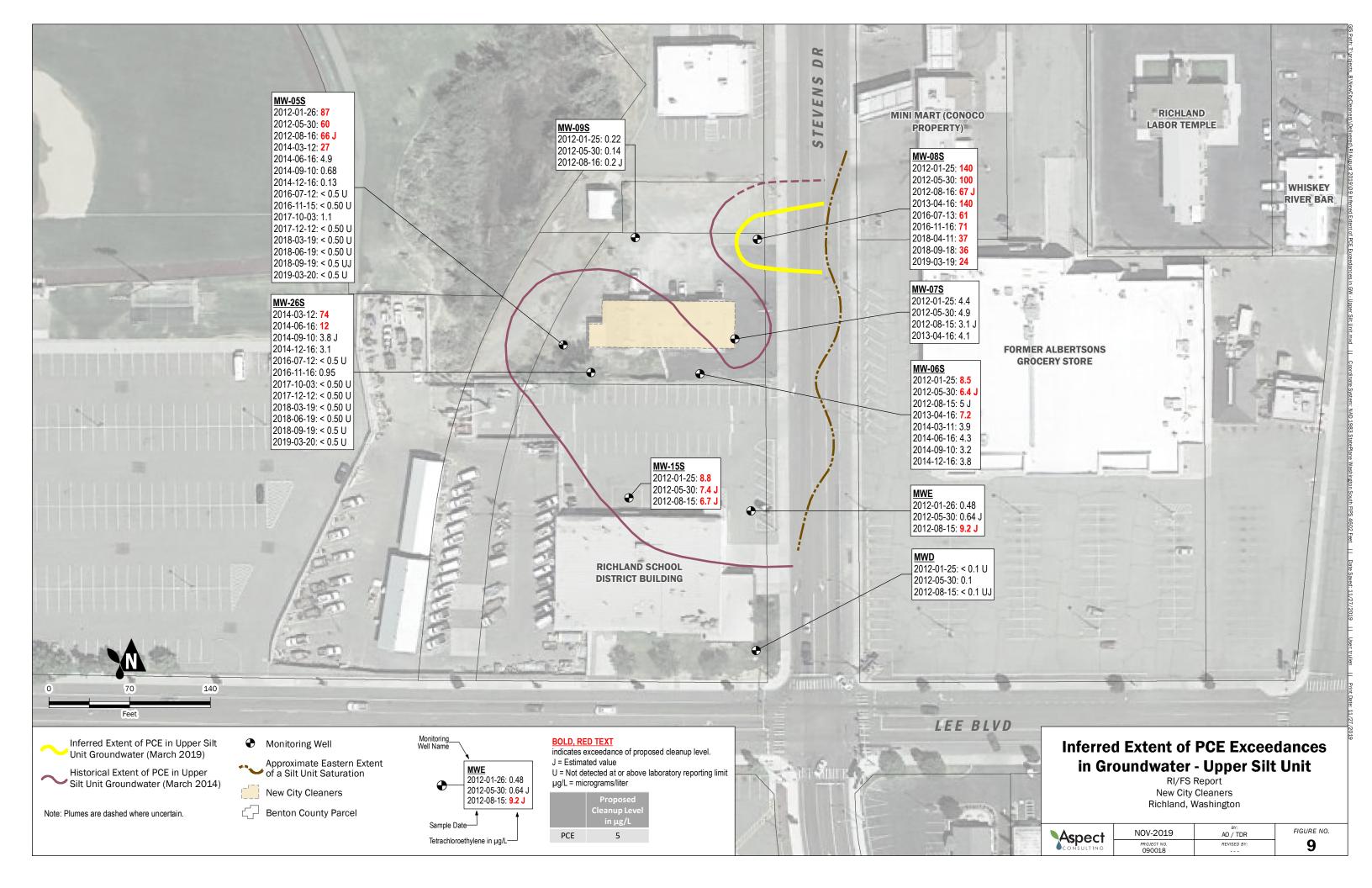
FIGURE NO.

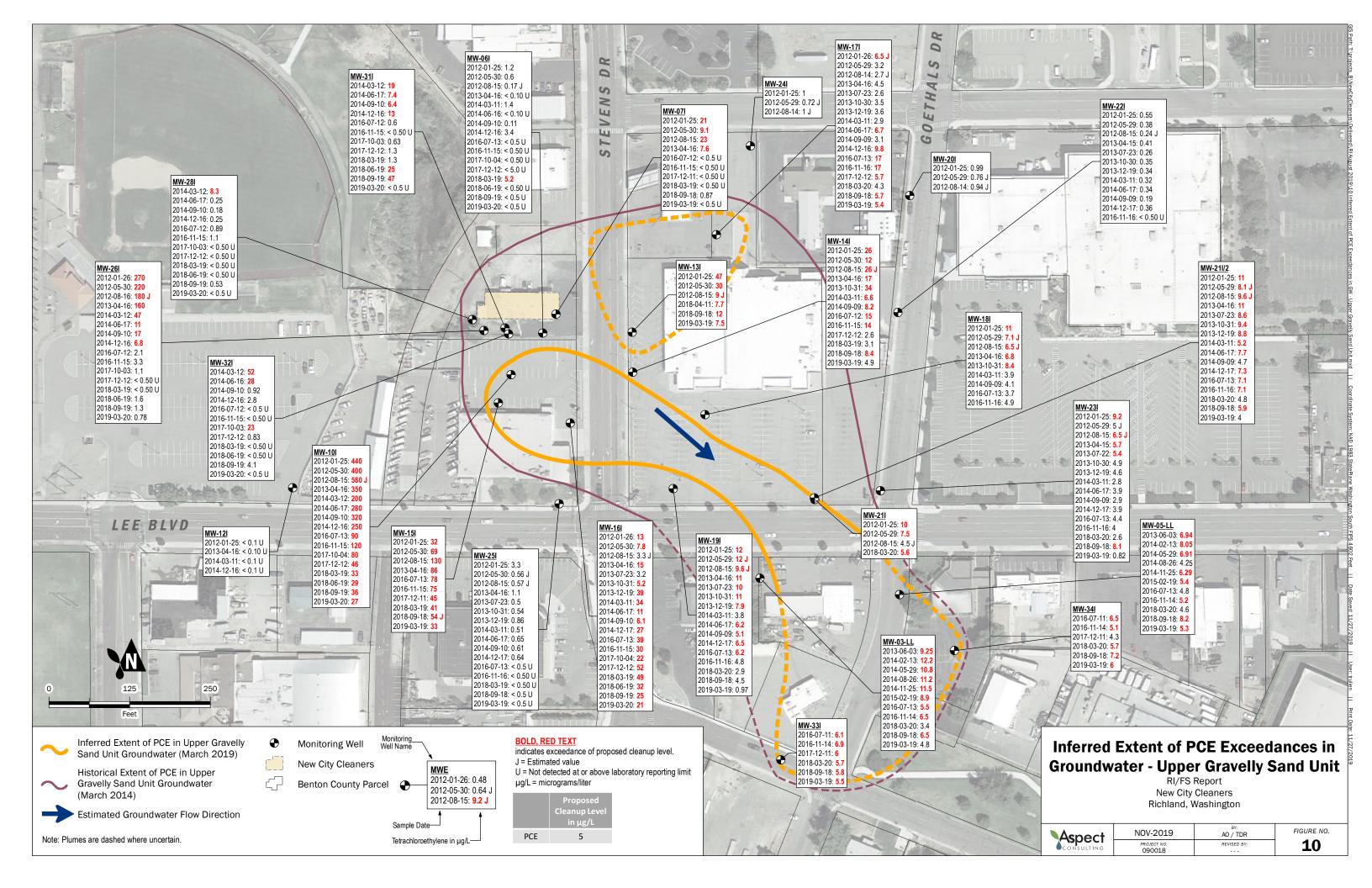
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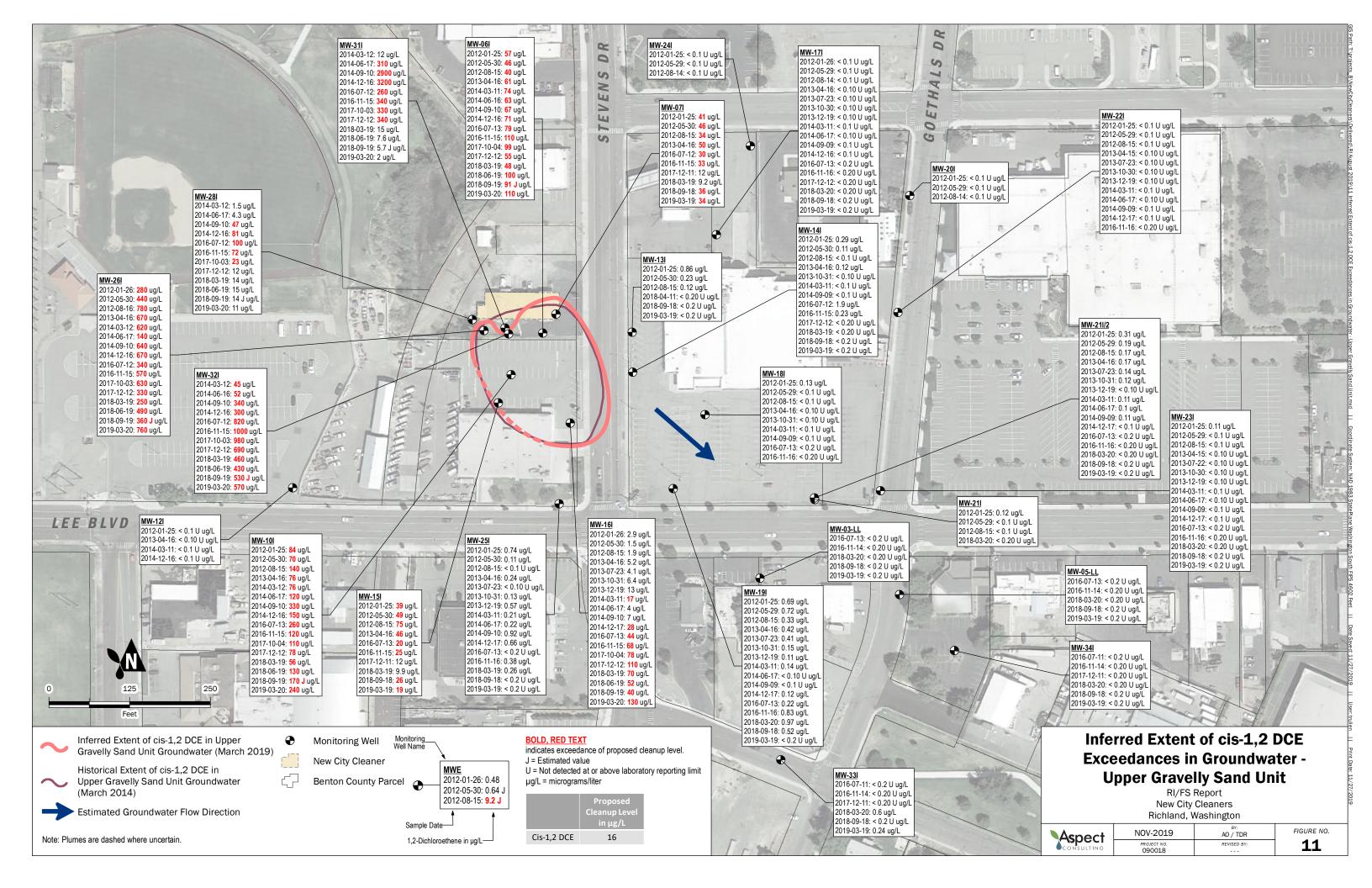


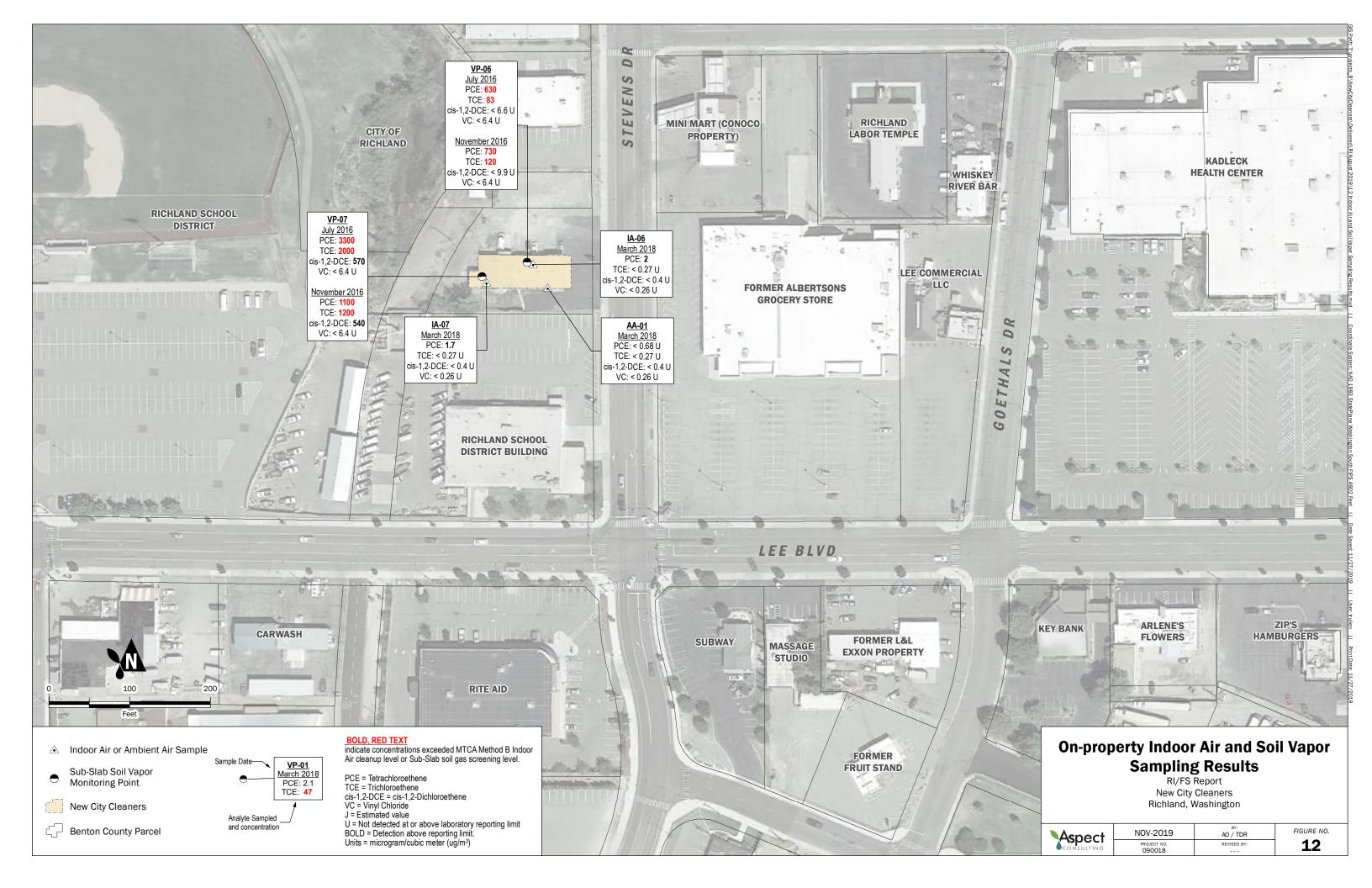


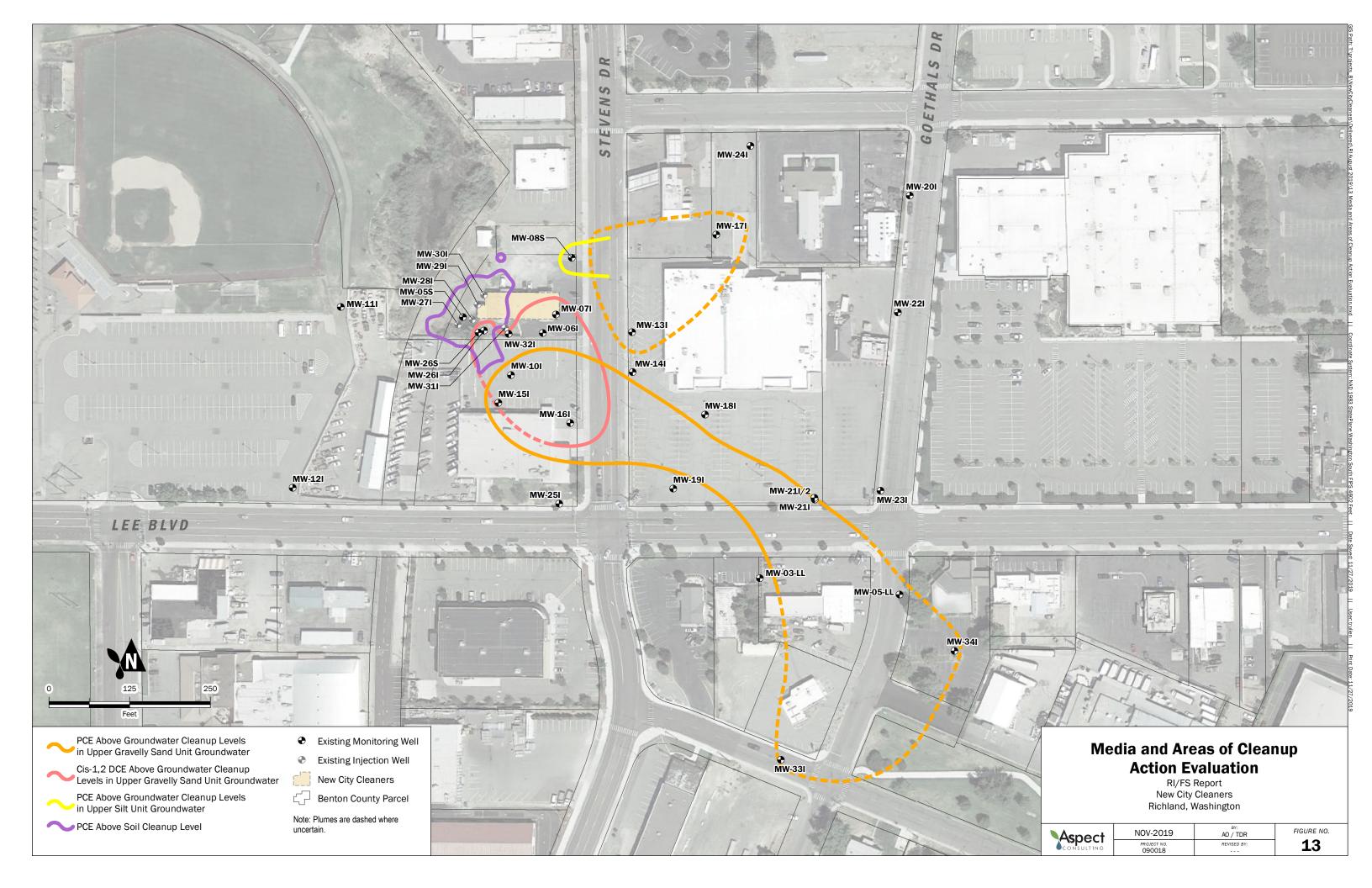


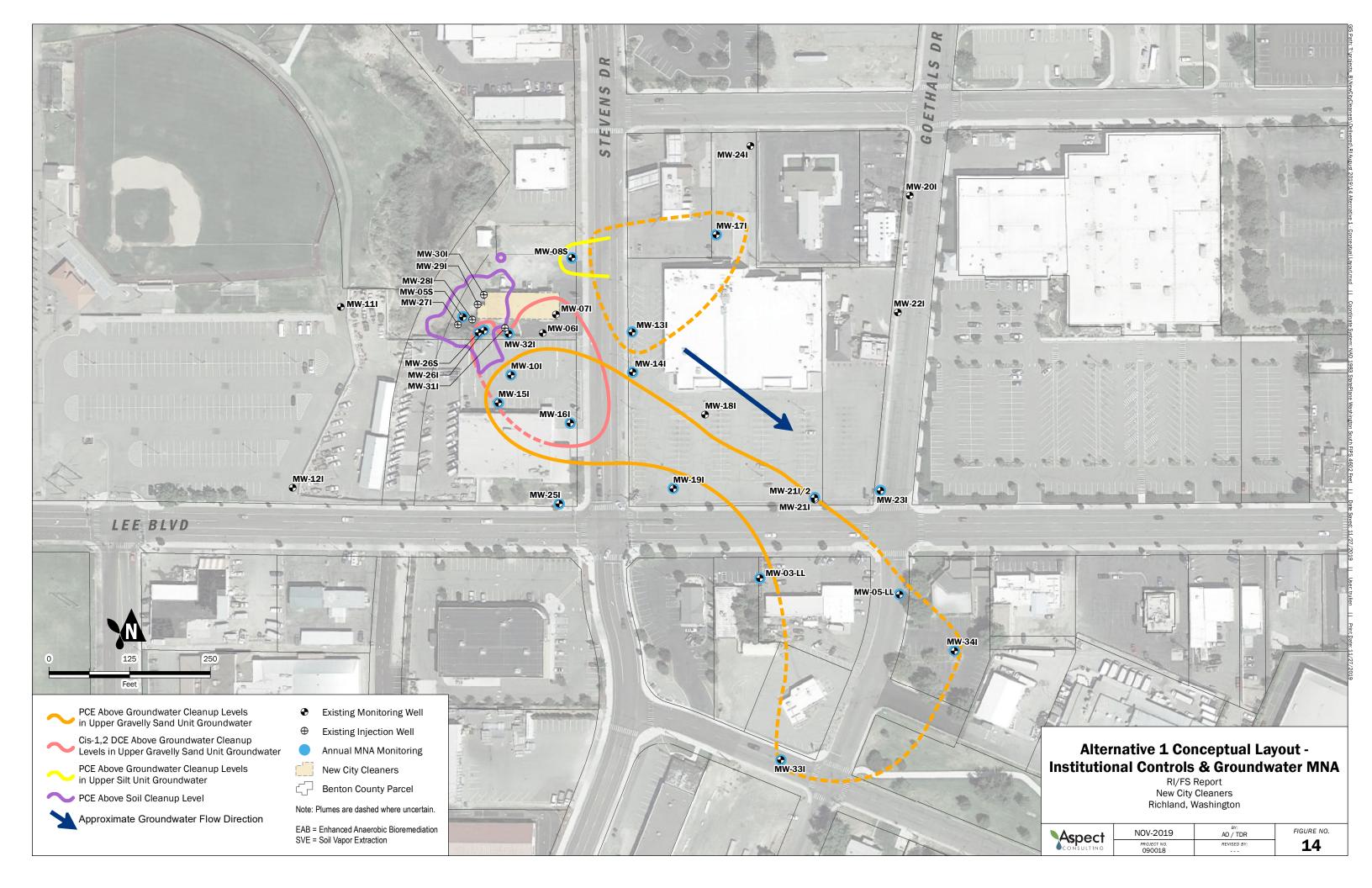


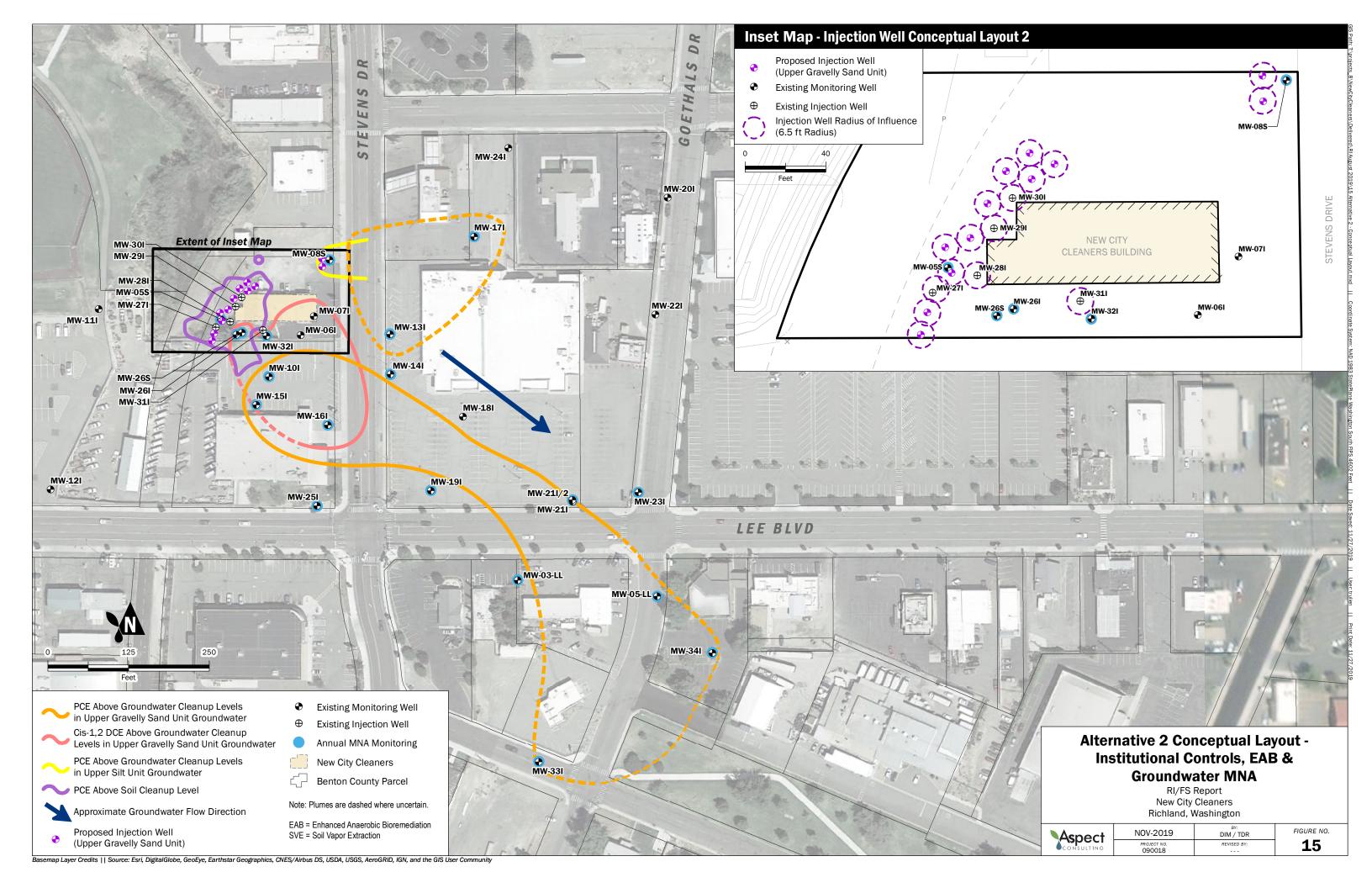


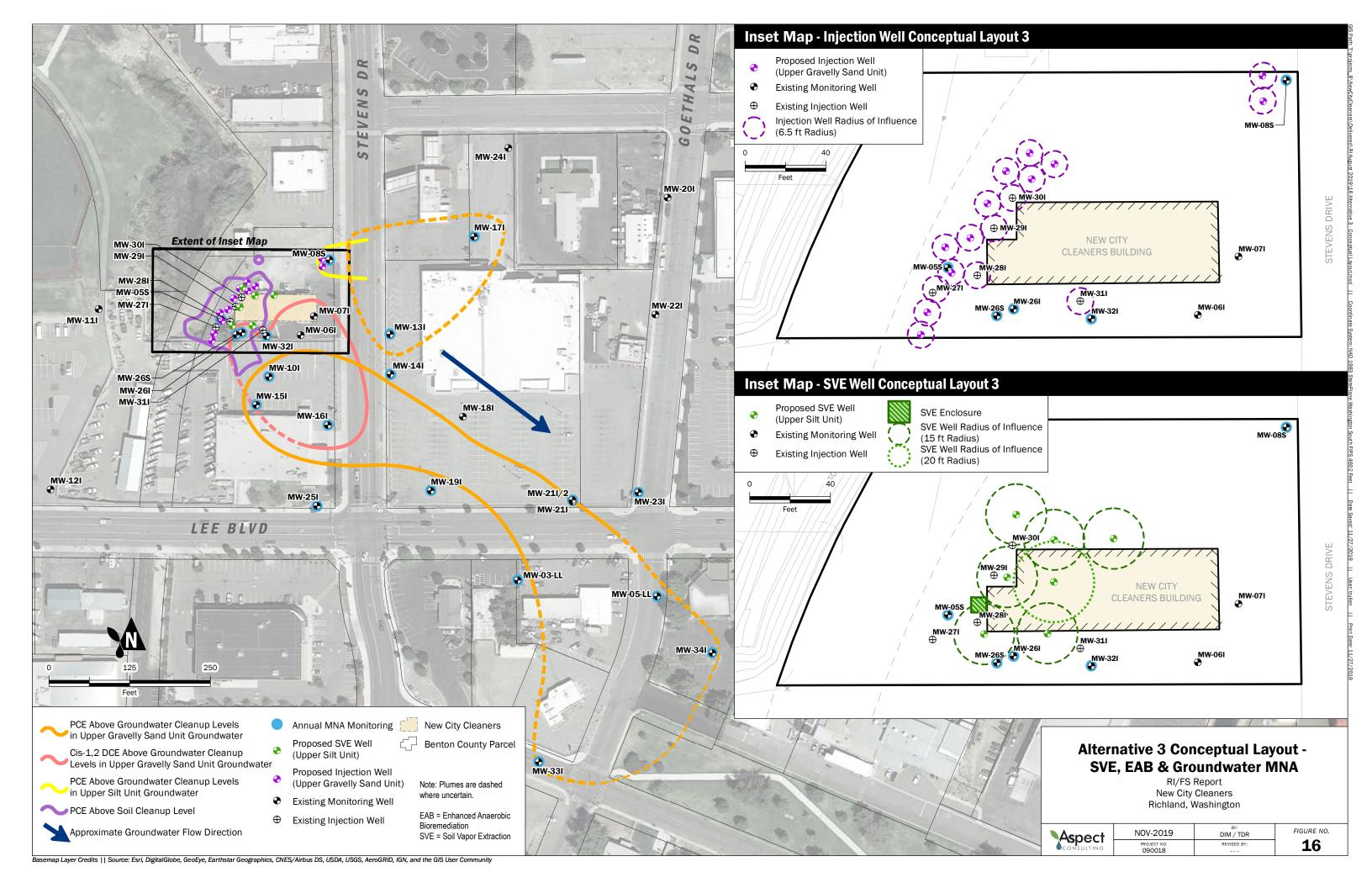


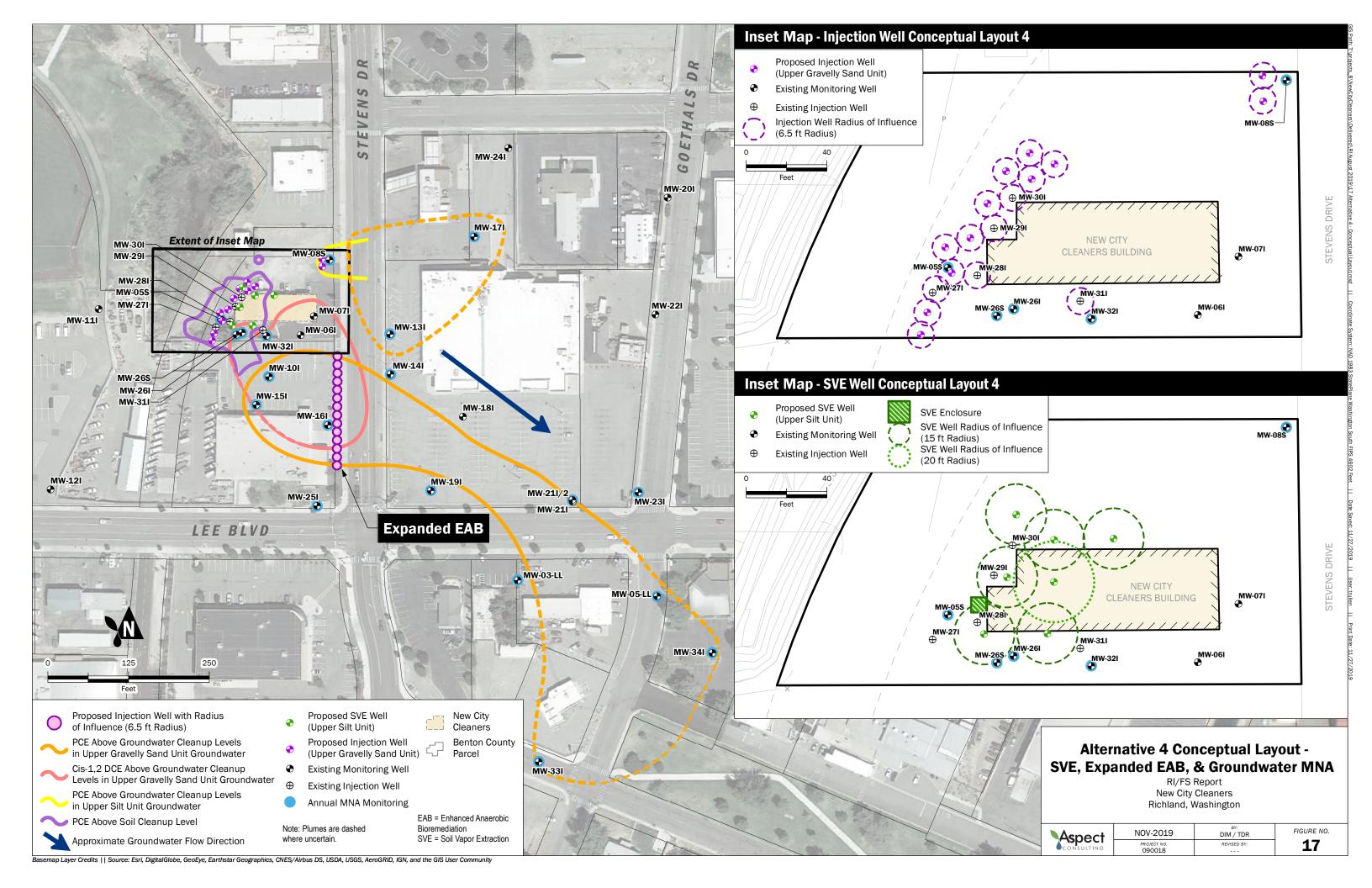


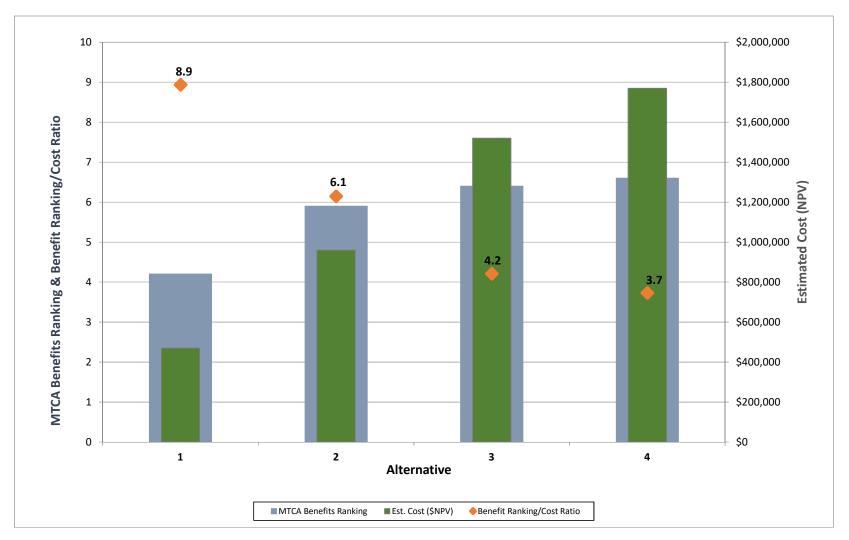






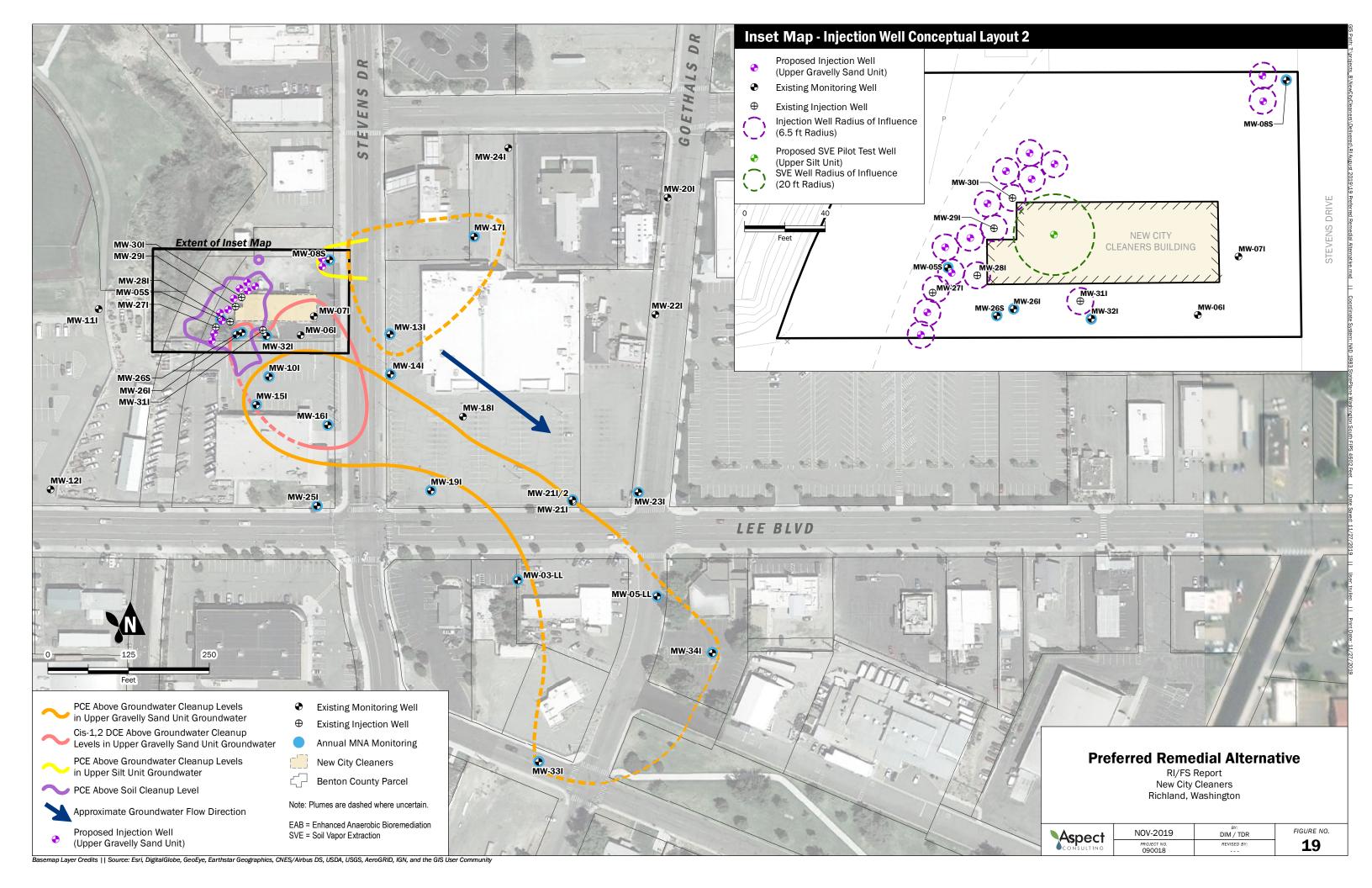






Notes:

- 1. The MTCA Benefit Ranking and Benefit Ranking/Cost Ratio values are presented in Table 2.
- 2. Cost are in 2019 dollars. Costs were estimated using Net Present Value (NPV) analysis, assuming a discount rate of 2.0%. The costs presented are preliminary, Feasibility Study-level estimates based on existing information and are estimated to be within +50 / -30% of actual costs.



APPENDIX A

Site Boring Logs

	<u>د</u> و	200		Well-graded gravel and	Terms D	escribing Re		sity and Consistency
	Fraction (5)		GW	gravel with sand, little to no fines	_ Coarse-	<u>Density</u> Very Loose Loose	SPT (2) blows/foo 0 to 4 4 to 10	Test Symbols FC = Fines Content
	Vo. 4 Sieve	000000000000000000000000000000000000000	GP	Poorly-graded gravel and gravel with sand, little to no fines	Grained Soils	Medium Dense Dense Very Dense	10 to 30 30 to 50 >50	G = Grain Size M = Moisture Conten A = Atterberg Limits
Retained on No. 200 Sieve	Gravels - More than 50% ⁽¹⁾ Retained on No. 215% Fines ⁽⁵⁾		GM	Silty gravel and silty gravel with sand	Fine- Grained Soils	Consistency Very Soft Soft Medium Stiff Stiff	SPT ⁽²⁾ blows/foo 0 to 2 2 to 4 4 to 8 8 to 15	DD = Dry Density K = Permeability Str = Shear Strength Env = Environmental
	3ravels - N ≥15%		GC	Clayey gravel and clayey gravel with sand		Very Stiff Hard	15 to 30 >30	PiD = Photoionization Detector
in 50°			SW	Well-graded sand and sand with gravel, little to no fines	Descriptive To Boulders Cobbles	erm Size Ra	ponent Defil ange and Sieve than 12" 2"	
ed Soils - N	of Coarse Fi 4 Sieve ≤5% Fir		SP	Poorly-graded sand and sand with gravel, little to no fines	Gravel Coarse Gravel Fine Gravel Sand	el 3" to 3/ 3/4" to	o. 4 (4.75 mm) '4" No. 4 (4.75 mm) 4.75 mm) to No. 20	00 (0.075 mm)
Coarse-Grain	50% ⁽¹ br More of Coarse Fraction Passes No. 4 Sieve 5 Fines ⁽⁵⁾ SSW, Fines ⁽⁵⁾		SM	Silty sand and silty sand with gravel	Coarse Sand Medium Sand Fine Sand Silt and Clay	No. 4 (d No. 10 No. 40	4.75 mm) to No. 10 (2.00 mm) to No. (0.425 mm) to No. or than No. 200 (0.00	0 (2.00 mm) 40 (0.425 mm) . 200 (0.075 mm)
	Sands - 50' ≥15% Fi		sc	Clayey sand and clayey sand with gravel	<u> </u>	d Percentaç	ge	Moisture Conte Dry - Absence of moistu dusty, dry to the to
D	- 20		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel	<5 5 to 15	Trace		Slightly Moist - Percept moistur Moist - Damp but no vis
INO. 200 Sieve	Silts and Clays Liquid Limit Less than 50		CL	Clay of low to medium plasticity; silty, sandy, or gravelly clay, lean clay	15 to 30 30 to 49	Sand grave Very	y, gravelly) y, silty, clayey, elly) (sandy, silty, y, gravelly)	water Very Moist - Water visible not free drain Wet - Visible free water, usu from below water tab
MOI	Sil Liquid L		OL	Organic clay or silt of low plasticity	Sampler Type \	Blows/6" or portion of 6"	Symbols	Cement grout surface seal Bentonite chips
000	/s More		МН	Elastic silt, clayey silt, silt with micaceous or diato- maceous fine sand or silt	2.0" OD Split-Spoon Sampler (SPT)	Des Continuous Pu		Grout seal
	Silts and Clays Liquid Limit 50 or More		СН	Clay of high plasticity, sandy or gravelly clay, fat clay with sand or gravel	Bulk sample Grab Sample	Non-Standard 3.0" OD Thin-W (including Shell	'all Tube Sampler	Grouted Transducer I I I I I I I I I I I I I I I I I I I
<u> </u>	S Liquic		ОН	Organic clay or silt of medium to high plasticity	1	Portion not reco		(5) Combined USCS symbols used fines between 5% and 15% as
Highly	Soils		PT	Peat, muck and other highly organic soils	(ASTM D-1586) (3) In General Acc Standard Pract	ordance with lice for Description on of Soils (ASTM		estimated in General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.



Exploration Log Key

ATE:	PROJECT NO.
ESIGNED BY:	
RAWNBY:	FIGURE NO.
EVISED BY:	A-1

	Aspe	ct		<u> </u>			Boring Log	
	CONSULTI				t Numbo	er	Boring Number Sheet DP-01 1 of 1	
Project Name:	New City Cle			03	0010		Ground Surface Elev.	
Location:	Richland, WA							
Oriller/Method:	Pacific Northwe	est Probe / 0	Geoprobe				Depth to Water (ft BGS)	
Sampling Metho	d: Continuous Cor	re .					Start/Finish Date 10/12/2	009
	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Materia Type	Description	Dep (ft
(feet)		Турсль		WF /		.,,pc	Gray, slightly moist, gravelly sand FILL	
+ + + + + + + + + + + + + + + + + + + +	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Soft, brown, moist, slightly sandy SILT (ML)	
5		CC-2		0			Medium stiff, brown, moist, slightly sandy, gravelly Single (ML); no odor Soft, brown gray, very moist, slightly sandy, slightly gravelly SILT (ML); no odor	- 5
- 10 - - -	Σ	CC-3	DP-01-10 VOCs	0			Wet	- 10
15-		CC-4		0			Cobble encountered at 13', poor recovery 13' to 24'	-1
		O CC-5		0				-2
-		CC-6	DP-01-22 VOCs	0			Soft, dark gray blue, wet, slightly sandy SILT (ML); nodor	+
25-		CC-7	DP-01-25 VOCs	0			Gray, wet, SAND (SP); fine to medium grained sand Brown, wet, sandy GRAVEL (GW); coarse sand, fine angular gravel	-2
† †							Refusal at 26' bgs	+
Sampler 7	1	 P		n Detec		adspa	ce Measurement) Logged by: DFR/RRH Approved by: WVG	
Continuous (Level (7.pp.o.o.a by: 11 0	

D :	Aspec CONSULTIN	١G			t Numb 0018	er	Boring Log	
Project Name:	New City Cle	aners					Ground Surface Elev.	
Location: Driller/Method:	Richland, WA Pacific Northwes	et Brobo / (Gooprobo				Depth to Water (ft BGS)	
	d: Continuous Core		Зеоргове					/2009
Depth /	Borehole Completion	Sample		PID	Blows/	Material		
Elevation (feet)	Sorenoie Completion	Type/ID	Tests	(ppm)	6"	Туре	Description	Dep (ft
+	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Very stiff, light gray, SILT (ML); no odor	-
5 -		CC-2		0			Trace fine subrounded gravels Stiff	- 5 -
10-	Σ	CC-3	DP-02-10 VOCs	0			Soft, light brown, wet, slightly sandy SILT (ML); find sand; some 1-2 mm areas of iron oxide staining; nodor	- - - - - - - - - - - - - - - - - - -
15-		CC-4		0				_ _ _ 15
		CC-5		0			Increasing fine sand content	
20+			DP-02-20 VOCs					+20
		CC-6		0			Dark brown, wet, silty SAND (SP); no odor	
25 –		CC-7		0			Dark gray, wet, sandy GRAVEL (GW); medium to coarse grained sand, fine angular gravel; no odor	_ -25
+			DP-02-26 VOCs				Refusal at 26' bgs	
Sampler T No Recovery	'	P		n Detec		adspa	ce Measurement) Logged by: DFR/RRH Approved by: WVG	
Continuous C	`oro			Level (, ipprovod by: III C	

		Mana	.1					Boring Log	
		Aspec	e e e e e e e e e e e e e e e e e e e			t Numb	er	Boring Number Sheet	
Dunio at Nia		New City Cle			09	0018		DP-03 1 of 1	
Project Na	ame:	Richland, WA	aners					Ground Surface Elev.	
_ocation: Driller/Met	hod:	Pacific Northwes	rt Probe / /	Goorraha				Depth to Water (ft BGS)	
		: Continuous Core		Geoprobe				Start/Finish Date 10/12/2	2009
Depth /					PID	Blows/	N4-4		
Elevation (feet)	Вс	orehole Completion	Sample Type/ID	Tests	(ppm)	6"	Material Type	Description CRANIST (CAN)	Dep (ft)
+		Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Dry, light gray, slightly silty, sandy GRAVEL(GM); first sand, subangular fine gravels	ne
5 + + + + + + + + + + + + + + + + + + +			CC-2		0				- 5 -
- - 0- -		፟፟፟፟፟፟፟	CC-3		0			Slightly moist	-10
5-			CC-4	DP-03-12.5 VOCs	0			Soft, brown, wet, SILT (ML); no odor	-15
† + +			CC-5		0			2-3 mm zones of iron oxide staining from 18' to 21'	-20
- -			CC-6		0			Soft, light gray brown, wet, SILT (ML); no odor 1 cm layer of wood fragments at 21.5'	+
5+			CC-7	DP-03-23 VOCs	0			Wet, gray blue, sandy GRAVEL (GW); subrounded gravels; no odor	fine
+				DP-03-26 VOCs				Refusal at 26' bgs	+
San	npler Ty	/ne·		PID - Photoionizatio	on Dete	ctor (4)	adens	te Measurement) Logged by: DFR/RRH	
O No Re	covery uous C		r	▼ Statio	: Water	Level	Jauspal	Approved by: WVG	
								Figure No. A	

	Aspec	C T			t Numb	er	Boring Log Boring Number Sheet DP-04 1 of 1	
Project Name: Location:	New City Cle		<u> </u>		0010		Ground Surface Elev.	
Driller/Method:	Pacific Northwes	st Probe / (Geoprobe				Depth to Water (ft BGS)	
Sampling Method	d: Continuous Core	Э					Start/Finish Date10/12/2	009
Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	De (f
- - -	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Brown, slightly moist, sandy, slightly silty GRAVEL (GM); no odor	+
5 + + + + +		CC-2	DP-04-5 VOCs	0			Soft, moist, brown, SILT (ML); no odor	- !
10 -	፟፟፟፟፟፟፟፟፟	CC-3	DP-04-10 VOCs	0			Wet	-1 -1
15-		CC-4		0				- - -1
- - -		CC-5	DP-04-18 VOCs	0			Increased fine sand content, trace iron oxide staining Slightly sandy 18' to 18.5' bgs	, - - -
20 + + + + + + + + + + + + + + + + + + +		CC-6		0			Soft, wet, dark gray blue, SILT (ML); no odor	_2 _
25 -		CC-7	DP-03-24 VOCs	0			Wet, dark gray blue, sandy GRAVEL (GM); coarse sand, fine subangular gravel; no odor	
 							Refusal at 25' bgs	
Sampler T No Recovery Continuous C	,	P	∇	on Detection Detection	Level	adspa	ce Measurement) Logged by: DFR/RRH Approved by: WVG	

	Aspe	ct		Projec	t Numb	er	Boring Log Boring Number	Sheet
	CONSULT				0018		DP-05	1 of 1
Project Name:	New City Cl	eaners					Ground Surface Elev.	
Location: Driller/Method:	Richland, WA Pacific Northwe	act Brobo /	Coorrobo				Depth to Water (ft BGS)	
	od: Continuous Co		Geoprobe				Start/Finish Date	10/12/2009
Depth / Elevation	Borehole Completion	Sample	Table	PID	Blows/	Material	Description	
(feet)		Type/ID	Tests	(ppm)	6"	Type		De (fi
	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Slightly moist, light gray, slightly (GM); no odor	silty, sandy GRAVEL
5 -		CC-2		0			Moist	+ 5 +
10-	Σ	CC-3		0				- -10
15-		CC-4	DP-05-13 VOCs	0			Very soft, wet, dark blue, SILT (Nodor Cobble encountered at 13' bgs, p to 20' bgs.	L
20-		CC-5		0			Light brown, trace fine subrounde	ed gravel
+		CC-6	DP-05-22 VOCs	0				-
25-		CC-7	DP-05-25 VOCs	0			Dark gray, wet, sandy GRAVEL (GW); no odor -2:
							Refusal at 27' bgs	
Sampler	Type:	F	 PID - Photoionizatio	n Dete	ctor (He	eadsna	ce Measurement) Logged by:	DFR/RRH
○ No Recover Continuous	ry	'	▼ Statio	: Water r Level	Level	. zaopu	Approved by	
				_5.01	· · · · · · /		Figure No.	Α

	Aspec	C †			t Numb 0018	er	Boring Log Sheet DP-06 1 of 1	
Project Name: Location:	New City Cle		1				Ground Surface Elev.	
Driller/Method:	Pacific Northwes		Geoprobe				Depth to Water (ft BGS)	
Depth /	d: Continuous Core	e 		T			Start/Finish Date	2009
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description Dry, light brown, slightly silty, sandy GRAVEL (GM)	Dep (ft
+ + + + + + + + + + + + + + + + + + + +	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			subangular fine gravel; no odor	,
5 -		CC-2		0				- 5
10-	Ϋ́	CC-3	DP-06-10 VOCs	0			Medium stiff, brown, wet, SILT (ML); no odor	10
15-		CC-4		0			Stiff Soft, dark brown	- - -15
20-		CC-5	DP-06-18 VOCs	0			Light brown with occaisonal 2-3mm zones of iron ox staining	dide - 20
+ + + + + + + + + + + + + + + + + + + +		CC-6		0			Soft, dark gray blue, wet, SILT (ML); no odor	+
25-		CC-7	DP-06-25 VOCs	0			Dark gray blue, wet, sandy GRAVEL (GW); no odor	- 25 25
+							Bottom of boring at 28' bgs	
Sampler T No Recovery Continuous C	•	l l P	\Box	on Deter Water r Level	Level	l eadspa	Logged by: DFR/RRH Approved by: WVG Figure No. A	

	Aspec	t			t Numb	er	Boring Log Boring Number She	
Project Name	New City Cle			09	0018		DP-07 1 o	f 1
_ocation:	Richland, WA							
Oriller/Method			Geoprobe				Depth to Water (ft BGS)	
Depth /	thod: Continuous Core						Start/Finish Date10	0/12/2009
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	De
<u> </u>	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Slightly Moist, brown, slightly silty, sandy GRA\ (GM); no odor	/EL
5 -		CC-2		0			Moist	-
10-	Ā	CC-3	DP-07-10 VOCs	0		2 · 2 · 3	Very Soft, very moist, red brown, SILT (ML); no	o odor
+		CC-4		0			Soft	
15 —				0			Medium Stiff	
		CC-5	DP-07-18 VOCs	0			Increased fine sand content from 18' to 18.5' boodor	gs ; no
20 +		CC-6	DP-07-21 VOCs	0			Wet, dark gray blue, slightly silty, sandy GRAV (GW); fine subangular gravel; no odor	EL -
25 -							Refusal at 23' bgs	+2
+								+
+								
Sample No Recov Continuou		Р		on Dete	Level	adspac	e Measurement) Logged by: DFR/RRH Approved by: WVG	
_			- vvater	revei	(AID)		Figure No. A	

	Aspec	ct			t Numb	er	Boring Log Boring Number Sheet	
	● CON SULTIN	NG		09	0018		DP-08 1 of 1	
roject Name: ocation:	New City Cle Richland, WA	aners					Ground Surface Elev.	
ocation. Driller/Method:		et Probe / (Geographe				Depth to Water (ft BGS)	
	nod: Continuous Core		Зеоргове				Start/Finish Date 10/12/20	09
Depth /	Borehole Completion	Sample		PID	Blows/	Material		De
Elevation (feet)	Borenole Completion	Type/ID	Tests	(ppm)	6"	Туре	Description	(
+ + + + + + + + + + + + + + + + + + + +	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Slightly Moist, dark brown, slightly silty, sandy GRAVE (GM); no odor Light gray, dry	
5 + + +		CC-2		0				
0-	Ā	CC-3	DP-08-10 VOCs	0			Very Soft, wet, brown, SILT (ML); no odor Soft, trace fine subrounded gravels	
5-		CC-4		0			Medium Stiff	+
+ + + +		CC-5	DP-08-16 VOCs	0			Occaisonal 2-3mm zones of iron oxide staining from to 18.5' bgs. Wet, brown gray, sandy GRAVEL (GW); fine	6'
0+ + +		CC-6	DP-08-20 VOCs	0			subangular gravel; no odor	+
25 -							Refusal at 23' bgs	-2
+								+
†								+
Sampler No Recove Continuous	ery	P	\Box	on Detection Det	Level	eadspac	ce Measurement) Logged by: DFR/RRH Approved by: WVG	
_			- vvale	LEVEI	(רוט)		Figure No. A	

Denth /	New City Cle Richland, WA Pacific Northwes Continuous Core Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	aners	Geoprobe Tests	PID (ppm)			DP-09 1 of 1 Ground Surface Elev. Depth to Water (ft BGS) Start/Finish Date 10/13/200	
Depth / Elevation	d: Continuous Core Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at	Sample Type/ID		PID (ppm)				
Depth / Elevation	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at	Sample Type/ID	Tests	PID (ppm)			Start/Finish Date10/13/200	
Elevation E	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at	Type/ID	Tests	PID (ppm)				9
	Bentonite Chips and Blacktop cold patch at	CC-1		1	l °	Material Type	Description (CNA)	De _l
				0	-,000 ,000 ,000 ·		Slightly moist, dark brown, silty sandy GRAVEL (GM); no odor Light gray, dry, decrasing silt content	-
5 -		CC-2		0	200 200 200 200			- 5 -
10-	፟፟፟፟፟፟፟	CC-3	DP-09-12 VOCs	0	00000		Soft, wet, SILT (ML); trace fine subrounded gravel; no odor	1(
15-		CC-4		0			Brown yellow, medium stiff	- - -1!
† - - -		CC-5		0				
20 - - - -		CC-6	DP-09-20 VOCs	0	000		Increasing fine gravel content Wet, gray, sandy GRAVEL (GW); no odor	+20 +
25 -		CC-7	DP-09-25.5 VOCs	0	000			-25
							Refusal at 26' bgs	
Sampler T No Recovery Continuous C		F		n Dete	Level	dspac	e Measurement) Logged by: DFR/RRH Approved by: WVG	

	•	Aspe	ci	,		D '	4 NJ: *		Boring Log	01/
		CONSULT					t Numb 0018	er	Boring Number DP-10	Sheet 1 of 1
Project Na	ıma.	New City Cl				09	0016		Ground Surface Elev.	1 01 1
ocation:	iiiic.	Richland, WA	Cai	1013					Ground Surface Liev.	
Driller/Met	hod.		est F	Probe / I	Limited Access C	Seoprobe			Depth to Water (ft BGS)	
		Continuous Co				200р.020			Start/Finish Date	10/13/2009
Depth /		rehole Completion		Sample		PID	Blows/	Material		
Elevation (feet)	501	.soio compiction	ļì	Type/ID	Tests	(ppm)	6"	Туре	Description	
+		Backfilled with 3/8 Bentonite Chips and Concrete patch at ground surface.	0	CC-1		0			No Recovery, sampler pushing large bgs	e gravel from 0' to 3'
†				CC-2				0000	Dry, brown, slightly silty, sandy GRA No recovery from 3.5' to 6', drilling a gravel/silt contact at 3.5' bgs	
5 +			0	00-2		0				
+				CC-3	DP-10-6 VOCs	0			Slightly moist, brown, SILT (ML); no	odor
			Ц		DD 40 0 VOC					
0+	7	7		CC-4	DP-10-9 VOCs	0				
†		<u> </u>	Ц		DP-10-12 VOC	s				+
+				CC-5		0				
5+				CC-6	DP-10-16 VOC					
+					DI -10-10 VOO	3			Refusal at 16' bgs resulting from the anchors used to secure indoor drilling round.	e failure of concrete ng equipment to the
+										
+										
†										†
5+										-
+										-
†										†
San No Re	npler Ty covery	pe:		F	_	tion Dete		eadspa		DFR/RRH
	uous Co	ore							Approved by: V	VVG
					≚ Wat	er Level	(AID)		Figure No. A	

	Aspe	.			t Numb 0018	er	Boring Log Boring Number DP-11	Sheet 1 of 1
Project Name: Location:	New City Cle		l				Ground Surface Elev.	
Driller/Method:			imited Access Ge	eoprobe			Depth to Water (ft BGS)	40/40/000
Denth /	od: Continuous Cor			PID	Blows/	Ī	Start/Finish Date	10/13/2009
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	(ppm)	6"	Material Type	Description	D
+	Backfilled with 3/8 Bentonite Chips and Concrete patch at ground surface.	CC-1		0			Dry, brown, slightly silty, sandy GRA	VEL (GM); no odor
5 +		CC-2	DP-11-4 VOCs	0		<u> </u>	Slightly moist, brown, SILT (ML); tra odor	ce organics; no
-		CC-3		0				-
10 -	Ā	CC-4		0			Moist	
† † †		CC-5	DP-11-12 VOCs	0				
15 - - -		CC-6	DP-11-15 VOCs	0			Wet, brown, silty SAND (SM); fine some wet, brown, SILT (ML); trace organi	
20+		CC-7		0				
+		CC-8	DP-11-21 VOCs	0			Wet, dark gray, very silty SAND (SN odor	l); fine sand; no
25-			DP-11-24 VOCs				Refusal at 24' bgs	
Sampler on No Recover		Р	_			eadspa	ce Measurement) Logged by: D	FR/RRH
Continuous			∇	c Water			Approved by: V	/VG
			÷ vvate	r Level	(AID)		Figure No. A	

	ļ	Aspe	NG			t Numb	er	Boring Log Boring Number DP-12	Sheet 1 of 1
Project Nai Location:	me:	New City Cle	eaners	'				Ground Surface Elev.	
Driller/Meth	nod:	Pacific Northwe	st Probe / Lim	ited Access	Geoprobe			Depth to Water (ft BGS)	
	Method:	Continuous Cor	e				1	Start/Finish Date	10/13/2009
Depth / Elevation (feet)	Во	rehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	De (
-		Backfilled with 3/8 Bentonite Chips and Concrete patch at ground surface.	CC-1		0				
5 +			CC-2		0				
+								Refusal at 5' bgs resulting from the fa anchors used to secure indoor drilling ground.	ailure of concrete
10-									-1
+	7	<u>√</u>							
15-									-1
+									-
20 -									- -2
+									-
25 -									-2
+									-
†									Ţ
Sam	npler Ty	pe:	PID	- Photoioniz	zation Dete	ctor (He	eadspac	ce Measurement) Logged by: D	FR/RRH
○ No Red	covery		5	¥ s	tatic Water ater Level (Level		Approved by: W	
				– vv	ator LCVCI ((טורי)		Figure No. A	

	Aspec	ct		Projec	t Numb	er	Boring Log Boring Number	Sheet	
	CONSULTII			09	0018		DP-13	1 of 1	
Project Name:	New City Cle	aners					Ground Surface Elev.		
Location:	Richland, WA	ot Drobo / /	Cooprobo				Depth to Water (ft BGS)		
Driller/Method: Sampling Method	Pacific Northwes d: Continuous Core		<u> </u>				Start/Finish Date	10/13/2009	 9
Depth /	Borehole Completion			PID	Blows/	Material		10/10/2000	De
Elevation (feet)	sorenoie Completion	Sample Type/ID	Tests	(ppm)	6"	Type	Description		(f
+ + + + + + + + + + + + + + + + + + + +	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Slightly moist, brown, sandy GRA	,	+ + + + + + + + + + + + + + + + + + + +
5 +		CC-2	DP-13-8 VOCs	0					+ 5 + + + +
- - - - 15-	፟፟፟፟	CC-3	DP-13-13 VOCs	0			Soft, wet, brown, SILT (ML); no o	dor	- - - -1
		CC-4	DP-13-17.5 VOCs	0			Very soft, pink, ASH; Sample wa to 18' bgs; Elevated sample tem to drilling Firm, wet, brown SILT (ML); no or	perature not likely due	
		CC-5	DP-13-24 VOCs	0			Soft, dark gray, SILT (ML); no odd		 - - -
25-		CC-6	DP-13-27 VOCs	0					+2
Sampler T No Recovery Continuous C		P		on Dete	Level	eadspa	ce Measurement) Logged by: Approved by:	DFR/RRH : WVG	

	Aspec				t Numb 0018	er	Boring Log Boring Number DP-14	Sheet 1 of 1
Project Name: Location:	New City Cle						Ground Surface Elev.	
Driller/Method:	Pacific Northwes		Geoprobe				Depth to Water (ft BGS)	40/42/2000
Depth /	: Continuous Core			PID	Dlaws/		Start/Finish Date	10/13/2009
Elevation (feet)	orehole Completion	Sample Type/ID	Tests	(ppm)	Blows/ 6"	Material Type	Description	De (f
- - -	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0				dor
5 -		CC-2	DP-14-7 VOCs	0			Firm, moist, yellow brown, SILT (ML); no	o odor
10 -	Ā	CC-3		0				-1
- - 15-		CC-4		0			Soft, wet, brown, SILT (ML); no odor Medium Stiff Firm, wet, brown, slightly sandy SILT (M	II): no odor
- - - - 20-		CC-5		0			Timi, wet, blown, siightly sandy Sizi (w	- - - - - -
-		CC-6	DP-14-20 VOCs DP-14-23 VOCs	0			Firm, wet, dark gray SILT (ML); no odor	
- 25- - -		CC-7		0			Wet, dark gray, SAND (SW); fine sand; Wet, dark gray, sandy GRAVEL (GW); r	
Sampler Ty No Recovery Continuous C		P	-	Water	Level	adspa	ce Measurement) Logged by: DFR Approved by: WV	V/RRH
	COLC.		\/ \	Level	(A TD)			

	•	Aspec	ct		Proiec	t Numb	er	Boring Log Boring Number Sheet	t
		CONSULTII				0018	-	DP-15 1 of 2	
Project Na	me:	New City Cle	aners	I				Ground Surface Elev.	
Location:		Richland, WA							
Driller/Meth	nod:	Pacific Northwes	st Probe / 0	Geoprobe				Depth to Water (ft BGS)	
	Method:	Continuous Core	9		_			Start/Finish Date10/1	4/2009
Depth / Elevation (feet)	Во	rehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Materia Type	Description	Dep (fi
-		Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			odor	-
5 +								Moist, brown SILT (ML); trace organics; no odor	_ - 5
+			CC-2	DP-15-6 VOCs	0			Wet	+
10-		∇	CC-3		0			Wet, gray SILT (ML); trace organics	-11
+		-						Strong, weathered diesel-like odor	+
15-			CC-4		0				+1
			CC-5		0			Wet, yellow red SILT (ML); no odor	-
20 -			CC-6	DP-15-20 VOCs				Wet, dark gray SILT (ML); no odor	-2
+			00-0	DP-15-23 VOCs	0			Wet, dark gray, silty SAND (SM); trace gravel; no	odors
25-									-2 -
†									-
Sam O No Red	npler Ty covery	pe:		PID - Photoionizatio	on Dete		eadspa		
Continu	uous Co	ore		_	r Level			Approved by: WVG	
-				- vvale	. LCVCI	(,,,,,)		Figure No. A	

	Aspec	_			t Numb	er	Boring Log Boring Number DP-16	Sheet 1 of 1
Project Name: Location:	New City Cle						Ground Surface Elev.	
Driller/Method:	Pacific Northwes	st Probe / 0	Geoprobe				Depth to Water (ft BGS)	
Sampling Method	d: Continuous Core	Э					Start/Finish Date	10/14/2009
Depth / Elevation (feet)	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Materia Type	Description	Dep (fi
+	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			N	+
5 -		CC-2	DP-16-7 VOCs	0				+ - 5
10 -	፟፟፟፟፟፟፟፟	CC-3		0			Wet, brown, SILT (ML); no odor	-1 -1
15-		CC-4	DP-16-13 VOCs	0			Wet, gray, SILT (ML); trace organics, no Wet, yellow red, SILT (ML); no odor	o odor
20 -		CC-5		0				-2
- - - -		CC-6		0			Wet, dark gray, SILT (ML); trace wood foodor	ragments, no
25-		CC-7	DP-15-24 VOCs	0			Wet, dark gray, SAND (SP); fine sand, r Wet, dark gray, sandy GRAVEL (GW); r	
							Refusal at 26' bgs	
Sampler T No Recovery Continuous C		P	-	on Dete	Level	eadspa	ce Measurement) Logged by: DFR Approved by: WV0	R/RRH G

	Aspec	١G			t Numb 0018	er	Boring Log Boring Number DP-17	Sheet 1 of 1	
Project Name: Location:	New City Cle						Ground Surface Elev.		
Driller/Method:	Pacific Northwes		robe				Depth to Water (ft BGS)	40/44/0006	
Sampling Metho	d: Continuous Core			- DID	D		Start/Finish Date	10/14/2009	
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	N. no odon	Dep (ft)
	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Moist, brown, sandy GRAVEL (GW Moist, brown, SILT (ML); trace gra apparent backfill material; no odor		<u></u>
5 -		CC-2		0					- 5 -
10-	Ā	CC-3 DP.	-17-10 VOCs	0			Firm, wet, brown, SILT (ML); no oc	lor	- - 10
15-		CC-4		0			Grades to yellow red		- - -15
20 -		CC-5	.17-19 VOCs	0			Wet, yellow red, silty SAND (SP); f Wet, yellow red, SILT (ML); trace of Wet, gray, SILT (ML); trace fine sa	organics, no odor	- - - -20
+		CC-6		0				-	
25-		CC-7	17-25.5 VOCs	0					-25 -
Sampler -		PID - I	_	on Dete		eadspac	, ,	DFR/RRH	+ + + + + + + + + + + + + + + + + + + +
Continuous			$\overline{}$				Approved by:	WVG	
	-		÷ Wate	r Level	(AID)		Figure No.	A	

	Aspec	NG			t Numb 0018	er	Boring Log Boring Number DP-18	Sheet 1 of 1	
Project Name: Location:	New City Cle						Ground Surface Elev.		
Driller/Method:	Pacific Northwest od: Continuous Core	-	robe				Depth to Water (ft BGS) Start/Finish Date	10/14/200	10
Depth /				PID	Blows/	Material		10/14/200	
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	(ppm)	6"	Type	Description		De (1
+ + + + + + + + + + + + + + + + + + + +	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Moist, brown, sandy GRAVEL (GV Soft, moist, dark brown, SILT (ML) organics; no odor, appears to be be soil excavation): trace gavel, trace	
5		CC-2		0					
10-	Ā	CC-3 DP-	.18-10 VOCs	0			Soft, moist, dark brown, SILT (ML) gravel, trace organics, no odor); native soil, trace	1
15-		CC-4		0					
20-		CC-5		0					+
		CC-6	18-20.5 VOCs	0			Wet, dark gray brown, sandy GRA	VEL (GW); no odor	-21 -
25 -		CC-7	10-23.3 VOC	0					-2
Sampler		PID - F		on Dete	ctor (He	eadspa	ce Measurement) Logged by:	DFR/RRH	
No Recover				: Water	Level		Approved by:	WVG	
Continuous	Core			r Level	(ATD)				
							Figure No.	Α	

		Spec				t Numb	er	Boring Log Boring Number DP-19	Sheet 1 of 1	_
Project Nar	ne: Nev	v City Cle			09	0010		Ground Surface Elev.	1 01 1	
Driller/Meth	· ·	fic Northwes	st Probe / 0	Geoprobe				Depth to Water (ft BGS)		
	Method: Cont			00001000				Start/Finish Date	11/2/2009	
Depth /	Borehole Co		Sample		PID	Blows/	Material			De
Elevation (feet)	Doi enote oc	impletion	Type/ID	Tests	(ppm)	6"	Туре	Description		(
- - -	Bentonite	d with 3/8 e Chips and cold patch at urface.	CC-1		0			Slightly moist, light gray, slightly silty (SM); hard drilling, no odor	, gravelly SAND - -	_
5 +			CC-2	DP-19-7 VOCs	0					
+								Moist		
10-			CC-3	DP-19-10 VOCs	0			Soft, wet, dark gray blue, SILT (ML);	no odor	 -1
†								Very Soft		
15-	Σ		CC-4		0			Wet, soft, brown, SILT (ML); no odor		<u>-</u> - -1
+				DP-19-17 VOCs	3			Slightly sandy 16.5' to 18' bgs		
+			CC-5		0			Medium stiff		
20-			CC-6	DP-19-21 VOCs	0			Wet, dark gray blue, slightly silty, sar (GW); fine subangular gravel; no odd	ndy GRAVEL or	-2 -
+				DP-19-110209 VOCs				Refusal at 21' bgs. Grab groundwate with retractable stainless steel screet to 21' bgs	r sample collected	_
25-								10 21 bgs		-2
+										_
T										
	pler Type:		P	l ID - Photoionizati —	on Dete	ctor (He	adspa	Logged by: D	FR/RRH	<u></u>
O No Rec					c Water	Level		Approved by: W	'VG	
Continu	ous Core			<u>▽</u> Wate	er Level	(ATD)		Approved by. VV	. •	
								Figure No. A		

Project Name:	New City Cle	NG			t Numb 0018	er	Boring Number Shee DP-20 1 of	
Location:	Richland, WA		1				Ground Surface Elev.	
Driller/Method:	Pacific Northwes		Geoprobe				Depth to Water (ft BGS)	10.10000
Denth /	d: Continuous Core			PID	Blows/	I	Start/Finish Date11	/2/2009
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	(ppm)	6"	Material Type	Description	Der (fi
+ + + + + + + + + + + + + + + + + + + +	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Slightly moist, brown, slightly silty, slightly gravel SAND (SM); no odor Medium stiff, slightly moist, brown, SILT (ML)	- - -
5 -		CC-2	DP-20-5 VOCs	0			wediam san, siighty moist, brown, oie i (wie)	- 5 - 5
10-		CC-3	DP-20-11 VOCs	0			Soft, wet	-10
15-	⊻	CC-4		0				-15
		CC-5	DP-20-18 VOCs	0			Slightly sandy, fine sand	† - -
20-		CC-6	DP-20-22 VOCs	0		000	Wet, dark gray, slightly silty, slightly gravelly SAND(SP); no odor Wet, dark gray, sandy GRAVEL (GW); no odor	
25 -			DP-20-110209 VOCs				Refusal at 22' bgs. Grab groundwater sample co with retractable stainless steel screen placed fro to 22' bgs	illected m 18'
								† †
				1	<u> </u>	<u> </u>	DED/DDU	
Sampler 1 No Recovery Continuous 0	1	Р	∇	on Dete c Water er Level	Level	eadspa	Logged by: DFR/RRH Approved by: WVG Figure No. A	

	Mana						Boring Log		
	Aspec				t Numb	er	Boring Number	Sheet	
Project No	me: New City Cle			09	0018		DP-21	1 of 1	
Project Na .ocation:	Richland, WA	aners					Ground Surface Elev.		
Driller/Met	•	st Prohe / (Geographe				Depth to Water (ft BGS)		
	Method: Continuous Core		эсорговс				Start/Finish Date	11/2/2009	
Depth /	Borehole Completion	Sample		PID	Blows/	Material			Dept
Elevation (feet)	Borchoic Completion	Type/ID	Tests	(ppm)	6"	Туре	Description		(ft)
-	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Slightly moist, dark brown, slightly moist gravelly, SAND (SM); no odor	, slightly	- -
5 - - -		CC-2	DP-21-5 VOCs	0			Medium stiff, moist, brown, sandy SILT		- - 5 - -
10+	∑	CC-3	DP-21-12 VOCs	0			Very moist Soft Wet	-	- -10 - -
_ _ 15 –		CC-4		0			Red brown, slightly sandy; fine sand Occaisonal 2-3mm zones of iron oxide s	•	- - -15
† - 		CC-5	DP-21-16 VOCs	0			Wet, dark gray brown, sandy GRAVEL (GW): no odor	-
20 +		CC-6	DP-21-19.5 VOCs	0					-20 -
+			DP-21-110209 VOCs				Refusal at 22' bgs. Grab groundwater sa with retractable stainless steel screen pl to 22' bgs	ample collected aced from 18'	- -
25+								+	-25 -
+								+	- -
O No Re	mpler Type: ecovery nuous Core	Р	∇	Water	Level	adspa	ce Measurement) Logged by: DFR Approved by: WV0	M/RRH G	
John	14040 0010		≚ Wateı	Level	(ATD)		Figure No. A		

Donth /	New City Cle Richland, WA Pacific Northwes d: Continuous Core Borehole Completion	st Probe / 0					DP-22 1 o		
Driller/Method: Sampling Metho Depth / Elevation	Pacific Northwest Continuous Core						Ground Surface Elev.		
Sampling Metho Depth / Elevation	d: Continuous Core		S				Don'th to Water (# DCC)		
Depth / Elevation		ling Method: Continuous Core					Depth to Water (ft BGS) Start/Finish Date 11/2/2009		
	Borehole Completion			PID	Blows/				
		Sample Type/ID	Tests	(ppm)	6"	Material Type	Description	Dep (ft	
							Slightly moist, brown, silty, gravelly, SAND (SN \odor	· /	
+	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Medium stiff, moist, brown, SILT (ML); no odor		
5 -		CC-2		0			Very soft	- 5	
+							Very moist	+	
10-		CC-3		0			Slightly moist, dark gray blue, sandy GRAVEL no odor	(GW);	
15-		CC-4		0				-15	
+ + + + + + + + + + + + + + + + + + + +	፟፟፟	CC-5		0				-	
20 -			DP-22-110209 VOCs			K°X°;	Refusal at 19' bgs. Grab groundwater sample of with retractable stainless steel screen placed from to 19' bgs	collected rom 15'	
								†	
Sampler T No Recovery Continuous (У	P		on Detection Detection Detection	Level	eadspa	ce Measurement) Logged by: DFR/RRH Approved by: WVG	1	

	Aspe	5 0.		ct Number	Boring Log Boring Number DP-23	Sheet 1 of 1
Project Name Location:	Richland, W	/A	,		Ground Surface Elev.	
Driller/Method		west Probe / Geopr	obe		Depth to Water (ft BGS)	
Sampling Me	thod: Continuous	Core		11	Start/Finish Date	11/3/2009
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests PID (ppm)	Blows/ 6" Materia Type		Dep (ft
-	Backfilled with 3/8 Bentonite Chips an Blacktop cold patch ground surface.		0		Slightly moist, brown, silty, gravelly odor Medium stiff, moist, brown, SILT (finon-plastic, no dilatancy	/
5 -		CC-2	0		Soft, moist, trace clay content Very soft, wet, non-plastic, rapid di	- 5 ilatancy
10-		CC-3	0		Dry, light gray, gravelly SAND (SW medium subangular gravels No soil samples collected	/); no odor, fine to
15-	Ψ	0	0			- - -18
20-		DP-	-23-110209 VOCs		Refusal at 11.5' bgs with continuou Grab groundwater sample collecte stainless steel screen placed from	d with retractable
						-
Sample	er Type:		hotoionization Data	octor (Hoodan	ace Measurement) Logged by:	 DFR/RRH
Sample No Recov		PID - F	hotoionization Dete		ace ivieasurement) Logged by:	ואואוו
Continuou	=		∇		Approved by:	WVG
	20 0010			(ATD)	Figure No.	A

	Aspe				t Numb 0018	er	Boring Log Boring Number She DP-24 1 of	
Project Name:	New City Cle			09	0010		Ground Surface Elev.	I I
Location: Driller/Method:	Richland, WA Pacific Northwe	at Drobo / (Cooprobo				Depth to Water (ft BGS)	
	d: Continuous Cor		<u>зеоргове</u>					1/3/2009
Depth /				PID	Blows/	Material		
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	(ppm)	6"	Material Type	Description	De _j (fi
+	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Slightly moist, light brown, silty, gravelly SAND no odor Medium stiff, moist, brown, SILT (ML); no odor, non-plastic, no dilatancy	
5		CC-2		0			Soft Very soft, very moist	- 5 - 5
10+	Σ	CC-3		0			Slow dilatancy	
						******	Dry, gray blue, gravelly SAND (SW) No soil samples collected	
15-		0		0				- - -1!
-			DP-24-110209 VOCs				Refusal at 11' bgs with continuous core soil sar Grab groundwater sample collected with retract stainless steel screen placed from 12' to 16' bgs	able
20-								-20 -
†								+
Sampler T			ID Dhatair : "	n Dete	 	045:	be Measurement) Logged by: DFR/RRH	L
No Recovery		Р	ID - Photoionizatio			auspa	Le ivieasurement) Logged by. Di TVRNT	
			_	: Water r Level (Approved by: WVG	
Continuous (

	,	Aspe				t Numb	er	Boring Log Boring Number DP-25	Sheet 1 of 1	
Project Na Location:	ame:	New City Cle	eaners					Ground Surface Elev.		
Driller/Met	thod:	Pacific Northwe	Geoprobe				Depth to Water (ft BGS)			
Sampling	Method:	Continuous Cor	e					Start/Finish Date	11/3/2009	
Depth / Elevation (feet)	Во	rehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Г	Dep (fl
		Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Slightly moist, brown, silty, gravelly, odor Medium stiff, slightly moist, brown, son-plastic, no dilatancy	, ,	-
+ + 5 +								Soft, moist Very soft, trace clay content	+	- - - 5
- - -			CC-2		0			Very moist, rapid dilatancy	+	-
10-			CC-3		0			Slightly moist, gray, very gravelly SA fine to medium subangular gravels		- - 1(
+								No soil samples collected	+	-
15-		<u>V</u>	0		0				+	- - 1 -
†				DP-25-110209 VOCs				Refusal at 11' bgs with continuous c Grab groundwater sample collected stainless steel screen placed from 1	with retractable	
20-									+	-2(-
- - -									+	-
 Sar	npler Ty	pe:	<u> </u>	│ PID - Photoionizati	on Dete	⊥ ctor (He	adspa	Logged by: D	DFR/RRH	
O No Re				_	c Water		-	, , ,		
	uous Co	ore		$\overline{}$	r Level			Approved by: V	/VG	
				- vvale	LEVE	(417)		Figure No. A		

	Aspe	NG			t Numb 0018	er	Boring Log Boring Number DP-26	Sheet 1 of 1	
Project Name: Location:	New City Cle	eaners					Ground Surface Elev.		
Driller/Method:	Pacific Northwe	st Probe / 0	Geoprobe				Depth to Water (ft BGS)		
Sampling Method	: Continuous Cor						Start/Finish Date	11/3/2009	1
	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/	Material Type	Description		De (f
(feet)	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Slightly moist, brown, slightly silty, g no odor Medium stiff, moist, brown, slightly s odor, non-plastic, no dilatancy		
5 -		CC-2		0					- 5
10-		CC-3		0			Slightly moist, gray blue, gravelly SA	AND (SW); no odor	-1 -1
15-	⊻	0		0					- - -1
20-			DP-26-110209 VOCs				Refusal at 11.5' bgs with continuous Grab groundwater sample collected stainless steel screen placed from 1	with retractable	-2
Sampler Ty No Recovery	уре:	P	ID - Photoionizatio ▼ Statio	on Detec		adspac	ce Measurement) Logged by: [PFR/RRH	
				vvater	Level		3.4		
Continuous C	oro		<u> </u> Water	r Level (Approved by: V	VVG	

	Aspe	C†			t Numb	er	Boring Log Boring Number DP-27	Sheet 1 of 1	
Project Name: Location:	New City Cle	eaners	'				Ground Surface Elev.		
Driller/Method:	Pacific Northwe	st Probe / 0	Geoprobe				Depth to Water (ft BGS)		
	nod: Continuous Cor	е					Start/Finish Date	11/3/2009	_
Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		De
- - -	Backfilled with 3/8 Bentonite Chips and Blacktop cold patch at ground surface.	CC-1		0			Slightly moist, brown, silty, gravelly, odor Medium stiff, moist, brown, SILT (M non-plastic, no dilatancy		
5		CC-2		0			Slightly moist, gray, gravelly SAND	(SW)	+ 5 + +
10-		CC-3		0			No soil samples collected		-1
15-	Σ	0		0					_ _ _ _ _ _
20-			DP-27-110209 VOCs				Refusal at 11' bgs with continuous of Grab groundwater sample collected stainless steel screen placed from 1 Driller had great difficulty retreiving was nearly abandoned in place.	with retractable 3' to 17' bgs.	-2
Sampler No Recove		P	ID - Photoionizatio ✓ Statio	on Detec		eadspac		DFR/RRH	
Continuous	s Core		<u> </u> Wate	r Level	(ATD)		Approved by: V	v v G	
							Figure No. A	\	

	1	Mana	~ 1					Boring Log	
		Aspe	CT			t Numb	er	Boring Number	Sheet
		OCONSULTI			09	0018		DP-28	1 of 1
Project Na	ame:	New City Cl	eaners					Ground Surface Elev.	
ocation:	، ام ما،	Richland, WA	/ C					Donth to Water (ft BCS)	
Driller/Met		Cascade Drillin Continuous Co		е				Depth to Water (ft BGS) Start/Finish Date	1/10/2012
Depth /					DID	Diam'r.		Start/Fillish Date	
Elevation (feet)	Во	rehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	De (
		Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1		0 0 0.1			Slightly moist, brown, gravelly SANi medium sand. Slightly moist, brown, slightly sandy sand. Wet. Moist.	D (SP); fine to
+			Ш		0			Moist, brown, slightly gravelly SANI medium sand.	O (SP); fine to
+					0.1			Wet, brown SILT (ML). Moist.	_
+			CC-2		0.1			Worst.	+
ļ					0				+
10 -					0				
					0				
+			CC-3		0				
+				DP-28-13.5 VO					+
+		$ar{ar{ u}}$		DI -20-13.5 VO	0			Iron staining. Very moist.	+
15-		=			0			Wet.	-1
			CC-4						
_								Bottom of boring at 16' bgs. Grab g collected with pvc screen placed from	roundwater sample om 11' to 16' bgs.
20+									
†									Ţ
+									+
+									+
San	npler Ty	pe:		ID - Photoioniza	tion Dete	ctor (He	eadspac	ce Measurement) Logged by: A	AET
O No Re			•	_	tic Water		pu	,	
	uous Co	ore		<u> </u>	ter Level			Approved by: V	WVG
						. ,		Figure No. A	Δ

Project Name: New City Cleaners Location: Richland, WA Diller/Method: Cascade Drilling / Geoprobe Sampling Method: Continuous Core Start/Finish Date Backflied with 3/6 Bentonite Chips and concrete seal at ground surface. CC-1 Depth / CC-2 Depth / CC-2 Depth / CC-3 Depth / CC-	heet of 1
Driller/Method: Cascade Drilling / Geoprobe Sampling Method: Continuous Core Start/Finish Date Depth to Water (ft BGS) Depth to Water (ft BGS) Start/Finish Date Depth to Water (ft BGS) Depth to Water (ft BGS) Depth to Water (ft BGS) Start/Finish Date Depth to Water (ft BGS) Depth t	OI I
Sampling Method: Continuous Core Depth Depth Borehole Completion Sample Tipperil Tests PID (ppm) Blows Material Tippe Description	
Description Borehole Completion Sample Tests PID (ppm) Blows/ (ppm)	1/10/2012
Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface. CC-1 CC-1 Slightly moist, gray, very gravelly SAND (SP) medium sand. Slightly moist, gray, sandy SILT(ML); trace gi sand. Wet. Moist. Wet. Moist. CC-2 0 Moist. Moist, dark gray, gravelly SAND (SW). Moist, brown-gray with iron staining, slightly s SILT(ML); fine sand.	Dept (ft)
0.2 Moist. CC-2 0 Moist. Moist. O Wet. O Moist, dark gray, gravelly SAND (SW). Moist, brown-gray with iron staining, slightly s SILT(ML); fine sand.	; fine to
O Wet. O Moist. O Moist, dark gray, gravelly SAND (SW). Moist, brown-gray with iron staining, slightly s SILT(ML); fine sand.	- 5
0 0 0 ****** Moist, dark gray, gravelly SAND (SW). Moist, brown-gray with iron staining, slightly s SILT(ML); fine sand.	+
O.1 Moist, brown-gray with iron staining, slightly s	-10
0.1 Very moist.	andy
Do Bottom of boring at 16' bgs. No water sample because water was not encountered ATD.	-15
	+20 +
Sampler Type: PID - Photoionization Detector (Headspace Measurement) Logged by: AET	
Sampler Type: PID - Photoionization Detector (Headspace Measurement) Logged by: AE I No Recovery Static Water Level Continuous Core Water Level (ATD) Figure No. A	

	1	Mana						Boring Log	
		Aspe	CT			t Numb	er	Boring Number	Sheet
Desired No		OCONSULTI			09	0018		DP-30	1 of 1
Project Na	ame:	New City Cl	eaners					Ground Surface Elev.	
Location: Driller/Met	hod:	Richland, WA Cascade Drillin	a / Geografi	10				Depth to Water (ft BGS)	
		Continuous Co						Start/Finish Date	1/10/2012
Depth /			Sample		PID	Blows/	Material		
Elevation (feet)	В0	rehole Completion	Type/ID	Tests	(ppm)	6"	Туре	Description	De (
- - - - -		Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1		0 0			Slightly moist, brown, gravelly SANI medium sand. Slightly moist, brown, SILT(ML).	O (SP); fine to
5 -					0				- !
+			CC-2		0				-
10-					0				-1
- - - -			CC-3	DP-30-13.5 VC				Iron staining. Very moist.	-
15-			CC-4		0			Moist.	-1
- - - - -								Bottom of boring at 16' bgs. No wat because water was not encountered	er sample collected i ATD.
20 -									-2
+									_
	npler Ty	pe:	Р	_			eadspa	ce Measurement) Logged by: A	AET
No Re Contin		pre			atic Water ater Level			Approved by: V	VVG
ı				VVC	LOVOI	, <i>)</i>		Figure No. A	

	Aspect							Boring Log		
		Lobe	UT			t Numb	er	Boring Number	Sheet	
D : (N		OCONSULTI			09	0018		DP-31	1 of 1	
Project Na	ame:	New City Cl	eaners					Ground Surface Elev.		
Location: Driller/Met	hod:	Richland, WA Cascade Drillin	a / Cooprob	20				Depth to Water (ft BGS)		
		Cascade Dillill		JE				Start/Finish Date	1/10/2012	
Depth /					PID	Blows/		Start man Date		
Elevation (feet)	Во	rehole Completion	Sample Type/ID	Tests	(ppm)	6"	Material Type	Description	De (
Depth / Elevation (feet) 5		Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	Sample Type/ID CC-1 CC-2 CC-3 CC-4	DP-31-12.5 V0		Blows/6"	Material Type	Description Asphalt Slightly moisy, gray, very sandy GR. Very moist to wet, brown SILT (ML). Wet at 13' Bottom of boring at 16' bgs. Grab gr collected with pvc screen placed from	-1 oundwater sample	
- - - -									-	
	npler Ty	pe:	P		ation Dete	ctor (He	eadspac	ce Measurement) Logged by: A	ÆT	
O No Re					tatic Water	Level		Approved by: V	VVG	
Contin	uous Co	ore		∑ W	ater Level	(ATD)		Appioved by. V	,,,	
						. ,		Figure No. A		

	•	Aspe	NG			t Numb 0018	er	Boring Log Boring Number DP-32	Sheet 1 of 1	
Project Nam Location:		New City Cl						Ground Surface Elev. Depth to Water (ft BGS)		
Driller/Metho		Cascade Drillin		oe				Start/Finish Date	1/10/201	2
Depth / Elevation		ehole Completion	Sample	Tests	PID	Blows/	Material			De
(feet)		Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	Type/ID		0 0 0	6"	Туре	Slightly moist, brown, gravelly SAN medium sand. Slightly moist, brown, SILT(ML). Wet.	D (SP); fine to	+
5 -					0			Moist, brown, gravelly SAND (SP); sand. Wet, brown SILT (ML). Moist.	fine to medium	+ !
10-			CC-2		0					_ _ _ _
			CC-3		0					
15-	Ž	Ζ	CC-4	DP-32-13.5 VOCs	0			Iron staining. Wet.		
- - - -								Bottom of boring at 16' bgs. Grab g collected with pvc screen placed from	roundwater sample om 11' to 16' bgs.	
20-										-2
Samo	oler Typ	ne.		DID. Photoionisetii	nn Dete	otor /U-	adana	ce Measurement) Logged by:	AET	
○ No Reco	overy		F		on Dete Water r Level	Level	auspa(Approved by: \		
				vvaic	0,01	,		Figure No.	4	

		Mana	<u></u>					Boring Log	
		Aspe				t Numb 0018	er	Boring Number DP-33	Sheet 1 of 1
Project Na	amo:	New City Cl			09	0018		Ground Surface Elev.	1 01 1
Location:		Richland, WA	cancis					Glouild Surface Elev.	
Driller/Me		Cascade Drillin	a / Geonroh	ne				Depth to Water (ft BGS)	
		: Continuous Co		<i>.</i>				Start/Finish Date	1/10/2012
Depth /					PID	Blows/	N4-4		
Elevation (feet)	В	orehole Completion	Sample Type/ID	Tests	(ppm)	6"	Material Type	Description	De
+ + +		Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1		0			Moist, brown, slightly gravell SAND medium sand.	(SP); fine to
5 +			0	DP-33-3.5 VOCs	0			Moist, brown, sandy SILT(ML); fine	
			Ш		0			Moist, brown, gravelly SAND (SP); f sand.	ine to medium
	10-		Ш					Wet, brown, sandy SILT (ML); trace	gravel; fine sand.
			CC-2		0.1			Moist.	
10-					0.1				-1
+			CC-3		0				
+			CC-3	DP-33-13 VOCs	0			Iron staining.	+
+		∇	Ш		0				†
15			CC-4		0				
 - - -								Bottom of boring at 16' bgs. Grab gr collected with pvc screen placed fro	oundwater sample m 11' to 16' bgs.
20-									+2
+									_
<u> </u>									+
	mpler Ty	/pe:		PID - Photoionizati			eadspa	Logged by: A	ET
○ No Re			c Water	Level		Approved by: V	VVG		
Contir	nuous C	ore		<u>▽</u> Wate	r Level	(ATD)			
								Figure No. A	\

	1	Mana					Boring Log		
		Aspe	LI No			t Numb	er	Boring Number DP-34	Sheet 1 of 1
Project Na	amo:	New City Cl			09	0018		Ground Surface Elev.	1 01 1
Location:	anie.	Richland, WA	Caricis					Glouild Sulface Elev.	
Driller/Met	thod:	Cascade Drillin	ıa / Geoprob	ne				Depth to Water (ft BGS)	
		: Continuous Co		-				Start/Finish Date	1/10/2012
Depth / Elevation	Во	rehole Completion	Sample	Tests	PID	Blows/	Material	Description	D
(feet)			Type/ID	Tesis	(ppm)	6"	Туре	,	
		Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1		0 0			Slightly moist, brown, gravelly SANE medium sand. Slightly moist, brown, SILT(ML).	(SP); fine to
5 +			0		0			Slightly Moist, brown, Sill (ML).	_
+				0					
- - -			CC-2		0.1				
0+			\coprod		0				-
<u> </u>					0			Moist, brown, gravelly SAND (SP); f sand.	ine to medium
- - - 15-	:	Ā	CC-3	DP-34-13 VOCs	0			Moist, brown with iron staining, sligh (ML); trace gravel; fine sand.	tly sandy SILT
			00-4		0			Bottom of boring at 16' bgs. Grab gr collected with pvc screen placed fro	oundwater sample m 11' to 16' bgs.
20-									+
-									_
									Ť
+									
⊥l Sar	npler Ty	pe:	P	ID - Photoionizatio	n Dete	⊥ ctor (He	adspac	Logged by: A	ET
	covery		·	_	Water			,	
	Cantinuaus Cara					(ATD)		Approved by: V	vvG
								Figure No. A	1

	Mana						Boring Log		
	Aspe	CT			t Numb	er	Boring Number	Sheet	
D : (N	OCONSULT			09	0018		DP-35	1 of 1	
Project Na Location:	me: New City CI Richland, WA	eaners					Ground Surface Elev.		
Driller/Metl		na / Geonrobi	<u> </u>				Depth to Water (ft BGS)		
	Method: Continuous Co		<u> </u>				Start/Finish Date	1/11/2012	 2
Depth /	Borehole Completion			PID	Blows/	Material			Dept
Elevation (feet)	Borenole Completion	Sample Type/ID	Tests	(ppm)	6"	Туре	Description		(ft)
-	Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1		0 0			Asphalt Slightly moist, gray, very sandy GRA medium sand, coarse gravel.	VEL (GP); fine to	-
5 -		CC-2		0 0		000000000000000000000000000000000000000			+ 5 + +
10-				0			Moist, brown, trace to slightly sandy scattered organics. Color grades to dark gray	SILT (ML);	-10
15-	ӯ	CC-3	DP-35-13 VOCs	0			Wet at 13.5' Color grades to brown		- - - 15
		CC-4		0					13
20-							Bottom of boring at 16' bgs. Grab gracollected with pvc screen placed from	oundwater sample n 11' to 16' bgs.	-20
									†
O No Red	npler Type: covery uous Core	PI	$\overline{}$	Dete	Level	l eadspac	te Measurement) Logged by: A Approved by: W Figure No. A	VVG	

	Mana						Boring Log	
	Aspe				t Numb	er	Boring Number	Sheet
	OCON SULT			09	0018		DP-36	1 of 1
Project Na							Ground Surface Elev.	
∟ocation: Driller/Met	Richland, WA						Depth to Water (ft BGS)	
	hod: Cascade Drillin Method: Continuous Co		;				Start/Finish Date	1/10/2012
Depth /				PID	Blows/		Start/Fillish Date	
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	(ppm)	6"	Material Type	Description	
- - -	Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1		0			Moist, brown, gravelly SAND (SP); sand; fine to coarse gravel.	ine to medium
				0			Moist, brown, gravelly, sandy SILT	'ML): fine sand
5 🕂 📗						ШШ	Moist, brown, gravelly SAND (SP);	
							sand.	
†				0				Ţ
			0			Moist, brown, gray, slightly gravelly,	sandy SILT (ML).	
1				0			Wet. Moist.	_
10 -		0	DD 00 40 1/00-					
			DP-36-10 VOCs	0				
+				0			Moist, dark brown, gravelly SAND (SP).
†		CC-3					Moist, brown and orange mottled, s	andy SILT (ML).
+				0				-
			DP-36-13.5 VOCs	_				
†								†
15 –				0				_
		CC-4					Gravelly.	
+ F							Bottom of boring at 16' bgs. No wat	er sample collected
+							because water was not encountered	
+								-
†								
20 -								+
†								†
1								_
+								+
1								
Sam	npler Type:	PI	D - Photoionizatio	n Dete	ctor (He	eadspa	L ce Measurement) Logged by:	AET
O No Re			▼ Statio	Water	Level		Approved by: V	VVG
Contin	uous Core		<u> </u> Water	Level	(ATD)		Approved by: v	V V O
							Figure No. 🛮 🕹	1

	Aspe	ING			t Numb 0018	er	Boring Log Boring Number DP-37	Sheet 1 of 1
Project Name: Location:	New City Cle		•				Ground Surface Elev.	
Driller/Method:	Cascade Drillin Continuous Co		e				Depth to Water (ft BGS) Start/Finish Date	1/10/2012
Depth /				PID	Blows/	Material		
Elevation (feet)	orehole Completion	Sample Type/ID	Tests	(ppm)	6"	Type	Description	D
- - - - 5 -	Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1	DP-37-3 VOCs	0 0			Moist, brown, gravelly SAND (SP); fi sand. Moist, brown, sandy SILT(ML); trace	_
				0			Moist, brown, gravelly SAND (SP).	
+							Moist, black, gravelly SAND (SP). Moist, brown, sandy SILT (ML); trace	e gravel: fine sand
- - - 10- -		CC-2		0			Wet. Moist. Moist, brown, gravelly SAND (SP). Moist, brown, sandy SILT (ML); trace	-
15-	∑	CC-3	DP-37-13.5 VOCs	0			3 wet layer. 3 wet layer. Bottom of boring at 16' bgs. Grab grocollected with pvc screen placed from	oundwater sample n 11' to 16' bgs.
20-								
Complex T	uno:		D Di	 			- M ()	
Sampler Ty No Recovery	ype:	PI	_			eadspa	ce Measurement) Logged by: A	ET
Continuous C	ore		∇	Water			Approved by: W	/VG
	5.5	≚ Wate	r Level	(ATD)		Figure No. A		

	Mana	~					Boring Log		
	Aspe	CT			t Numb	er	Boring Number	Sheet	
Dania at Na	OCONSULT			09	0018		DP-38	1 of 1	
Project Na Location:	me: New City C Richland, WA						Ground Surface Elev.		—
Driller/Met			ne				Depth to Water (ft BGS)		
	Method: Continuous Co						Start/Finish Date	1/11/2012	
Depth /	Borehole Completion			PID	Blows/	Material			Dept
Elevation (feet)	Borenoic Completion	Sample Type/ID	Tests	(ppm)	6"	Туре	Description		(ft)
-	Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1	DP-38-3.5 VC	0 0Cs 0			Asphalt Slightly moist, gray, gravelly SAND medium sand, coarse gravel.	(SP); fine to	
5 -		CC-2		0 0			Moist, brown SILT (ML).		5
10-		\parallel						- -1 -	10
15-		CC-3	DP-38-13 VO	Cs 0			Iron staining at 13'.		15
		CC-4						[]	15
-							Bottom of boring at 16' bgs. No wat because water was not encountered		
20-								-2	20
+								-	
O No Re	npler Type: covery uous Core	Р	▼ St	tatic Water	Level	eadspac	ce Measurement) Logged by: Approved by: V		
			≚ W	ater Level	(ATD)		Figure No A		

	A s	pect				t Numb	er	Boring Log Boring Number	Sheet
Project Na		sulting ity Cleane	are		09	0018		DP-39 Ground Surface Elev.	1 of 1
ocation:	Richlan		215					Ground Surface Elev.	
Driller/Met		e Drilling / G	eoprob	ne.				Depth to Water (ft BGS)	
	Method: Continue		000100					Start/Finish Date	1/11/2012
Depth / Elevation	Borehole Comple	etion Sa	ımple	Tooks	PID	Blows/	Material	Description	Dep
(feet)	Bereinere compre	Ту	pe/ID	Tests	(ppm)	6"	Туре	•	(ft)
- - -	Backfilled with Bentonite Chi concrete seal ground surfac	ps and at	CC-1		0			Asphalt Slightly moist, gray, very gravelly SAN medium sand.	ID (SP); fine to
+					0			Grades to most, brown SILT (ML).	
5 +		П			0				_ 5
1			CC-2		0			Wet from 6.5' to 9'.	
10-		0	CC-3	DP-39-13 VOCs	0			Moist, brown, gravelly SAND (SP); fine Moist, brown SILT (ML).	e to medium sand
								Bottom of boring at 16' bgs. No water because water was not encountered A	
20-									-20
+									+
+									+
_	npler Type:		P	ID - Photoionizatio			eadspac	ce Measurement) Logged by: AE	T
○ No Re Contin	covery uous Core			-	: Water · Level			Approved by: W	/G
								Figure No. A	

	Mana	at.					Boring Log	
	Aspe	CT			t Numb	er	Boring Number	Sheet
<u> </u>	OCONSULT			09	0018		DP-40	1 of 1
Project Na							Ground Surface Elev.	
Location: Driller/Me	Richland, WA thod: Cascade Drilli		20				Depth to Water (ft BGS)	
	Method: Continuous Co		De				Start/Finish Date	1/11/2012
Depth /				PID	Blows/	Material		Depti
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	(ppm)	6"	Туре	Description	(ft)
- - - - -	Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1		0			Asphalt Moist, gray, very sandy GRAVEL (G sand, cobbles.	P); fine to medium
5 +			_	0		0000		- 5
		Ш		0				
+		Ш				0000		+
-		CC-2		0		000000000000000000000000000000000000000		-
		Ш					Moist, dark gray, sandy SILT (ML); f organics.	ine sand, scattered
		Ш					organics.	
10+			-					+10
+		Ш						+
		Ш						
†	$ar{ar{ abla}}$	CC-3	DP-40-12 VOCs					†
1		00-3					Wet at 12.5'	_
		Ш						
+		Ш						+
15+		Ц		0			Grades to gray-brown.	 15
.		CC-4						
+ 1		H	-			ШШ	Bottom of boring at 16' bgs. Grab gr	oundwater sample
							collected with pvc screen placed from	m 11' to 16' bgs.
1								Ī
+								+
†								<u> </u>
20+								-20
+								+
T								Ī
+								+
+								†
	mpler Type:	F	PID - Photoionization	on Dete	ctor (He	eadspac	ce Measurement) Logged by: A	ÆΤ
No Re				Water	Level		Approved by: V	VVG
Contin	nuous Core		<u>▽</u> Wate	r Level	(ATD)		rippiovod by. V	.
							Figure No. A	

		Aspe	ct			t Numb	er	Boring Log Boring Number	Sheet	
Project Na	ame.	New City Cle			09	0018		DP-41 Ground Surface Elev.	1 of 1	
Location:	airie.	Richland, WA	Janers					Ground Surface Liev.		_
Driller/Met	thod:	Cascade Drilling	g / Geoprol	oe				Depth to Water (ft BGS)		
Sampling	Method	: Continuous Cor						Start/Finish Date	1/11/2012	
Depth / Elevation (feet)	В	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	D	Dept (ft)
-		Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1		0			Asphalt Moist, brown, gray, gravelly SAND (sand.		
5 +					0					5
†					0			Moist, brown SILT (ML).		
10-			CC-2							10
15-			CC-3	DP-41-13.5 VOC	es 0			Iron staining at 13.5'.	- - -	15
- - -			CC-4					Bottom of boring at 16' bgs. Grab gr collected with pvc screen placed fro	oundwater sample m 11' to 16' bgs.	
20 -									+ -2	20
									-	
Sar	npler Ty	/pe:	<u>I </u> F	⊥ PID - Photoionizati	on Dete	⊥ ctor (He	i eadspac	ce Measurement) Logged by: A	\ET	
O No Re				▼ Stati	c Water er Level	Level	•	Approved by: V		
_				- vvale	JI LEVEI	(\(\(\)\)		Figure No. A	1	

		الم						Boring Log		
	Aspe	CT	•			t Numb	er	Boring Number	Sheet	
					09	0018		DP-42	1 of 1	
Project Nar			ers					Ground Surface Elev.		
Location: Driller/Meth	Richland, WA		`aanrah					Depth to Water (ft BGS)		
	od: Cascade Drillin Method: Continuous Co		eoprob	le				Start/Finish Date	1/10/2012	
Depth /					PID	Blows/	Material	Otal VI III Bate		T
Elevation (feet)	Borehole Completion	T	ype/ID	Tests	(ppm)	6"	Туре	Description		(fi
Elevation	Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.		CC-2	Tests DP-42-13.5 VO		Blows/ 6"	Material Type	Moist, brown SILT (ML). Moist, grey, sandy GRAVEL (GP). Moist, brown SILT (ML). Iron staining.	ter sample collected ad ATD.	De (f
Sam	pler Type:		P	ID - Photoioniza	ition Dete	ctor (He	eadspac	ce Measurement) Logged by:	- - - - AET	
O No Rec				_	itic Water		Jaaopat	,		
	ous Core			_				Approved by: \	WVG	
				≚ Wa	ter Level	A ED)				

	Mana	cŧ					Boring Log		
	Aspe				t Numb 0018	er	Boring Number DP-43	Sheet 1 of 1	
Project Name:	New City C			09	0018		Ground Surface Elev.	1 01 1	
Location:	Richland, WA						Ground Surface Elev.		
Driller/Method:	Cascade Drillin		ne				Depth to Water (ft BGS)		
	od: Continuous Co						Start/Finish Date	1/10/2012	
Denth /	Borehole Completion	Sample	Tooto	PID	Blows/	Material			
(feet)		Type/ID	Tests	(ppm)	6"	Type	Description Dry, gray, sandy GRAVEL (GP); wit	h cobbles.	
† †	Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.			0		000000000000000000000000000000000000000		_	
+		CC-1		0		000000		-	
5 +		Ш		0		00000		4) 6	
+				0			Slightly moist, brown, sandy SILT(N	IL); fine sand.	
-				0					
T		CC-2		0					
10-	0		0						
+				0				-	
+	¥	CC-3	DP-43-13 VOCs	0				+	
15-				0					
†							Bottom of boring at 16' bgs. Grab grab collected with pvc screen placed from	roundwater sample m 11' to 16' bgs.	
<u> </u>									
20-								-2	
+								_	
+								-	
Sampler ⁻	Гуре:	F	PID - Photoionization	on Dete	ctor (He	adspa	ce Measurement) Logged by: A	AET	
O No Recover			_	c Water		•	,	M/\ (C)	
Continuous				r Level			Approved by: V	VVG	
_			- vvale	. LCVCI	, , , ,)		Figure No. A		

		Aspe			Pi		Numb	er		Boring Log Boring Number DP-44	Sheet 1 of 1	
Project Nar	me:	New City Cl Richland, WA				USC	010			Ground Surface Elev.	1 01 1	
Driller/Meth	nod:	Cascade Drillin	ng / Geoprol	ре						Depth to Water (ft BGS)		
	/lethod:	Continuous Co								Start/Finish Date	1/11/2012	
Depth / Elevation (feet)	Bor	ehole Completion	Sample Type/ID	Tests		PID ppm)	Blows/ 6"	Materia Type	al	Description		De (f
-		Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1							phalt ghtly moist, gray, very sandy Gl	RAVEL (GP).	- - -
5			CC-2					000000000000000000000000000000000000000				- 5 -
10-			CC-3							oist, brown, sandy SILT (ML); fin LT (ML).	e sand.	-1 -1
15-	Ž	<u>7</u>	CC-4	DP-44-13 \	VOCs				We	et at 13.5		-1
20+			O CC-5									_ _ _ 2
+ + + + + + + + + + + + + + + + + + + +			CC-6	DP-44-23 \	VOCs			\$000		RAVEL (GP). ttom of boring at 23.5' bgs. Gra	o groundwater	+
25-									sar bgs	mple collected with pvc screen	placed from 11' to 16'	-29
O No Red			F	PID - Photoio	nization I			eadspa	ace M	,	AET W//G	
Continu	ious Co	re		∇	Water Le	evel (ATD)			Approved by:	vv v G	
										Figure No.	Α	

Drojoet News	Aspeconsulti New City Cle	NG			t Numb 0018	er	Boring Log Boring Number Sheet DP-45 1 of 1 Ground Surface Elev.	
Project Name: Location:	Richland, WA	eaners					Ground Surface Elev.	
Driller/Method:	Cascade Drilling	a / Geoprob	e				Depth to Water (ft BGS)	
	d: Continuous Cor		-				Start/Finish Date 1/11/2012	
Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Dept (ft)
	Backfilled with 3/8 Bentonite Chips and concrete seal at ground surface.	CC-1					Asphalt Slightly moist, gray, very gravelly SAND (SP); fine medium sand. Moist, brown SILT (ML).	
5		CC-2						- 5
15-		CC-3	DP-45-13 VOCs				Iron staining at 13'.	+ + + - -15
20 -	፟፟፟፟፟፟፟፟፟						Wet at 18'.	-20
25-		CC-4	DP-45-24 VOCs			00000	Wet, dark gray, gravelly SAND (SP); fine to medic sand. Wet, dark gray, slightly sandy GRAVEL (GP). Bottom of boring at 25' bgs. No water sample collebecause water was not encountered ATD.	25
Sampler T No Recovery Continuous C	,	P	ID - Photoionizatio ▼ Statio ▽ Watel	n Dete		eadspac	ce Measurement) Logged by: AET Approved by: WVG	-

	Aspe	 ct		Proie	ct Numb	lonit	oring Well Construction Log Well Number	Sheet
	CONSULTI	NG			90018	J.		of 1
Project Name:	New City Cle	eaners					Ground Surface Elev.	
Location:	Richland, WA						Top of Casing Elev.	
Driller/Method:	Holt / Hollow St		/ Hammor Dr	on: 30"			Depth to Water (ft BGS) Start/Finish Date 2/19/2	014
Depth /			naiiiiiei Di	PID	Blows/	Material		
Elevation (feet)	orehole Completion	Sample Type/ID	Tests	(ppm)	6"	Material Type	Description	Dept (ft)
	Flush monument and thermos well cap Concrete surface seal (0'-2')						Grass, slightly gravelly Medium stiff, moist, dark brown with iron sta (ML)	in SILT
- ************************************	3/8 Hydrated Bentonite chips (2'-9')							
5 +		S1		0	2 2 4			+ 5 +
10-	# 10/20 Silica sand filter pack (9'-20')			0	1 3 3			- - -10
15-	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (10'-20')	62			2		Wet, trace fine sand	-15
		S3		0	3 4		Soft, brown-gray, slightly sandy	+
20-	Threaded PVC endcap	S4		0	1 2 2		Bottom of boring at 20' BGS. Ecology Well Tag BIH-216	20
Sampler Ty	/pe:		PID - Pho	 otoioniz:	l ation Det	tector	Logged by: ELG	
No Recovery			_	tic Wate		.55(0)		
Standard Pen- (ASTM D1586	etration Test			er Leve			Approved by: WVG	
— (70 INI D 1900	')		- vval	CI LEVE	· (\\\ \\ \)		Figure No. A	

		Aspe	ct		Proie	ect Numb	/lonit	oring Well Constructio Well Number	n Log Sheet	
		CONSULTI	NG			90018		IW-2	1 of 1	
Project N		New City Cle	eaners					Ground Surface Elev.		
Location:		Richland, WA						Top of Casing Elev.		—
Driller/Me		Holt / Hollow St SPT / Hammer		10 # / Hammer Dr	on: 30"			Depth to Water (ft BGS) Start/Finish Date	2/18/2014	
Depth /		orehole Completion			PID	Blows/	Material			Dept
Elevation (feet)	- T - I	1	Sample Type/ID	Tests	(ppm)	6"	Туре	Description		(ft)
 - - -		Flush monument and thermos well cap Concrete surface seal (0'-2')						Grass, slightly gravelly Hard, moist, dark brown SILT (ML); trace gravel	- - -
5 -	***************************************	3/8 Hydrated Bentonite chips (2'-9')		-						- - - 5
<u> </u> 			S1	-	0	20 22 9				_
10-		# 10/20 Silica sand filter pack (9'-20')		- IW-2-10-11		1		Medium stiff, very moist, iron stair	ning, trace organics	_ _ _10
- - -			S2 O	(VOC and FOC)	0	2 4				_
15-		2" diameter Sch. 40 PVC 0.020-inch slotted well screen (10'-20')	S3	IW-2-15-16 (VOC and FOC)	0	1 2 2		Soft, wet, slightly sandy		_ -15 -
+			S4		0	2 4 6		Stiff		+
20+		Threaded PVC endcap						Bottom of boring at 20' BGS. Ecol	ogy Well Tag BIH215	+20
Sa	ampler T	ype:	1 1	PID - Pho	otoioniz	ation De	tector	Logged by:	ELG	
○ No R	decovery	etration Test			tic Wate	er Level		Approved by:	WVG	
Z (AST	M D1586	6)		<u>▽</u> Wat	er Leve	l (ATD)			-	
Stand (AST	dard Pen M D1586	netration Test 3)						Approved by: Figure No.	WVG A	

Project Name: New City Cleaners
Sampling Methods: SPT / Hammer Weight: 140 # / Hammer Drop: 30" Service Conclude Corpletion Service Conclude Corpletion Service Service Conclude Corpletion Service Treats Prop I though Indicate Management of Basel I and Indicate Management of Indicate Manag
Departic Department Depar
Backfield with 30 Bentzete Chips W-2C-10-11 (VOC and FOC) 2 2 2

	Aspec	ct		Proie	ct Numb	<u>lonit</u> er	oring Well Construction Well Number	N Log Sheet	
	CONSULTI	NG			90018		IW-3	1 of 1	
Project Name:	New City Cle	eaners					Ground Surface Elev.		
Location: Driller/Method:	Richland, WA Holt / Hollow Ste	om Augor					Top of Casing Elev Depth to Water (ft BGS)		—
	: SPT / Hammer		# / Hammer D	rop: 30"			Start/Finish Date	2/18/2014	
Denth /	prehole Completion	Sample Type/ID	Tests	PID	Blows/	Material	Description		Depth
(feet)	Flush monument and	Type/ID	10313	(ppm)	6"	Туре	Grass, slightly gravelly		(ft)
	thermos well cap Concrete surface seal (0'-2')						Stiff, slightly moist, brown, slightly s	sandy SILT (ML)	- - -
5 -	3/8 Hydrated Bentonite chips (2'-9')	<u></u>		0	2 3 6				- - - 5
10-	# 10/20 Silica sand filter pack (9'-20')	S2		0	1 2 2		Soft, iron staining, trace sand		-10
15-	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (10'-20')	O \$3			1 2 2				- - -15
20-	Threaded PVC endcap	O \$4			1 2 3		Bottom of boring at 20' BGS. Ecology Well Tag BIH-214		_ _
Sampler Ty	/pe:		PID - Ph	otoioniza	ation Det	tector	Logged by:	ELG	
			▼ Sta	4: - 10/-4-					
No Recovery Standard Pen (ASTM D1586	etration Test		$\overline{}$	itic Wate ter Leve			Approved by: \	WVG	

	1	Aspec	~ +			N	/lonit	oring Well Construction	n Log	
		CONSULTI				ct Numb 90018	er	Well Number IW-4	Sheet 1 of 1	
Project Nar	ne:	New City Cle						Ground Surface Elev.		_
Location:		Richland, WA						Top of Casing Elev.		_
Driller/Meth		Holt / Hollow Ste						Depth to Water (ft BGS)	0/40/0044	_
	1ethod:	SPT / Hammer	Weight: 14 ⊺	I0 # / Hammer Dr	op: 30"	I	T	Start/Finish Date	2/13/2014	_
Depth / Elevation (feet)	Boi	rehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	De (eptl (ft)
0		Flush monument and thermos well cap						Grass, slightly gravelly		
 		Concrete surface seal (0'-2')						Very stiff, slightly moist, brown SIL	T (ML)	
- -		3/8 Hydrated Bentonite chips (2'-9')							_	
5 -		Gilips (2-9)	S1	_	0	7 10			- !	5
-			0	_		6				
	1 1. 1	# 10/20 Silica sand filter pack (9'-20')								
10-			○ S2			2 3 5			-1	10
15-	目	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (10'-20')	\$3	IW-4-15-16 (VOC and FOC)		1 2		Soft, wet, brown, iron staining	-1	15
† (*)			0			2			-	
+			S4	- IW-4-18-19 (VOC and FOC)		2 2 2				
20 -		Threaded PVC endcap		_				Bottom of boring at 20' BGS. Ecology Well Tag BIH-205		20
	pler Ty	pe:		PID - Pho			tector	Logged by:	ELG	
○ No Rec Standar (ASTM	overy d Pene D1586	etration Test)				r Level I (ATD)		Approved by:	WVG	
(AO HVI	J 1000	,		vvau	J. LOVE	. (, , , , ,)		Figure No.	A	

	Aspe	ect		t Numbe	r	Boring Log Boring Number	Sheet
Project Na	me: New City (09	0018		IW-4C Ground Surface Elev.	1 of 1
Location:	Richland, W					Ground Surface Elev.	
Driller/Met						Depth to Water (ft BGS)	
	Method: SPT / Hamm		nmmer Drop: 30"			Start/Finish Date	12/16/2014
Depth /	Borehole Completion		PID	Blows/	Material		
Elevation (feet)	Borenoie Completion	Sample Type/ID	Tests (ppm)	6"	Туре	Description	De (f
15 - 15 - 20 - 20 -	Backfilled with 3/8 Bentonite Chips	S1 IW-4 (VOC	IC-15-16 and FOC)	2 2 3 2		See boring log IW-4 for lithology info	mation
O No Re	mpler Type: ecovery ard Penetration Test // D1586)		otoionization Deter ▼ Static Water □ Water Level	Level	ıdspace	Measurement) Logged by: Al Approved by: W	
(ACTN	/LL)1586)		→ VVator i ovoi:	(ΔΤΠ)			

	1	Aspec	<u>~</u>		5 .	N	/lonit	oring Well Construction Lo	g
		CONSULTIN				ct Numb 90018	er	Well Number IW-5	Sheet 1 of 1
Project Nar	ne:	New City Cle						Ground Surface Elev.	
Location:		Richland, WA						Top of Casing Elev.	
Driller/Meth		Holt / Hollow Ste						Depth to Water (ft BGS)	
	/lethod:	SPT / Hammer	Weight: 140	# / Hammer D	rop: 30"			Start/Finish Date2/1	1/2014
Depth / Elevation (feet)	Boi	rehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Materia Type	Description	Dept (ft)
0		Flush monument and thermos well cap						Grass, slightly gravelly	
		Concrete surface seal (0'-2')						Soft, dark brown, slightly moist SILT (ML) organics, trace sand	; trace
- - 5 -		3/8 Hydrated Bentonite chips (2'-9')							+ 5
_			S1		0	2 2 3			+
10-	1 1. 1	# 10/20 Silica sand filter pack (9'-20')				2		Medium stiff, moist, brown-gray	-10
- I			\$2		0	3 3			
15-	目	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (10'-20')	S3		0	2 2 2		Soft, very moist, with iron staining	-15
			0			2			
20-		Threaded PVC endcap	S4		0	1 2 10		Stiff, wet Bottom of boring at 20' BGS.	20
+								Ecology Well Tag BIH-201	
Sam	pler Ty	pe:		PID - Ph	otoioniz:	l ation Def	tector	Logged by: ELG	
No Rec	covery			_	itic Wate				
Standar (ASTM	rd Pene D1586)	etration Test)		$\overline{}$	ter Leve			Approved by: WVG	I
								Figure No. A	

		Aspe	ct			<u> </u>	Monit	oring Well Construction	Log
		CONSULTI				ect Numl 90018		Well Number IW-6	Sheet 1 of 1
Project N	ame:	New City Cle						Ground Surface Elev.	
Location:		Richland, WA						Top of Casing Elev.	
Driller/Me		Holt / Hollow St						Depth to Water (ft BGS)	0/40/0044
Sampling Depth /	Method	: SPT / Hammer		# / Hamme			T	Start/Finish Date	2/18/2014
Elevation (feet)	Во	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Dej (fi
+		Flush monument and thermos well cap Concrete surface seal (0'-2')						Grass, slightly gravelly Very stiff, moist, dark brown SILT (Mi	L); trace gravel
5 -		3/8 Hydrated Bentonite chips (2'-9')	S1		0	2 13 12			- - - 5
10-	***************************************	# 10/20 Silica sand filter pack (9'-20')	○ S2			7 6 7		Stiff	- - -10
15-		2" diameter Sch. 40 PVC 0.020-inch slotted well screen (10'-20')	○ S3			1 2 2		Soft	- - -15
20-		Threaded PVC endcap	S4			1 1 2		Wet, dark brown-gray, slightly sandy, Bottom of boring at 20' BGS. Ecology Well Tag BIH-212	iron staining20
O No Re	mpler Ty ecovery dard Pen	/pe: etration Test		Y :	Photoioniz Static Wate	er Level	etector		LG /VG
Ľ (ASTI	M D1586	5)		Ā /	Water Leve	ı (ATD)		Figure No. A	

	Aspe	ct		Droi-	N ect Numb	/lonit	oring Well Construction Well Number	Log Sheet
	CONSULTI				90018	er	IW-7	1 of 1
Project Name:	New City Cle	eaners	l .				Ground Surface Elev.	
Location:	Richland, WA						Top of Casing Elev.	
Driller/Method:	Holt / Hollow St						Depth to Water (ft BGS)	2/17/2014
Sampling Method Depth /	: SPT / Hammer		/ Hammer Dr		1		Start/Finish Date	2/17/2014
Elevation (feet)	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Dept (ft)
	Flush monument and thermos well cap					ļ.,,,,,	Grass, slightly gravelly	
	Concrete surface seal (0'-2')						Soft, very moist, dark gray-brown SIL gravel	I (ML); trace
5 -	3/8 Hydrated Bentonite chips (2'-9')							- 5
-		S1		0	2 1 2			-
10-	# 10/20 Silica sand filter pack (9'-20')						Medium stiff	-10
		S2		0	1 2 3		Wedum 3un	
15-	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (10'-20')	O 83			4			-15
					3			-
20-	Threaded PVC endcap	S4			2 1 2		Soft, wet, iron staining	20
+	·						Bottom of boring at 20' BGS. Ecology Well Tag BIH-210	
Sampler Ty	 /pe:		PID - Pho	otoioniz	 ation Def	tector	Logged by: El	
No Recovery Standard Pen (ASTM D1586			▼ Sta	tic Wate	er Level	 •	Approved by: W	
(, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-,		vvai	2010	,		Figure No. A	

	Aspe	ct		Proie	Nect Numb	lonit	oring Well Construction Log Well Number	Sheet
	CONSULT				90018			l of 1
Project Name:	New City Cl						Ground Surface Elev.	
Location:	Richland, WA						Top of Casing Elev.	
Driller/Method:	Holt / Hollow S nod: SPT / Hammer		F / Hammor Dr	on: 30"			Depth to Water (ft BGS) Start/Finish Date 2/17/2	2014
Depth /			-/ Hallillel Di	PID	Blows/	Meterial		
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	(ppm)	6"	Material Type	Description	Depti (ft)
	Flush monument and thermos well cap					<u> </u>	Grass, slightly gravelly Very stiff, slightly moist, dark gray-brown SII	T (MI):
	Concrete surface seal (0'-2')						trace gravel	
5 -	3/8 Hydrated Bentonite chips (2'-9')	e						- 5
		O S1		0	5 9 11			-
10-	# 10/20 Silica sand filter pack (9'-20')						Medium stiff with trace organics	-10
		S2		0	2 2 3		Wedium sun with trace organics	-
15-	2" diameter Sch. 40 PVC 0.020-inch slotter well screen (10'-20')	d S3		0	2 3 3		Very moist, iron staining	- - 15
					3		Wet	
20	Threaded PVC endcap	S4			2 2 6		Bottom of boring at 20' BGS. Ecology Well Tag BIH-209	20
 Sampler	Tvpe:		PID - Pho	 ntoioniz	ation De	ector	Logged by: ELG	
No Recove	ery		_	tic Wate		GUUI		
Standard P (ASTM D15	enetration Test 586)			er Leve			Approved by: WVG	
,	,				` '		Figure No. A	

	Aspe	ct		Drois	Nect Numb	/lonit	oring Well Construction	Log Sheet	_
	CONSULTI				ect Numb 90018	CI	IW-9	1 of 1	
Project Name:	New City Cl	eaners					Ground Surface Elev.		_
Location:	Richland, WA						Top of Casing Elev.		_
Driller/Method:	Holt / Hollow St						Depth to Water (ft BGS)	2/19/2014	_
Sampling Metho	d: SPT / Hammer		f / Hammer Dr		I		Start/Finish Date	2/18/2014	=
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	De (t	ept ft)
+ + + +	Flush monument and thermos well cap Concrete surface seal (0'-2')						Grass, slightly gravelly Soft, very moist, dark brown SILT (I	ML); trace gravel	
5 -	3/8 Hydrated Bentonite chips (2'-9')	S1		0	2 2 2 2			+ + + 5	5
10-	# 10/20 Silica sand filter pack (9'-20')	S2		0	1 1 1		Dark brown-gray, iron staining	-1	0
15-	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (10'-20')	O \$3			2 2 2 2			-1 -1	5
20-	Threaded PVC endcap	S4			3 1 5		Medium stiff, wet, slightly sandy Bottom of boring at 20' BGS. Ecology Well Tag BIH-211	2	:0
Sampler			PID - Ph	otoioniza	ation De	tector	Logged by: E	ELG	_
No Recovery	y notration Tast		▼ Sta	tic Wate	r Level		Approved by: V	VVG	
Standard Pe (ASTM D158	netration Lest 36)		<u> </u> Wat	ter Leve	l (ATD)		Approved by: V	V V O	
,	•				. ,		Figure No. A	4	

•	Aspec	~ †		D!	Not Niver	/lonit	oring Well Construction Well Number	Log Sheet	
	CONSULTII				ct Numb 90018	er	IW-10	Sneet 1 of 1	
Project Name:	New City Cle						Ground Surface Elev.		
ocation:	Richland, WA						Top of Casing Elev.		
Driller/Method:	Holt / Hollow Ste						Depth to Water (ft BGS)	0/40/0044	
Sampling Method: Depth /	SPT / Hammer \		# / Hammer Dro		Ι	T	Start/Finish Date	2/13/2014	
Elevation Bo (feet)	rehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		Depti (ft)
	Flush monument and thermos well cap Concrete surface seal (0'-2')						Grass, slightly gravelly Soft, slightly moist, gray SILT (ML); organics	trace gravel, trace	- -
	3/8 Hydrated Bentonite chips (2'-9')	S1		0	2 2 2 3			-	- - - 5
1 1. 1 1. 1	# 10/20 Silica sand filter pack (9'-20')		IW-10-10-11 (VOC and FOC)		3 3 3		Medium stiff, brown	-	- - -10 -
	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (10'-20')	S3			1 2 2		Soft, wet		- -15 -
20 -	Threaded PVC endcap						Bottom of boring at 20' BGS. Ecology Well Tag BIH-206		- - -20 -
Sampler Ty	pe:		PID - Pho	toioniz	⊥ ation De	L tector	Logged by:	 ELG	
No Recovery			_		er Level				
Standard Pene (ASTM D1586)	etration Test		_		I (ATD)		Approved by: \	WVG	
— (YOLIMI D 1990)	,		- vvale	JI LEVE	· (~1 <i>0)</i>		Figure No.	۸	

	Aspe	- .			t Numb 0018	er	Boring Log Boring Number IW-10C	Sheet 1 of 1	
Project Name: Location:	New City C		<u> </u>				Ground Surface Elev.		
Driller/Method:	Holt / Hollow S		# / Hammar Dra	n: 20"			Depth to Water (ft BGS) Start/Finish Date	12/15/2014	
	od: SPT / Hamme		#/ Hammer Dro	PID	Blows/		Statt/Fillish Date		_
Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	(ppm)	6"	Material Type	Description		De
5 - 10 - 15 - 20 - 20 - 20 - 20 - 20 - 20 - 20 - 2	Backfilled with 3/8 Bentonite Chips		IW-10C-10-11 (VOC and FOC)		2 4 4		Moist, brown SILT (ML); Bottom of boring at 11.5' BGS		
Sampler No Recover Standard Per (ASTM D15	V	PII	▼ Statio	on Dete Water r Level	Level	eadspac	ce Measurement) Logged by: A Approved by: V Figure No. A		

	Aspe	ct		ect Numl	ber	oring Well Construction Well Number	Sheet	
	CONSULTI		0	90018		MW-6I	1 of 1	
Project Name:	New City Cle	eaners				Ground Surface Elev.		
Location:	Richland, WA					Top of Casing Elev.		
Driller/Method:	•	g / CME 75 Hollow St		r Dron:	20"	Depth to Water (ft BGS) Start/Finish Date	10/25/2010	
Depth /		e / Hammer Weight: 1	, PID	Blows/	Material		10/20/2010	Dor
Elevation (feet)	Borehole Completion	Sample Type/ID Tes	(ppm)	6"	Туре	Description		Dep (ft
5	Concrete surface seal with flush monument and thermos well cap 3/8 Bentonite chips	S-2 S-3 MW-6I-15	0 0 5 VOCs 0	50/6 7 7 4 5 6 6		Slightly moist, brown, sandy GR subrounded to angular; no odor Drill rig action indicates reduced Stiff, slightly moist, dark gray, sli coarse silt; no odor; occaisonal of Stiff, wet, yellow brown, sand no	gravel content ightly sandy SILT (ML); organics	- - - - - - - - - - - - -
20-		S-4	0	15 16 12		Very stiff, wet, dark gray, slightly	r gravelly - - -	- -20 -
25-	2 diameter PVC 0.001 slot well screen with 2/12 silica sand filter pack	■ S-5 MW-6I-VOC		50/6		Drill action indicates increased g Very dense, wet, dark gray, sand subrounded fine gravels; mediur odor	dy GRAVEL (GW);	- - 25 - - - -
						Bottom of boring at 30' bgs. Eco	logy Well Tag BCT-447	- - -
Sampler T	ype:	PI	D - Photoioniz	ation De	tector	Logged by:	DFR	
○ No Recovery 3.25" OD D& Ring Sample	M Split-Spoon r	Ţ ∑	Static Wate			Approved b	y: WVG	
ig cample	•		2.0. 2010	ν)		Figure No.	Α	

	Aspec	ct	_	Proie	ct Numb	Monit	oring Well Construction Well Number	on Log Sheet	
	CONSULTI				90018	-	MW-15I	1 of 1	
Project Name:	New City Cle	eaners	<u>'</u>				Ground Surface Elev.		
Location:	Richland, WA						Top of Casing Elev.		
Driller/Method:	Cascade Drilling	g / CME 75 Hollov	w Stem Au	ger			Depth to Water (ft BGS)		
	: Dames & Moore	e / Hammer Weig	ht: 130# /	130# / Hammer Drop: 30"			Start/Finish Date	10/26/2010	
Depth / Elevation Bo (feet)	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		Dept (ft)
	Concrete surface seal with flush monument and thermos well cap						Loose, slightly moist, brown, med odor	dium SAND (SP); no	
5 -	3/8 Bentonite chips	S-1		0	7 7 8		Stiff, slightly moist, brown, slightl trace subrounded fine gravels; no	y sandy SILT (ML); o odor	- - - - -
10-	$ar{ abla}$	S-2		0	2 3 4		Sand and gravel not present		- - -10 -
15-		S-3		0	5 6 8				- - -15
20-		S-4 VOC	V-15I-19 s, TPH-Gx, PH-Dx	, 0	4 3 5		Wet, slightly sandy Drill action indicates increased gr	avel content	- - -20
25-	2 diameter PVC 0.001 slot well screen with	S-5 VOC	V-15I-25 s, TPH-Gx, PH-Dx	, 0	50/6		Very dense, wet, dark gray, sligh GRAVEL (GW); subrounded fine grained sand; no odor	tly silty, sandy gravels; medium	- - - -25
30-	2/12 silica sand filter pack)	ogy Well Tag BCT-448	-30
+									<u>+</u> - - -
Sampler Ty	/pe:		PID - Pho	otoioniza	ation De	tector	Logged by:	DFR	
No Recovery 3.25" OD D&N Ring Sampler			▼ Stat	tic Wate	r Level		Approved by		
5 1 1					•		Figure No.	Α	

	1	Aspec	~ +				Monit	oring Well Construction	n Log	
		CONSULTIN				ect Num 90018		Well Number MW-15S	Sheet 1 of 1	
Project Na	mo:	New City Cle			U	90010		Ground Surface Elev.	1 01 1	
Location:	iiic.	Richland, WA	ancis					Top of Casing Elev.		
Driller/Met	hod.	Cascade Drilling	. / CME 75 Hol	low Stem A	uner			Depth to Water (ft BGS)		
		Dames & Moore				r Drop:	30"	Start/Finish Date	10/26/2010	
Depth / Elevation		orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/	Material	Description		Dep
(feet)	KIA KI		Турело		(ррпі)	6"	Туре	Soil samples not collected, see b	oring log MW-15I for	(f
+		Concrete surface seal with flush monument and thermos well cap						lithology information		+
5 + + + + + + + + + + + + + + + + + + +		3/8 Bentonite chips								- - 5
10-		∑								-10 -
15-	***	2 diameter PVC 0.001 slot well screen with								- - -15
- :		2/12 silica sand filter pack								 - -
20-								Bottom of boring at 19' bgs. Ecol	ogy Well Tag BCT-449	-20
+										 - -
San	npler Ty	pe:		PID - P	l hotoioniz	ation De	etector	Logged by:	DFR	
O No Re				_	atic Wate					
	•			$\overline{}$	ater Leve			Approved by	: WVG	
						,		Figure No.	Α	

	Mana				Monito	oring Well Construction		
	Aspec			ject Numb	oer	Well Number	Sheet	
	OCON SULTI			090018		MW-16I	1 of 1	
Project Name:	New City Cle	aners				Ground Surface Elev.	358.76	
₋ocation:	Richland, WA					Top of Casing Elev.	358.46	
Oriller/Method:	Cascade Drilling	/ CME 75 Hollow S	Stem Auger			Depth to Water (ft BGS)		
	d: Dames & Moore	/ Hammer Weight:	130# / Hamm	ner Drop: 3	30"	Start/Finish Date	10/26/2010	
Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	ests PID (ppm	Blows/ 6"	Material Type	Description		Dep (ft
- 355 5 + 355	Concrete surface seal with flush monument and thermos well cap	S-1	0	50/6		Very dense, slightly moist, brown, (GW); subrounded fine to coarse g	sandy GRAVEL gravels; no odor	- - - - 5
- - - 350	376 Bernonine Crips	S-2		3		Drill action indicates reduced grave Medium stiff, moist, brown, SILT (N		+
0 -		S-3 MW-1 VOCs, T	TPH-Gx, 0	4 6 7		Wet		+1 + + + +
340	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	S-4 WW-1 VOCs, T	TPH-Gx, 0	50/6		Very dense, wet, dark gray, sandy	GRAVEL(GW)	-20
25 - 330	2 diameter PVC 0.001 slot well screen with 2/12 silica sand filter pack				00.00.00.00.00.00.00.00.00.00.00.00.00.	Bottom of boring at 26' bgs. Ecoloថ	gy Well Tag BCT-450	
0				<u> </u>		1 11	DED	
Sampler 1			ID - Photoion	ization De	tector	Logged by:	DFR	
No Recovery		Ā	Static Wa	ter Level		Approved by:	W//G	
$oxed{\mathbb{D}}^{3.25}$ " OD D8 Ring Sample	kM Split-Spoon	$\overline{\Delta}$				Approved by:	vv v G	
- King Sample	;1		water Lev	rei (ATD)		Figure No.	A	

		Aspec	~+		D	N N	/lonit	oring Well Construction Well Number	n Log Sheet	
		CONSULTII	⊌∎ NG			ect Numb 90018	per	MW-17I	1 of 1	
Project Na	me:	New City Cle						Ground Surface Elev.		
ocation:		Richland, WA						Top of Casing Elev.		
Oriller/Meth	hod:	Cascade Drilling	/ CME 75	Hollow Stem Au	ıger			Depth to Water (ft BGS)		
Sampling N	Method	l: Dames & Moore	/ Hammer	Weight: 130# /	Hamme	r Drop: 3	30"	Start/Finish Date	10/28/2010	
Depth / Elevation	В	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/	Material Type	Description		De
(feet)		Concrete surface seal	Турсль		(PP)		1,700	Slightly moist, brown, SAND (SP);	no odor	1
		with flush monument and thermos well cap					ТІПП	Loose, moist, brown SILT (ML); no	 odor	+ + + + -
5 -		3/8 Bentonite chips	S-1		0	7 7 4				- 5
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX								Drill action indicates increased gra	vel content	
+ XXXXXX		⊻	S-2		0	50/6		Very dense, moist, dark gray, sand no odor	ly GRAVEL (GW);	+ +1 +
15-			S-3	MW-17I-15 VOCs	0	50/6		Wet		-1 -1
-		2 diameter PVC 0.001 slot well screen with 2/12 silica sand filter pack	S-4		0	50/6				-
20 +								Bottom of boring at 20' bgs. Ecolog	gy Well Tag BCT-45	5
	npler T	ype:		PID - Ph	otoioniz	ation De	tector	Logged by:	DFR	
No Red 3.25" C Ring Sa	covery DD D&l ampler	M Split-Spoon			itic Wate			Approved by:	WVG	
-								Figure No.	A	

		Manag	- 1			N	/lonit	oring Well Construction		
		Aspec				ct Numb 90018	er	Well Number MW-18I	Sheet 1 of 1	
Project Na	me.	New City Cle			U:	90010		Ground Surface Elev.	1 01 1	
Location:		Richland, WA	arioro					Top of Casing Elev.		
Driller/Met	hod.	Cascade Drilling	/ CMF 75	Hollow Stem A	uger			Depth to Water (ft BGS)		
		d: Dames & Moore				r Drop: 3	30"	Start/Finish Date	10/27/2010	
Depth /		orehole Completion		-	PID Blows/ Motorial					Dep
Elevation (feet)	71d 171	J	Sample Type/ID	Tests	(ppm)	6"	Type	Description Modium dones eligibility moist, brown	n clightly gravelly	(ft)
5		Concrete surface seal with flush monument and thermos well cap 3/8 Bentonite chips	S-1		0	3 4 5		Medium dense, slightly moist, brown SAND (SP); no odor Medium Stiff, very moist, brown SIL Drill action indicates increased grav	T (ML); no odor	5
10-		∑	S-2		0	50/6		Very dense, moist, dark gray, sandy no odor	GRAVEL (GW);	-10 -
15-		2 diameter PVC 0.001 slot well screen with 2/12 silica sand filter pack	S-3		0	50/6		Wet		-15 -
								Bottom of boring at 20' bgs. Ecology	/ Well Tag BCT-451	
San	npler Ty	ype:	i I	PID - Ph	notoioniza	ation De	tector	Logged by: C)FR	
O No Re		/ · ·		_	atic Wate		.55(0)			
3.25"	DD D&I	M Split-Spoon						Approved by: V	VVG	
■ Ring S	ampler	-		* Wa	ater Leve	I (AID)		Figure No. A		

Project Name: Location: DillemMethod: Cascade Drilling: CME 75 Hollow Stem Auger Topic Manager Cascade Drilling: CME 75 Hollow Stem Auger Topic Manager Cascade Drilling: CME 75 Hollow Stem Auger Topic Manager Topic Man	1	Aspec	ct		Droio	ct Numb	/lonite	oring Well Construction Well Number	n Log Sheet	
Project Name: New City Cleaners Richard, WA Displayer Cascade Diffling / CME 75 Hollow Stem Auger Cascade Diffling / CME 75 Hollow Stem Auger Sampling Method: Dames & Moore / Hammer Weight: 130# / Hammer Drop; 30" Description Boarbook Concletion Sympto Tests (pm) Description Start/Finish Date 10/27/2010 Description Concrete cutice seed with fixen normal and themses well cap S38 Beritorite cities S38 Beritorite cities S38 S1		CONSULTII	₩ I N G				, CI			
Delice/Method: Cascade Drilling / CME 75 Hollow Stem Auger Sampling Method: Dampling Method: Dampl	Project Name:	New City Cle	eaners					Ground Surface Elev.		
Sampling Method: Dames & Moore / Hammer Weight: 130# / Hammer Drop: 30* Start/Finish Date 10/27/2010 Despring Boart-local Comprision Sample Tools (perm) Fig. 10 Single Tools (perm) Single Start Finish Date Description Tools (perm) Single Start Finish Date Description Start Finish Date Date Date Date Date Date Date Date	ocation:	Richland, WA						Top of Casing Elev.		
Service Competion Source and Competion Sample Teets Pip (peri) Blows Marterial Service	Oriller/Method:	Cascade Drilling	g / CME 75 H	lollow Stem Au	ger			Depth to Water (ft BGS)		
Bovelon Bordole Corpeted Specific Popular Tests (pm) of South Specific Popular Specific Pop	Sampling Method	: Dames & Moore	e / Hammer \	Neight: 130# /	Hamme	r Drop: 3	30"	Start/Finish Date	10/27/2010	
Selectionise chips Select	Elevation Bo	orehole Completion	Sample Type/ID	Tests				Description		De (
S-1 O 2 1 S-2 O 50/e S-3		with flush monument						odor		- - - -
S-2 0 50/6 Control of the second state of the	5 -	3/8 Bentonite chips	S-1		0	2				 -
2 diameter PVC 0.001 slot well screen with 2/12 silica sand filter pack S-4 MW-19I-19 O 50/6 O O O O O O O O O	-		S-2		0	50/6		Very dense, moist, dark gray, sand		
2 diameter PVC 0.001 slot well screen with 2/12 silica sand filter pack S-4 MW-19I-19 VOCs 0 50/6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10-	abla						TIO GOO!		-1 -
20 - VOCs 0 50/6 000	15-	slot well screen with 2/12 silica sand filter	S-3		0	50/6		Wet		+ +1 +
	20-		S-4		0	50/6	0000	Bottom of boring at 20' bgs. Ecolog	gy Well Tag BCT-454	-2
	- - -									-
Sampler Type: PID - Photoionization Detector Logged by: DFR ☐ No Recovery ☐ Static Water Level ☐ 3.25" OD D&M Split-Spoon Ring Sampler ☐ Water Level (ATD) ☐ Water Level (ATD)	No Recovery ■ 3.25" OD D&N	∕l Split-Spoon		▼ Sta	tic Wate	r Level	tector	-		

	1	Acno	~ +				Monit	oring Well Construction		
		Aspe				ject Num 090018		Well Number MW-20I	Sheet 1 of 1	
Project Nan	ne.	New City Cle		<u> </u>		000010		Ground Surface Elev.	359.80'	
ocation:		Richland, WA						Top of Casing Elev.	359.30'	
riller/Meth	od:	Cascade Drilling	a / Hollo	w Stem Auger				Depth to Water (ft BGS)		
ampling M	lethod:	Dames & Moore			0 # / Hamr	ner Drop:	30"	Start/Finish Date	1/11/2012	
Depth / Elevation		rehole Completion	Samn	e	PID		Material	Description		De
(feet)		·	Type/I	D Tests	(ppm		Туре	Description		(
0		Flush monument and thermos well cap						Asphalt		4
+ 14								(Hand excavated soil to 4' BGS becautilities); Slightly moist, brown, sand	ause of proximity to v SILT (ML); trace	+
1 6		Concrete surface seal						fine subrounded gravel; no odor		1
		(0'-4')								
† 6										†
1 9										+
			s	.1	0	4 5		Very stiff, moist, brown, sandy SILT subrounded gravel, fine sand; no od	(ML); trace fine or	
; †					0	15		Sazioaniasa gravsi, mis sana, no sa	•	+ :
↓ 🐉		3/8 Hydrated Bentonite								+
	ਸ਼ ਲਵਜ਼	chips (4'-9')					HITH	Drill action indicates increased grave		\dashv
† \$							100	- -	J. JOHIOH	†
+ \$							8,8,			+
🗱										
† K							700	Very dense, very moist, gray, slightly	y sandy GRAVEL	†
)	#2/12 Silica sand filter	2	0	50/6	8,8,	(GW); fine to medium subrounded to	o rounded gravel;	1		
		pack (9'-21')					$D \square \square$			
†	目日						8,8,8			T
1 1	目丨						8.8.5			+
†	目1						8,8,8			†
+	目						200			+
		Z	S	3	0	50/6	8,8,8			
i+ :`	目	* -	Ш_		0	30/0	0,0,0	Wet, very sandy		+1
+ 1:	目丨	2" diameter Sch. 40								+
	目丨	PVC 0.001 slot well screen (11'-21')					8,8,			
T E	目						200			T
+ 1:	目丨						0000			+
	自						8,8,			
	目丨						1 - 11 - 11	d)		
) + [:							8,8,8			+2
1 1		Well cap								1
								Bottom of boring at 21' BGS. Ecolog BHM089	y Well Tag	
+								BI IWIOGS		+
1										1
†										+
5+										+2
†										†
1										1
†										†
1										+
Samr	pler Ty	pe:	1	PIU	- Photoion	 ization D₄	etector	Logged by: N	1AR	
No Rec		•		<u>▼</u>	Static Wa					
ງ 3.25" OI	D D&M	l Split-Spoon						Approved by: ${\sf V}$	VVG	
J Ring Sa	mpler	•		$\bar{\Delta}$	Water Lev	/el (ATD)				
								Figure No. A		

	1	Aspec	-+		<u> </u>	A N 1:	Monit	oring Well Constructi	on Log	
		CONSULTIN				ect Numl 90018	ber	Well Number MW-21I	Sheet 1 of 1	
Project Nar	ne.	New City Cle				00010		Ground Surface Elev.	1011	
_ocation:		Richland, WA	<u> </u>					Top of Casing Elev.		
Driller/Meth	od:	Cascade Drilling	/ CME 75 Hollo	w Stem Au	ıger			Depth to Water (ft BGS)		
		Dames & Moore				r Drop:	30"	Start/Finish Date	10/27/2010	
Depth / Elevation		rehole Completion		Tests	PID (ppm)	Blows/	Material Type	Description		Dep (ft)
Deptiton Elevation (feet)		Concrete surface seal with flush monument and thermos well cap 3/8 Bentonite chips 2 diameter PVC 0.001 slot well screen with 2/12 silica sand filter pack	Sample Type/ID	Tests	PID (ppm)			Soil samples not collected, see lithology information	boring log MW-21D for	Dep (ff)
+								Bottom of boring at 20' bgs. Eco	ology well Tag BCT-453	+
†										
	pler Ty _l	oe:		PID - Ph	otoioniz	 ation De	tector	Logged by:	DFR	
O No Rec	overy			▼ Sta	itic Wate	er Level		A	WVC	
				$\overline{}$	ter Leve			Approved b		
								Figure No.	Α	

	Mana	~ ‡		N	/lonit	oring Well Construction		
	Aspe			ect Numb 090018	per	Well Number MW-21I/2	Sheet 1 of 1	
N-14 NI				90018			360.5	
Project Name:	New City Cle	eaners				Ground Surface Elev.	360.2	
ocation:	Richland, WA	- / CME 75 Halland	Ctoro Avenar			Top of Casing Elev Depth to Water (ft BGS)	300.2	
Oriller/Method:	od: Dames & Moore	g / CME 75 Hollow		or Dron: 1	יים	Start/Finish Date	10/27/2010	
Depth /			PID	Blows/			10/21/2010	T _D .
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests (ppm)		Material Type	Description		De (1
360	Concrete surface seal with flush monument					Slightly moist, brown, slightly grave	elly SAND (SP); no	+
+ 🙀	and thermos well cap					Cuttings indicate SILT(ML) at 1' bg	 js	+
1 🖁								†
. † 🖁 [0/0 Dandanita abiaa	S-1	0	1 2		Medium Stiff, very moist, brown SI	LT (ML); no odor	Ť
5 + 355	3/8 Bentonite chips			2				† '
								1
					000	Drill action indicates increased gra	vel content	+
+ 🔰		S-2		FOIG	0,0,0	Vary dance maint dark gray cons	W CDAVEL (CW):	+
o+		0-2	0	50/6	$D \cap D$	Very dense, moist, dark gray, sand no odor	IY GRAVEL (GW);	+1
350					0000			+
+ 🗯					8,8,8			+
+ 🖁					0,00			+
† 👹	■ S-3	S-3	0	50/6	0000	Wet		t
5+ 345							+1	
† 🖁				000			Ť	
					Ŏ, Ŏ,			Ť
								Ι
		D400/	-21D-20		700	Unable to collect soil samples due	to deflection of	$\begin{bmatrix} 1 \\ 2 \end{bmatrix}$
340			OCs 0	50/6		auger flights by gravels. Autohamn advance down the drill string. Drill	action clearly	
					0.0.0	indicates high gravel content.		1
								1
+ 🖁					8,8,8			+
5+\$					C			+2
+ 335					0,00			+
+ 🔰					0000			+
+ 🖁					000			+
+ 📓					0.00			+
330								+3
1 🖁					000			Ť
								Ι
I					0,0,0			Γ
5					000			-3
325					8,8,8			Τ,
1 1 1	2 diameter PVC 0.001 slot well screen with							1
↓ 目	2/12 silica sand filter							+
	pack				0.0.0			+
0+ 000						Bottom of boring at 39' bgs. Ecolog	ny Well Tag BCT-452	, +4
320						Dottom of borning at 35 bgs. Ecolog	gy Well rag Bot 432	+
+								+
+								+
†								+
Sampler	Type:	1 1	PID - Photoioniz	zation De	tector	Logged by:	DFR	
No Recover	ry		▼ Static Wat	er Level		Approved by:	WVG	
3.25" OD Da Ring Sampl	&M Split-Spoon er			el (ATD)		Approved by:	vv v G	
- '				,		Figure No.	A	

		Mana	6				/lonit	oring Well Construction		
		Aspe	CT		-	ct Numb	oer	Well Number	Sheet	
		OCON SULTI			09	90018		MW-22I	1 of 1	
Project Na	ame:	New City Cle	eaners					Ground Surface Elev	360.60'	
Location:		Richland, WA						Top of Casing Elev.	360.14'	
Driller/Met	thod:	Cascade Drillin	g / Hollow Stem	Auger				Depth to Water (ft BGS)		
Sampling	Method	l: Dames & Moor	e / Hammer We	eight: 300 #	/ Hamme	er Drop:	30"	Start/Finish Date	1/12/2012	
Depth / Elevation (feet)	В	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		Dep (ft)
+		Flush monument and thermos well cap						Asphalt		7
+ (Concrete surface seal (0'-4')								-
5 +						2		Medium stiff, very moist, brown SIL	_T (ML): no odor	+ + 5
_		3/8 Hydrated Bentonite	S1		0	3 2 3		-		
——————————————————————————————————————		chips (4'-11')								
10+			O S2		0	50/6		No soil recovery		-10
+		# 2/12 Silica sand filter pack (11'-23')								-
15-			S3		0	50/6		Very dense, wet, gray, very sandy trace silt, fine to coarse subrounde	GRAVEL (GW);	+ -15
		2" diameter Sch. 40 PVC 0.001 slot well screen (13'-23')	Ō			30/0				
20-										-20
+		. Well cap								_
-								Bottom of boring at 23' BGS. Ecolo BHM091	ogy Well Tag	_
25+										-25 -
<u> </u>										+
+										+
Sar	mpler Ty	ype:		PID - Ph	notoioniza	ation De	tector	Logged by:	MAR	
O No Re	covery	M Split-Spoon		▼ Sta	atic Wate	r Level		Approved by: \		
, wild c	-ampici			***	000	()		Figure No.	Ą	

		N A = = =				N	/lonit	oring Well Construction	Log	
		Aspe	CT			ct Numb	er	Well Number	Sheet	
		OCON SULTI	NG		08	90018		MW-23I	1 of 1	
Project Na	ame:	New City Cle	eaners					Ground Surface Elev.	360.30'	
Location:		Richland, WA						Top of Casing Elev.	359.85'	
Driller/Me	thod:	Cascade Drilling	g / Hollow Sten	n Auger				Depth to Water (ft BGS)		
Sampling	Method	d: Dames & Moore	e / Hammer W	eight: 300 #	t / Hamme	er Drop:	30"	Start/Finish Date	1/12/2012	
Depth / Elevation (feet)	В	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		Depti (ft)
(leet)	07 0	Flush monument and	76.				,,	Asphalt		
+ - -		thermos well cap Concrete surface seal (0'-4')								† † †
5		3/8 Hydrated Bentonite chips (4'-10')	S1		0	7 50/4		Hard, very moist, brown SILT (ML); subrounded gravel; no odor Drill action indicates increased grav		+ 5 + +
10-		# 2/12 Silica sand filter pack (10'-22')	S2		0	50/6		Very dense, moist, brown, slightly s (GW); fine to coarse subrounded g odor	silty, sandy GRAVEL gravel, fine sand; no	-10
15-		2" diameter Sch. 40 PVC 0.001 slot well screen (12'-22')	S3		0	50/6		Wet		- -15 -
20-								Bottom of boring at 22' BGS. Ecolo BHM090	gy Well Tag	-20 -
25 - - -										- -25 - -
+										+
+										+
O No Re	mpler T			▼ St	Photoioniza tatic Wate		tector	Logged by: I	MAR WVG	
1 3.25" Ring 8	ואט טט Sampler	M Split-Spoon		<u></u> ₩	ater Level	(ATD)		Approved by: \	v v V 🔾	
-								Figure No.	4	

	N A			N	/lonit	toring Well Construction Log		
	Aspe	CT		ct Numb	per	Well Number	Sheet	
	OCON SULTI		0	90018		MW-24I	1 of 1	
Project Name:	New City Cle	eaners				Ground Surface Elev.	360.90'	
_ocation:	Richland, WA					Top of Casing Elev.	360.59'	
Driller/Method:	Cascade Drillin	g / Hollow Stem Au	ger-Limited Acce	ess		Depth to Water (ft BGS)		
Sampling Metho	od: Dames & Moore	e / Hammer Weigh	t: 140 # / Hamme	er Drop:	30"	Start/Finish Date	1/10/2012	
	Borehole Completion	Sample Type/ID	Tests PID (ppm)	Blows/	Material Type	Description		Dept (ft)
(feet)	Flush monument and	, spend			31	Asphalt		+ "
5 -	(thermos well cap Concrete surface seal (0'-4') 3/8 Hydrated Bentonite chips (4'-12.5')	S1 O S2	0	4 4 4 50/6	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Medium stiff, slightly moist to mois gray, sandy SILT (ML); fine sand; r	very silty GRAVEL	-5-10
15-	# 2/12 Silica sand filter pack (12.5'-24.5') 2" diameter Sch. 40 PVC 0.001 slot well screen (14.5'-24.5')	■ S3	0	50/6	$0 \cdot 0 \cdot$	Moist to wet, gray, sandy GRAVEL coarse subrounded to rounded gra	(GW); fine to vel; no odor	- - - 15
25	Well cap				00.700.700.700.700.700 00.000.000.000.000 00.000.000.000.0	Bottom of boring at 25' BGS. Ecolo 087	ngy Well Tag BHM	-200
Sampler To No Receiver			PID - Photoioniz		tector	Logged by:	MAR	
No Recovery 3.25" OD D8 Ring Sample	y &M Split-Spoon er		$ar{\Psi}$ Static Water $ar{\Psi}$ Water Leve			Approved by: \	WVG	
J				. /		Figure No.	A	

	Aspe	ct		Droin	ct Numl	Monit	oring Well Constructio Well Number	n Log Sheet	
	CONSULT			-	90018		MW-25I	1 of 1	
Project Na					00010		Ground Surface Elev.	359.60'	
_ocation:	Richland, WA	<u> </u>					Top of Casing Elev.	359.29'	
Driller/Met		g / Hollow Stem	Auger-Limite	ed Acce	ess		Depth to Water (ft BGS)		
	Method: Dames & Moor					30"	Start/Finish Date	1/10/2012	
Depth / Elevation	Borehole Completion	Sample		PID	Blows/	Material	Paradation		Dept
(feet)	·	Type/ID	Tests	(ppm)	6"	Type	Description		(ft)
5	Flush monument and thermos well cap Concrete surface seal (0'-4') 3/8 Hydrated Bentonite chips (4'-19')	S1 O S2		0	50/6 4 6 6	16 SV	Drill action indicates increased grato 3.5' Hard, moist, gray SILT (ML); trace Stiff, moist to wet, brown to gray, trace fine subrounded gravel; no of	e fine gravel; no odor	- 5 - 10
15-		S3		0	4 6 8		Moist, slightly sandy, iron staining		-15
20-	# 2/12 Silica sand filter pack (19'-26') 2" diameter Sch. 40 PVC 0.001 slot well screen (21'-26')	S4		0	50/6		Wet Very dense, wet, gray GRAVEL (6 sand, fine to coarse subrounded todor	GW); trace silt and o rounded gravel; no	20
25-	Well cap						Bottom of boring at 26' BGS. Ecol BHM088	logy Well Tag	-25 -
	nnler Typo:		חום סי	 	otic = D	toct	Logged by	MAR	
_	npler Type:		PID - Pho			tector	Logged by:	INIMI	
○ No Re	COVERY			ic Wate	r Level		Approved by:	WVG	
■ Ring S	OD D&M Split-Spoon Sampler		∑ Wate	er Leve	l (ATD)		, .pp. 0.00 b).	-	
-							Figure No.	Α	

Project Name: Location: Driller/Method: Sampling Methor Depth / Elevation (feet)	New City Cle Richland, WA Cascade Drilling				ct Numl 90018	oer	Well Construction Well Number MW-26I	Sheet 1 of 1	
Location: Driller/Method: Sampling Metho Depth / Elevation	New City Cle Richland, WA Cascade Drillino			O:	4001X			7 At 1	
Location: Driller/Method: Sampling Method Depth / Elevation	Richland, WA Cascade Drilling	eaners			30010				
Oriller/Method: Sampling Method Depth / Elevation	Cascade Drilling						Ground Surface Elev.	359.31 359.01	
Depth / Elevation		. /	N				Top of Casing Elev.	339.01	
Depth / Elevation	ad. Damas & Maare					20"	Depth to Water (ft BGS) Start/Finish Date	1/10/2012	
Elevation (feet)			vveignt. 140 # /		Blows/			171072012	T_
	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	6"	Material Type	Description		Dep (ft)
	Flush monument and thermos well cap						Grass, slightly gravelly		1
355	Concrete surface seal (0'-4')	\$1 O		0	50/6		Hard, dark brown to gray, slightly sa sand; no odor	ndy SILT (ML); fine	- - - - 5
	3/8 Hydrated Bentonite chips (4'-23')	S2		0	11 10 11		Very stiff, moist, brown; scattered be subrounded sandy gravel	ed of fine	- - -10
345 15 -	<u> </u>	S3		0	10 10 12		Wet		-15
20 -		S4		0	11 7 8		Medium dense, wet, brown SAND (S sand; no odor	SP); fine to medium	-20
25 - 335	# 2/12 Silica sand filter pack (23'-30')	S5	MW-26I-25 (VOCs)	0	50/6		Very dense, wet, dark gray, sandy G to coarse subrounded gravel; no odd	RAVEL (GW); fine	-25
30	PVC 0.001 slot well screen (25'-30') Well cap						Bottom of boring at 30' BGS. Ecolog BHM086	y Well Tag	-30
325 Sampler No Recover			PID - Pho ▼ Stat	otoioniza ic Wate		etector	Logged by: N	IAR	+
3.25" OD Da Ring Sampl	&M Split-Spoon er		~	er Leve			Approved by: V Figure No. A		

	Aspe				ct Numb	/lonit er	oring Well Construction Well Number	Sheet	
	OCON SULT			0	90018		MW-26S	1 of 1	
Project Name: Location:	New City CI Richland, WA	eaners					Ground Surface Elev Top of Casing Elev		
Driller/Method:		tem Auger					Depth to Water (ft BGS)		
	hod: SPT / Hammer		10 # / Hammer Dro	op: 30"			Start/Finish Date	2/13/2014	
Depth / Elevation	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/	Material Type	Description		Depti (ft)
(feet)	Flush monument and	Турель		(ррпі)	0	Туре	Grass, slightly gravelly		(11)
	concrete surface seal (0'-2')						Stiff, moist, gray SILT (ML); no odd	or	<u> </u> - -
5 -	3/8 Hydrated Bentonite chips (2'-9')		_						- - - 5
-		S1 O	_	0	8 10 5				_
10-	# 10/20 Silica sand filter pack (9'-20')		_				Medium stuff, brown gray, trace gr	avel	- - -10
		S2 O	MW-26S-10-11 (VOC and FOC)	0	3 3				 - -
15-	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (10'-20')) S3		0	4 4				_ -15
			_		5				_ _ _
20		S4	MW-26S-19-20 (VOC and FOC)	0	0 3 2		Dark brown with iron staining		-
20	Threaded PVC endcap						Bottom of boring at 20' BGS. Ecolo	ogy Well Tag BIH207	+20 -
Sample	r Type:		PID - Pho	tojoniz	ation De	tector	Logged by:	ELG	<u></u>
O No Recove			▼ Stati	ic Wate	er Level	.50101	Approved by:		
, .c D I	- /			_5.0	, - /		Figure No.	A	

		Aspe	ING			Project	t Numb 0018	er	Boring Log Boring Number MW-26SC	Sheet 1 of 1	
Project Nar	ne:	New City C		S					Ground Surface Elev.		
Location:	-	Richland, WA									
Driller/Meth	-	Holt / Hollow S			D	00"			Depth to Water (ft BGS)	40/45/204	
Depth /	letnoa:	SPT / Hamme			ner Dro				Start/Finish Date	12/15/2014	
Elevation (feet)	Bore	hole Completion	Sam Type	ple //ID Tes	ts	PID (ppm)	Blows/ 6"	Material Type	Description		Dep (ft
55 - 10 - 15 - 15 - 15 - 15 - 15 - 15 -		eackfilled with 3/8 sentonite Chips		MW-26S0 (VOC and	G-19-20		434		Loose, wet, brown, silty SAND (SM); Becomes gray at 20' bgs Bottom of boring at 20.5' BGS	oot in sampler	-1: -2:
O No Rec	pler Type covery rd Penet D1586)	e: ration Test		PID - Photo ▼	Statio	Don Detection De	Level	 eadspac	ce Measurement) Logged by: A Approved by: W Figure No. A		

	Aspe	ct		Droin	ct Numb	/lonit	oring Well Constructio	n Log Sheet	
	CONSULTI				90018	Jei	MW-27I	1 of 1	
Project Name:	New City Cle	eaners					Ground Surface Elev.		
Location:	Richland, WA						Top of Casing Elev		
Driller/Method:	Holt / Hollow St						Depth to Water (ft BGS)	2/14/2014	
Denth /	d: SPT / Hammer		l0 # / Hammer Dro │		DI/		Start/Finish Date	2/14/2014	$\overline{}$
Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		Dep (ft)
0 0	Flush monument and thermos well cap						Grass, slightly gravelly Medium stiff, slightly moist, brown	a and CHT (MI)	7
5 +	Concrete surface seal (0'-2')						Medium sun, siignuy moist, browi	, salidy SILT (ML)	- - - - 5
- - - - -		S1		0	4 4 4				
10-	Neat cement-bentonite grout (2'-18')	S2		0	0 2 3		Very moist, dark brown-gray		-10 -
15+	3/8 Hydrated Bentonite	<u> </u>		0	1 2 3		Wet, dark brown with iron staining gravel	g, trace rounded	-15 -
20-	# 10/20 Silica sand filter pack (20'-22')	S4	MW-27I-20-21 (VOC and FOC)	0	0 2 3		Loose, wet, dark gray SAND (SP) Very dense, wet, dark gray, sandy driller notes drilling became difficult	GRAVEL (GW):	
25+	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (22'-32')	S5		0	50/4				- -25 - -
30-	Threaded PVC endcap	S 6	MW-27I-30-31 -(VOC and FOC)	0	8 50/5		Bottom of boring at 32' BGS. Eco	logy Well Tag BIH208	-30 -
Sampler T			PID - Pho	toioniz	ation De	tector	Logged by:	ELG	<u></u>
No Recovery Standard Per (ASTM D158	netration Test 6)		∇		er Level I (ATD)		Approved by:	WVG	
							Figure No.	Α	

	ı	A							Boring Log		
		A spe					t Numb	er	Boring Number	Sheet	
		CONSULTI				09	0018		MW-27IC	1 of 1	
Project Na	ame:	New City Cl	eaner	rs					Ground Surface Elev.		
Location:		Richland, WA									
Driller/Me		Holt / Hollow S							Depth to Water (ft BGS)		
	Method:	SPT / Hammer	Weigh	nt: 140 #	# / Hammer Dro	p: 30"			Start/Finish Date	12/15/201	4
Depth / Elevation (feet)	Во	rehole Completion	Sam Type	iple e/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		Dept (ft)
10+ 10+ 15+ 15+ 15+ 130+ 14+ 15+ 15+ 15+ 15+ 15+ 15+ 15+ 15+ 15+ 15		Backfilled with 3/8 Bentonite Chips		S1 (V	MW-27IC-20-21 VOC and FOC) MW-27IC-30-31 VOC and FOC)		1 1 4		Loose, wet, dark gray SAND (SP); for Medium stiff, wet, brown SILT (ML); drilling became difficult at 22' Very dense, wet, dark gray, sandy of Bottom of boring at 30.5' BGS	fine sand driller notes	- 5 - 10 - 15 20 - 25 30
_	mpler Ty	pe:	1 1	PID	_			eadspac	ce Measurement) Logged by: A	\ET	
No Re	ecovery ard Pene // D1586	etration Test				c Water r Level			Approved by: V	WVG	
•		-					,		Figure No. A	`	

	Aspe	ct			N	/lonit	oring Well Construction		
	CONSULTI				ct Numb 90018	er	Well Number MW-28I	Sheet 1 of 1	
Project Name:	New City Cle			U.	90016		Ground Surface Elev.	1 01 1	
ocation:	Richland, WA	3411010					Top of Casing Elev.		
Driller/Method:	Holt / Hollow St	em Auger					Depth to Water (ft BGS)		
Sampling Method	I: SPT / Hammer		0 # / Hammer D	rop: 30"			Start/Finish Date	2/11/2014	
Depth / Elevation (feet)	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/	Material Type	Description		Dept (ft)
	Flush monument and					1	Grass, slightly gravelly		7
- 31 31 - 31 31	thermos well cap Concrete surface seal (0'-2')						Stiff, slightly moist, dark brown S sand	ILT (ML); trace fine	
5 + + + + + + + + + + + + + + + + + + +		S1		0	3 5 5				+ 5 +
10-	Neat cement-bentonite grout (2'-18')	○ S2		0	7 7 7				- - -10
15-		S3		0	1 1 2		Soft, very moist, brown-gray with	iron staining	- - -15 -
20 -	3/8 Hydrated Bentonite chips (18'-20') # 10/20 Silica sand filter pack (20'-22')	S4	MW-28I-20-21 (VOC and FOC	0	1 1 2				-20
25-	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (22'-32')	S5	-	0	23 50/5		Very dense, wet, gray, sandy GR sand	AVEL (GW); coarse	_ 25
30-	Threaded PVC endcap	O \$6		0	50/4			Jaman Mall T. Dillion	-30
+							Bottom of boring at 32' BGS. Eco	nogy vveli Tag DIFIZUZ	+
Sampler T	ype:	1	PID - Ph	otoioniz	⊥ ation De	tector	Logged by:	ELG	
			_	tic Wate					
No Recovery Standard Per (ASTM D158)	etration Test		<u> </u> Wa	ter Leve	I /ATD)		Approved by	: WVG	

	•	Aspe	ct		D=: 1	4 NI: 1		Boring Log	Chast
		CONSULT	U I ING			t Numb 0018	er	Boring Number MW-28IC	Sheet 1 of 1
Project N	ame:	New City CI				0010		Ground Surface Elev.	1 01 1
Location:		Richland, WA							
Driller/Me	ethod:	Holt / Hollow S	tem Auger					Depth to Water (ft BGS)	
	Method:	SPT / Hammer	r Weight: 14	0 # / Hammer D	rop: 30"			Start/Finish Date	12/15/2014
Depth / Elevation (feet)	Во	rehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Dep (ft)
+		Backfilled with 3/8 Bentonite Chips						See boring log MW-28I for lithology inform	ation
5 -									- 5 - -
10 -									-10 -
15									-15 -
20-			S1	MW-28IC-20-2 (VOC and FOC	21 C)	1 3 3		Loose, wet, brown, silty SAND (SM); fine s Bottom of boring at 21.5' bgs	eand -20
Sa	mpler Ty	ne.		ID - Photoioniza	tion Data	tor (L)	adens	ce Measurement) Logged by: AET	L
No Re		r~.	r	_	ition Deter		Jauspal	,	
Stand (ASTI	lard Pene M D1586	etration Test)		_	tic vvater ter Level			Approved by: WVG	
								Figure No. A	

		Aspe	ct		Des!-	Nect Numb	/lonit	oring Well Constructio	n Log Sheet	
		CONSULTI	•.			90018	per	MW-29I	1 of 1	
Project N	Name:	New City Cle						Ground Surface Elev.		
Location		Richland, WA						Top of Casing Elev		
Driller/Me		Holt / Hollow St						Depth to Water (ft BGS)	2/40/2044	
Sampling Depth /	g Method	d: SPT / Hammer		# / Hammer D		I	T	Start/Finish Date	2/18/2014	
Elevation (feet)	E	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		Dept (ft)
	0000	Flush monument and thermos well cap						Grass, slightly gravelly Very stiff, slightly moist, brown, sli	abthy condy SU T	
		Concrete surface seal (0'-2')						(ML); trace organics	gnuy sandy SiE1	
5 +	П									- - 5
	П		S1		0	4 5 12			-	- - -
+	П								-	
10+	П	Neat cement-bentonite grout (2'-20')	S2		0	2 3 4		Medium stiff, moist, dark brown wi gravel	th iron staining, trace	-10 -
	П								-	_
15-	П		S3		0	0 2		Soft, wet		-15
+	П					2				 - -
20 +	*****	3/8 Hydrated Bentonite	S4		0	1 1		Dark gray, slightly sandy	-	_ -20
	*****		0			1				_ -
25 -			O S5			50/4		Driller notes drilling becomes hard	 at 24'	- -25
+						50/4			-	_
+		-							-	
30+		2" diameter Sch. 40 PVC 0.020-inch slotted well screen (24'-34')	S 6		0	35 50/5		Very dense, wet, dark gray, sandy medium to coarse sand	GRAVELY (GW);	-30 -
		Threaded PVC endcap							- Mall T. Bush	_
								Bottom of boring at 34' BGS. Ecol		L
_	ampler T			PID - Ph			tector	Logged by:	ELG	
No R Stand (AST	Recovery dard Per M D158	netration Test 6)		∇	atic Wate ater Leve			Approved by:	WVG	
`		•				. ,		Figure No.	Α	

	Asper	ct		Drois	ct Numb	<u>lonit</u>	oring Well Construction Well Number	n Log Sheet	
	CONSULTI	• •			ot Numb 90018	ei	MW-30I	1 of 1	
Project Name:	New City Cle	eaners	I .				Ground Surface Elev.		
Location:	Richland, WA						Top of Casing Elev		
Driller/Method:	Holt / Hollow Ste						Depth to Water (ft BGS)	2/40/2044	
Sampling Method	d: SPT / Hammer		# / Hammer Dr			Τ	Start/Finish Date	2/19/2014	_
Elevation (feet) B	orehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		Depth (ft)
	Flush monument and thermos well cap					ШШ	Grass, slightly gravelly Stiff, slightly moist, brown SILT (M	L): trace gravel]
- - -	Concrete surface seal (0'-2')						Juli, Siighty Holst, blown Sier (w	L), trace graver	_ _ _ _ _
5 + + + + + + + + + + + + + + + + + + +		S1		0	3 3 6				- 5 - -
10-	Neat cement-bentonite grout (2'-19')	S2		0	2 1 2		Soft, very moist with iron staining		-10 -
+ + 15+ + +		\$3		0	2 3 4		Medium stiff, wet, dark brown, slig	htly sandy	- -15 -
20-	3/8 Hydrated Bentonite chips (19'-21') # 10/20 Silica sand filter pack (21'-33')	S4		0	2 3 3		Loose, wet, dark gray, silty SAND	(SM); fine sand	-20
25-		S5		0	23 50/5		Driller notes drilling becomes hard Very dense, wet, dark gray, sandy medium to coarse sand, rounded to	GRAVELY (GW);	_ - -25
30-	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (23'-33')	✓ \$6		0	50/5				-30
	Threaded PVC endcap						Bottom of boring at 33' BGS. Ecolo	ogy Well Tag BIH217	
Sampler T	ype:		PID - Ph	otoioniza	ation Det	tector	Logged by:	ELG	-
			_						
No Recovery Standard Per (ASTM D1586	etration Test		∇	tic Wate ter Level			Approved by:	WVG	

			Aspe	ct	1		Proie	ct Numb	/loni	oring Well Construction Log Well Number She	eet
			CONSULTI					90018		MW-31I 1 o	
Projec	t Na	me:	New City Cl	ean	ers					Ground Surface Elev.	
Locatio			Richland, WA							Top of Casing Elev.	
Driller/			Holt / Hollow St			10 # / I I D -	00"			Depth to Water (ft BGS) Start/Finish Date 2/13/2014	1
Depth	/		: SPT / Hammer			₩ / Hammer Dr		Blows/	Ī	Start/Finish Date2/13/2014	
Elevation (feet)	on	В	orehole Completion	Si Ty	ample ype/ID	Tests	PID (ppm)	6"	Materi Type	Description	Depti (ft)
	0		Flush monument and thermos well cap							Grass, slightly gravelly Medium stiff, slightly moist, dark brown-gray SI	I T (MIL):
)		Concrete surface seal (0'-2')							trace organics	LI (IVIL),
T											Ī
Ť											Ť
†											†
5 +								3			+ 5
+					S1		0	3 4			+
+											+
+											+
+											+
10			Neat cement-bentonite			_		,		Moist, trace gravel	-10
+			grout (2'-19')		S2		0	3		iviolst, trace graver	+
1								3			_
1											
4 - T											15
15+					S3			1		Very moist, dark brown with iron staining	+15
†							0	2 3			T
†											†
+											†
+	X		3/8 Hydrated Bentonite chips (19'-21')								+
20 🕂	XXX	מאומ	011100 (10 21)			MW-31I-20-21		0		Very soft, wet	-20
+	8		# 10/20 Silica sand		S4	(VOC and FOC)	0	0			+
+			filter pack (21'-33')					'			+
+									000	Driller notes drilling becomes hard at 22.5'	
+		目							8,8		+
25 +					0.5				0,0		-25
1		目		•	S5	MW-31I-25-26 (VOC and FOC)	0	50/6	701	Very dense, wet, dark gray, sandy GRAVELY (medium to coarse sand, rounded fine gravel	GW);
		目							8,8		1
			2" diameter Sch. 40						0,0		
		=	PVC 0.020-inch slotted						000		
		目	well screen (23'-33')						000		
30+		: -			S6	-	0	50/4	8,8		+30
†									20,0		Ť
†											†
+			Threaded PVC endcap						Q. Q.	Bottom of boring at 33' BGS. Ecology Well Tag	BIH204
+											+
	Sam	pler Ty	/ne·			PID - Pho	toioniz	ation Do	tector	Logged by: ELG	
O No		-	, po.			_		ation De er Level	i c ci0ľ		
Sta	anda	rd Pen	etration Test			∇		l (ATD)		Approved by: WVG	
- (Ad	J 1 1VI	1300	•1			- vvate	J. LUVC	. (, (10)		Figure No. A	
										5 , ,	

	•	Aspe				t Numb	er	Boring Log Boring Number MW-31IC	Sheet 1 of 1	
Project Na		New City Cl			09	0010		Ground Surface Elev.	1 01 1	
Location:		Richland, WA								
Driller/Me		Holt / Hollow St						Depth to Water (ft BGS)		
	Method:	SPT / Hammer	Weight: 14	10 # / Hammer Dro	p: 30"			Start/Finish Date	12/16/201	14
Depth / Elevation (feet)	Bore	ehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		Dep (ft
5	LALALINI.	Backfilled with 3/8 Bentonite Chips	S1 S2	MW-31IC-20-21 (VOC and FOC) MW-31IC-25-26 (VOC and FOC)		1 1 2 40 40 50/6		Very loose, wet, gray, silty SAND	(ML); (SM);	-10 -110 -110 -120 -120 -120 -120 -120 -
O No Re	mpler Typecovery ard Pene	e: tration Test	F	\Box	c Water	Level	eadspac	ce Measurement) Logged by: Approved by:	AET WVG	
그 (ASTI	VI D1586)			- vvate	er Level	(AID)		Figure No.	Α	

		Aspe	cŧ			N	/lonit	oring Well Constructi		
		CONSULT				ect Numb 90018	oer	Well Number MW-32I	Sheet 1 of 1	
Project N	Name:	New City CI				30010		Ground Surface Elev.	1 01 1	
Location		Richland, WA						Top of Casing Elev.		
Driller/M	ethod:	Holt / Hollow S	tem Auger					Depth to Water (ft BGS)		
	g Method	d: SPT / Hammer	r Weight: 14	0 # / Hamm	ner Drop: 30"		1	Start/Finish Date	2/12/2014	
Depth / Elevation (feet)	E	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description		Depth (ft)
		Flush monument and thermos well cap Concrete surface seal (0'-2')						Grass, slightly gravelly Soft, slightly moist, brown-gray	SILT (ML)	<u></u>
5 -	ı		S1		0	2 2 2 2				- 5 - -
10+	ı	Neat cement-bentonite grout (2'-20')	S2		0	2 3 3		Medium stiff, very moist, with tra	ace sand	- -10 -
15 -	ı		S3	-	0	1 2 3		Wet, with iron staining, trace gra	avel	- -15 -
20+	******	3/8 Hydrated Bentonite chips (20'-22') # 10/20 Silica sand filter pack (22'-34')	Z S4	-	0	0 0 0		Very soft		- -20 -
1								Driller notes drilling becomes ha	 ard at 24'	-
25+			<u>S</u> 5		0	14 50/4		Very dense, wet, dark gray, san trace silt, medium to coarse sar	dy GRAVELY (GW); nd	-25 -
30-		2" diameter Sch. 40 PVC 0.020-inch slotted well screen (24'-34')	S6		0	17 19 50/5				-30
+	1:1-1:	Threaded PVC endcap					100	Bottom of boring at 34' BGS. Ed	cology Well Tag BIH20	3
	ampler T	ivne:		DIE	Dhata!'	otice D	tosts =	_		
							tector	Logged by:	LLG	
Stan	dard Per	netration Test						Approved b	y: WVG	
⊷ (AST	I IVI D158	0)		-	vvater Leve	ı (AID)		Clauma No	٨	
O No F	ampler T Recovery dard Per FM D158	ype:		PID ▼ ▽	- Photoioniz Static Water Water Leve	er Level	8.8.	Logged by:	ELG	120

	1	Aspec		_	N	Monit	oring Well Construction L	
		CONSULTIN	- -		ect Numb 90018	oer	Well Number MW-33I	Sheet 1 of 1
Project Nam	ne:	New City Cle			00010		Ground Surface Elev.	1011
Location:		Richland, WA					Top of Casing Elev.	
Driller/Metho	od:	Holt / Hollow Ste	m Auger				Depth to Water (ft BGS)	
Sampling M	ethod:	SPT	ı				Start/Finish Date	7/5/2016
Depth / Elevation (feet)	Bor	rehole Completion	Sample Type/ID Tes	ts PID (ppm)	Blows/ 6"	Material Type	Description	De (t
		Flush monument and thermos well cap Concrete surface seal (0'-2')					Asphalt. Rounded cobbles. Moist SILT (ML); trace fine round to se	ubround gravel
5 - ***********************************							becomes slightly gravelly Gravelly silty SAND (SM).	+ 5
10-		3/8 Hydrated Bentonite chips (2'-16.5')				10000 10000 10000	Gravelly SILT (ML); with cobbles. Silty GRAVEL (GM); fine to coarse, ro	-1
5							Very moist, gravelly SILT (ML). Moist, silty GRAVEL (GM); fine to coa subround gravel	irse, round to
20-		# 10/20 Silica sand filter pack (16.5'-28')						
		2" diameter Sch. 40 PVC 0.020-inch slotted well screen (18'-28')					gravelly silt lenses	
25-							Silt.	2!
+		Threaded PVC endcap					Bottom of boring at 28' BGS. Ecology Note: Lithology was observed and log- cuttings.	Well Tag BJX377 ged from drill
Samp	oler Ty	pe:	PI	D - Photoioniz	ation De	tector	Logged by: JM	1S
O No Reco	overy		▼ <u>▼</u>	Static Water Leve			Approved by: W	VG
			-	vvalei Leve	i (AID)		Figure No. A	

	Aspec	-+	Due!:	not Niver	Monit	oring Well Construction Log Well Number Sheet			
	CONSULTIN	_		ect Numl 90018	uei	Well Number MW-34I	Sneet 1 of 1		
Project Name:	New City Cle	· =				Ground Surface Elev.			
_ocation:	Richland, WA					Top of Casing Elev.			
Oriller/Method:	Holt / Hollow Ste	em Auger				Depth to Water (ft BGS)			
Sampling Method:	SPT					Start/Finish Date7	/6/2016 - 7/8/2016		
Depth / Elevation (feet) Bor	rehole Completion	Sample Type/ID Tests	PID (ppm)	Blows/ 6"	Material Type	Description	De (
	Flush monument and thermos well cap				,000	Asphalt.			
† PJ] PJ]	Concrete surface seal (0'-2')					Rounded cobbles. Moist, brown SILT (ML); trace fine	gravel.		
5 -					0000	gravel becomes coarser with depth			
						Brown silty GRAVEL (GM); coarse	gravel.		
+ 8 8						becomes gray, sandy	+		
	3/8 Hydrated Bentonite chips (2'-16.5')						-1		
						Gravel (GP); coarse gravel.			
	<u> </u>					Gray, silty, sandy GRAVEL (GM); cobbles.	coarse gravel, trace		
15-					000000	Gravel (GP); coarse gravel.	-1		
	# 10/20 Silica sand				000000000000000000000000000000000000000		+		
	filter pack (16.5'-28')				0000000		+		
20-					000000000000000000000000000000000000000		-2		
	2" diameter Sch. 40 PVC 0.020-inch slotted well screen (18'-28')				0000000		-		
					0000000		‡		
25 -					0000000		-2		
					0000000		Ŧ		
+ -	Threaded PVC endcap				30000	Bottom of boring at 28' BGS. Ecolo Note: Lithology was observed and cuttings.	ogy Well Tag BJX378 logged from drill		
Sampler Typ	oe:	PID	- Photoioniz	ation De	tector	Logged by:	JMS		
O No Recovery		Ţ Ţ	Static Water			Approved by:	WVG		
		_	VVAIOI LOVE	יי (יעוניי)		Figure No.	A		

	NT_Landye Be				D		VV	ELL I	NUMBE	.K MW PAGE 1 (
PRO	ECT LOCATIO	N 74	7 Stev	ens Dr	ive, Richland WA	DRILLING CONTRACTO	DR Env	ironmenta			
PRO	JECT NUMBER	027-	-30021	-00	**************************************	DRILLING METHOD So	nic	***************************************			1000F001400H00400
LOCA	ATION SW por	tion o	f prope	erty		STAMP (IF APPLICABL	E) AND	OR NOT	E\$		
OVA	EQUIPMENT_N	vlini R	ae 200	00 PID	VOINTEGER 1000 1000 1000 1000 1000 1000 1000 10						
GRO	UND ELEVATION	ON_35	59.3 ft		HOLE DIAMETER 6-5/8"						
TOP	OF CASING EL	.EVA	rion 3	359.16	ft HOLE DEPTH 19.9 ft						
∑ FII	RST ENCOUNT	EREI	S WAT	ER 11	.5 ft / Elev 347.8 ft						
	ABILIZED WA	TER_	12.4 ft	/ Elev	346.9 ft						
LOG	GED BY MXL	********	**************************************	North Address of the	DATE 5/17/07						
DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESC	CRIPTION	ELEVATIONS (feet)	W	ÆLL DIAGRA	M	DEPTH (feet)
5		SM		6.0	Fill/Silty Sand, 10YR 5/2, moist, sar well sorted, loose, silt low plasticity (~5%), subangular to rounded Silt, very moist, 10YR 4/1, organics present (~5%), very fine grained, very clay (~5%)	, gravel fragments present	353.3		2" Dia	nite	5 -
FR SEPT 2006.GDT 10/10/07		ML		¥	Fe oxide staining Fine to medium sized sand grains p	present (~30%)	200			Sand . Sch 40 20 Slot n	- 15 - -
ELL 2006 027-30021	MMENTS ROVED BY: \(\(\)	lle g	lar	<u> </u>	/	107	339.4			LF	R

PROJECT LOCATION 747 Stevens Drive, Richland WA				PAGE 1 (/5D OF 3
	DRILLING CONTRACT	OR Eny	vironmental We	est Exploration Inc.	
PROJECT NUMBER <u>027-30021-00</u>	DRILLING METHOD S	onic			
LOCATION SW portion of property	STAMP (IF APPLICABL	E) AND	O/OR NOTES		
OVA EQUIPMENT Mini Rae 2000 PID					
GROUND ELEVATION 359.4 ft HOLE DIAMETER 8-5/8" 0-19'	bgs, 6-5/8" 19-54' bgs				
TOP OF CASING ELEVATION 359.09 ft HOLE DEPTH 54.0 ft					
☐ FIRST ENCOUNTERED WATER 11.5 ft / Elev 347.9 ft					
▼ STABILIZED WATER 12.5 ft / Elev 347.0 ft					
LOGGED BY MXL DATE 5/16/07					
DEPTH (feet) NUMBER U.S.C.S. GRAPHIC LOG DEPTHS (feet) . To Discover the control of the contro	ZO Z	PID or OVA (ppm)	WELL	. DIAGRAM	DEPTH (feet)
Surface vegetation/weeds/gravel Fill/Silty Sand, 10YR 5/2, moist, sand grains, well sorted loose, silt low plas fragments present (~5%), subangula	sticity, gravel	0.1		→ Concrete/Grout	
5 6.0 Silt, very moist, 10YR 4/1, organics, sands present (~5%), very fine grains 8', dense, some clay (~5%)	353 low plasticity, some ed, very moist at	1.1	30000000000000000000000000000000000000	—2" Dia. Sch 40 PVC Casing	5
		0.4	00000000000000000000000000000000000000		10
Fe Oxide staining		0.4	88888888	→ Hydrated Bentonite Chips	15
Fine to medium sized sand grains pr	esent (~30%)	0.8			
20	e)		<u> </u>		20

	T NAME N Landye Be				P				JMBER MV PAGE 2	
DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCRIPTION ·	ELEVATIONS (feet)	PID or OVA (ppm)	WEL	L DIAGRAM	
25		ML		20.7	Sand gravel/cobbles, sand fine to medium grained, 10YR 4/1, coarse gravel and cobbles are subangular to rounded, 10YR 6/1, dry to slightly moist, moderate to poorly sorted	338.7	0.2 0.5 0.2		2" Dia. Sch 40 PVC Casing	
30		-					0.2		-Hydrated Bentonite Chips	
					Driller added water at 30' to cool down casing		0.3			and pan
35		GM			Poor recovery 38'-55'		0.4			
40									4 -10/20 Colorado Silica Sand	*******
45									: : : : : : : : : : : : : : : : : : :	
50 COMM	ENTS				(Continued Next Page)		·····		2" Dia. Sch 40 PVC, 20 Slot Screen	
	VED BY:	Reg	la.	<u>~</u> ~	hanes bate: 10/10/07					R

	JECT NAME_N NT _Landye Be				P		W	/ELL NUMBER MW PAGE 3 (/5D OF 3
DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCRIPTION	ELEVATIONS (feet)	PID or OVA (ppm)	WELL DIAGRAM	DEPTH (feet)
BUNKUG+WELL, 2006 UZ7-300Z TGF7 101 TG		GM ML		52.0	Assume Silt, based on driller and lithology compared to other borings, no recovery due to boulder	307.4		End Cap	
CO[MENTS				1				
APP	ROVED BY:	lig	har	_ Q	LLLY DATE: 10/10/07				?

		ECT NAME N				P		W	ELL	NU	MBER MW PAGE 1 (
					***************	ive, Richland WA	DRILLING CONTRACTO	OR Env	ironmen	tal Wes	***************************************	JI
							DRILLING METHOD So					
	ł										worth the transfer of the tran	
	1	EQUIPMENT [•	,				
						HOLE DIAMETER 6-5/8"						
						ft HOLE DEPTH 21.4 ft						
	l					.5 ft / Elev 348.0 ft						
		ABILIZED WA										
	l	SED BY MXL			October 1	DATE <u>5/18/07</u>						
	DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DES	CRIPTION	ELEVATIONS (feet)	\	WELL I	DIAGRAM	DEPTH (feet)
		0)		300000	0.3	Asphalt		359.2		7	1 0	
	_		Fill			Fill, silty gravel			598	5.0	Concrete/Grout	-
	- - 5 - - -		SM		9.0	Silty Sand with gravel/cobbles, moi medium sized, moderate sorting, g inches in size, subangular to round plasticity Silt, very moist, 10YR 3/1, some sa grained), some clay (~5%), dense I organics (root, bark, shell), slight si	ravel and cobbles 2" to 6" ed, 10YR 5/1, silt loose, low and present (~10% very fine ow plasticity, lots of	357.5 350.5	800000000000000000000000000000000000000		2" Dia. Sch 40 PVC Casing -Hydrated Bentonite Chips	5 -
FR SEPT 2006.GDT 10/10/07	15		ML		↓	Clay increases to 30%, Fe oxide or dense, moderate plasticity	ange staining visible,				 10/20 Colorado Silica Sand 2" Dia. Sch 40 PVC, 20 Slot Screen 	15
GPJ L	COM	IMENTS	L		<u> </u>	(Continued Next	Page)					20
BORING+WELL 2006 027-30021,GPJ LFR SEPT 2006.GDT 10/10/07	АРРР		Ke.	zka		hay DATE: 10/11	0/07			****		R

PROJECT NAME New C CLIENT Landye Bennett			WELL NUMBER MW6S PAGE 2 OF 2					
DEPTH (feet) SAMPLE TYPE NUMBER U.S.C.S.	GRAPHIC LOG DEPTHS (feet)	LITHOLOGIC DESCRIPTION	ELEVATIONS (feet)	WELL DIAGRAM (feet)				
WEING-WEIT 2006 GDT 10/10/07 COMMENT SEPT 2006 GDT 10/10/07 A STANDARD SEPT 2006 GDT 10/10/07	21.4		338.1	End Cap				
BOSHING-WELL 2006 02 APPROVED BY:	ghan a	1 ALLY DATE: 10/10/07						

	ECT NAME_N T_Landye Be				P			W	/ELL	NU	MBER MW PAGE 1 (
PROJE	ECT LOCATIO	N 74	7 Stev	ens Dr	ive, Richland WA							
PROJE	ECT NUMBER	027-	30021	-00		DRILLING METH	HOD_So	nic		w/**********	a 1979 of North Bold Bold Bold Bold Bold Bold Bold Bold	
LOCA	TION SE port	ion of	prope									
OVA E	QUIPMENT_	Mini R	ae 200	00 PID								
GROU	ND ELEVATION	ON_35	59.5 ft		HOLE DIAMETER 8-5/8" 0-19	9' bgs, 6-5/8" 19-59' b	ogs					
тор о	F CASING EL	EVA1	rion_3	59.13	ft HOLE DEPTH 59.0 ft							
Ÿ FIR	ST ENCOUNT	ERE	TAW C	ER 11	.5 ft / Elev 348.0 ft							
¥ STA	ABILIZED WA	TER_	12.5 ft	/ Elev	347.0 ft							
LOGG	ED BY MXL			e01/////	DATE 5/18/07							
DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCRII	PTION	ELEVATIONS (feet)	PID or OVA (ppm)	V	VELL	DIAGRAM >>	DEPTH (feet)
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	······		<b>XXXXX</b>	0.3	Asphalt Fill, silty gravel		359.2				Concrete/Grout	
5 - 10 - 15		SM		9.0	Silty Sand with gravel/cobbles, moifine to medium sized, moderate sor cobbles 2" to 6" inches in size, subtational to the silt loose, low plasticity.  Silt, very moist, 10YR 3/1, some savery fine grained), some clay (~5% plasticity, lots of organics (root, barador	ting, gravel and angular to rounded, angular to rounded, and present (~10%), dense low	357.5	0.4			2" Dia. Sch 40 PVC Casing <b>⋖</b> -Hydrated Bentonite Chips	5 -
BORING+WELL 2006 027-30021.GPJ LFR SEPT 2006.GDT 10/10/07  O O O O O O O O O O O O O O O O O O O					Clay increase to 30%, Fe oxide stai moderate plasticity			0.1 0.1 0.1				- - - 20
€ COM	<u>MENTS</u>				(Continued Next Pa	ge)						
SORING+WELL 2006 027-3002  A  A  A	ROVED BY:	Ne	ho	W	Angoate: 10/10	0/07						R

CLIENT Landye B	ennett i	Blunst	ein, LL	P		W	T	PAGE 2	OF
DEPTH (feet) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCRIPTION ·	ELEVATIONS (feet)	PID or OVA (ppm)	WELL	DIAGRAM	
	ML		22.9	Silt, very moist, 10YR 3/1, some sand present (~10% very fine grained), some clay (~5%), dense low plasticity, lots of organics (root, bark, shell), slight sulfer odor (continued) Color change to 10YR 4/1 Sandy gravel/cobbles, fine to medium sized sand grains, 10YR 4/1, coarse gravel and cobbles are	336.6	0.1		2" Dia. Sch 40 PVC Casing	
25	-			subangular to rounded, 10YR 6/1, dry to slightly moist, moderate to poor sorting		0.2		→ Hydrated Bentonite Chips	
30				Driller added water at 30' to cool down heat on casing		0.1			a.e.c.
35	GM					0.3			
40						0.0	8888	<b>~</b> -10/20	- shift who
								Colorado Silica Sand	
45			•			0.4		2" Dia. Sch 40 PVC, 20 Slot Screen	
50	PRINC 11 PLANE AND		49.7		309.8	0.3	The content of the		

		ECT NAME No IT Landye Ber				Р		W	/ELL NUMBER MW6D PAGE 3 OF 3
	DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCRIPTION	ELEVATIONS (feet)	PID or OVA (ppm)	WELL DIAGRAM (feet)
	-		ML		51.0	Silt, brown, 10YR 4/3, moist, dense, low plasticity, some very fine gravel present (15%), Silt, blue, moist, Gley 1 3/10Y, some clay present (~5%), some very fine sand present (15%), low plasticity, dense	308.5	0.2	End Cap
	55		ML					0.1	55
	-		*		59.0		300.5	0.2	
				od elektriste between beween between between between between between beween					
				**************************************					
				Allande de de la companya de la comp					
				***************************************					
2006.GDT 10/10/07									
021.GPJ LFR SEPT									
BORING+WELL 2006 027-30021.GPJ LFR SEPT 2006.GDT 10/10/07		IMENTS  ROVED BY: _/	74 a .		·	grace 10/10/07			
BORIN	APP	ROVED BY: _/	Mey	g/LC	a.A.	ghere 10/10/07			

Julio 10/10/07



		ECT NAME N				P		W	ELL N	JMBER MW PAGE 1 0	
ľ		~~~		***************************************		ive, Richland WA	DRILLING CONTRACTO	OR Env	ironmental V		<i>√</i> 1 1
		ECT NUMBER						onic			
	LOCA	TION East of	NCC	buildir	ìg	TAZIIANA JAAN NASSINA		.E) AND	OR NOTES		
	OVA I	EQUIPMENT_	Mini R	ae 20			,	·			
	GROU	JND ELEVATION	ON_36	60 ft	·	HOLE DIAMETER 6-5/8"					
	TOP (	OF CASING EL	.EVA	TION	359.62	ft HOLE DEPTH 19.8 ft					
	∑ FIF	RST ENCOUNT	TERE	D WA	TER_12	2.0 ft / Elev 348.0 ft					
	▼ st	ABILIZED WA	TER_	12.8 ft	/ Elev	347.2 ft					
	LOGO	SED BY MXL/	TFM			DATE _5/15/07					
	DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC	DEPTHS (feet)	LITHOLOGIC DES	SCRIPTION	ELEVATIONS (feet)	WEL	L DIAGRAM	DEPTH (feet)
-					0.3	Asphalt		359.7		Concrete/Grout	
	-		Fill	$\bowtie$	1.7	Fill, silty gravel		358.3			-
-	-					Silty Sand with gravel/cobbles, mo medium sized, moderate sorting, g	gravel and cobbles 2" to 6"				-
	-					inches in size, subangular to round loose, low plasticity	ded (~25%), 10YR 5/1, silt				
-	- 5										- ا
-											5
ŀ	-									—2" Dia. Sch 40 PVC Casing	-
ŀ	-		SM							, and a second	_
	-										~
-	. 40							•		-Hydrated Bentonite	-
	10									Chips	10_
	•										-
-	-				12.07	Silt, very moist to wet, 10YR 4/1, o	organics present, low	348.0			
	<del>.</del>					plasticity, some sands present (~5 clay present (~5%),dense	i%), very fine grained, some			10/20 Colorado	-
-	•									Silica Sand	_
20,	15					Sand Silt lense, very fine grained s	sand, wet, 10YR 6/2				15
10/10/	*		ML			Fe oxide staining visible 16 to 18'					-
CDT	•									2" Dia. Sch 40 PVC, 20 Slot	-
T 2006	-									Screen	
R SEP	-				19.8			240.0		End Cap	-
.P.	CON	MENTS	-	11111	113.0			340.2		·- <u>·</u>	
BORING+WELL 2006 027-30021.GPJ LFR SEPT 2006.GDT 10/10/07		ROVED BY:	hig	ha	1 C	hely DATE: 10/11	0/07			(E) LF	R

	JECT NAME N NT Landve Be				P		V	VELL N	JMBER MV PAGE 1 0	
PRO	JECT LOCATIO	ON_74	7 Stev	ens Dr	ive, Richland WA	DRILLING CONTRAC	TOR Envi	ronmental We		JI &
	JECT NUMBER						Sonic			
LOCA	ATION East of	NCC	buildin				BLE) AND/			
OVA	EQUIPMENT_I	Mini R	ae 200							
GRO	UND ELEVATION	ON_36	60.2 ft	n.Tr.1533Ta1578880000	HOLE DIAMETER 8-5/8" 0-1	9' bgs, 6-5/8" 19-29.5' bgs				
ТОР	OF CASING EL	_EVA	rion_3	359.51	ft HOLE DEPTH 29.5 ft					
∑ FII	RST ENCOUNT	TEREI	TAW C	TER_12	.0 ft / Elev 348.2 ft					
¥ sī	ABILIZED WA	TER_	12.9 ft	/ Elev	347.3 ft					
LOG	GED BY MXL/	TFM_			DATE _5/15/07					
DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DES	CCRIPTION	ELEVATIONS (feet)	WELL	DIAGRAM	DEPTH (feet)
			<b>****</b>	0.3	Asphalt Fill, silty gravel		359.9		Concrete/Grout	
		SM		1.7	Silty Sand with gravel/cobbles, mo medium sized, moderate sorting, ginches in size, subangular to round loose, low plasticity  Silt, very moist to wet, 10YR 4/1, or plasticity, some sands present (~5	gravel and cobbles 2" to 6" ded (~25%), 10YR 5/1, silt organics present, low %), very fine grained	358.5		2" Dia. Sch 40 PVC Casing <b>≺</b> -Hydrated Bentonite Chips	5 - 10
27-30021.GPJ LFR S	MMENTS	1		20.0	(Continued Nex	rt Page)	340.2			20
BORING+WELL 2006 027-30021.5PJ LFR SEPT 2006.GDT 10/10/07  Add Add Add Add Add Add Add Add Add Ad	ROVED BY:	kes	ka	٨	haley DATE: 10/	10/07				R

PROJECT NAME New Cit CLIENT Landye Bennett I		WELL NUMBER MW7I
SAMPLE TYPE NUMBER U.S.C.S.	CGRAPHIC LOG CESCRIPTION (feet)	ELEVATIONS (feet)  WAS BOUTH (feet)
25 GM  COMMENTS  APPROVED BY: Me	Sandy gravel/cobbles, sand fine to medium, 10YR 4/1 gravel and cobbles are subangular to rounded, 10YR 6 moderate to poor sorting  29.5	coarse 6/1,  -10/20 Colorado Silica Sand  -2" Dia. Sch 40 PVC, 20 Slot Screen  End Cap  -End Cap  -Pellets
COMMENTS  APPROVED BY: Me	glan Drupate: 10/10/07	(Z) LFR

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1	AME New C ndye Bennett			P			W	ELL	NUI	VIBER MV PAGE 1 (		
PROJECT L	OCATION 74	7 Stev	ens Dr	ive, Richland WA								
PROJECT N	UMBER 027	-30021	-00		DRILLING METHOD Sonic							
LOCATION	East of NCC	buildin	9		STAMP (IF APPLICABLE) AND/OR NOTES							
OVA EQUIPI	MENT Mini F	Rae 200	00 PID									
GROUND EL	_EVATION_3	60.2 ft		HOLE DIAMETER 8-5/8" 0-20"	bgs, 6-5/8" 20-58' b	gs						
TOP OF CAS	SING ELEVA	TION 3	359.75	ft HOLE DEPTH 58,2 ft								
				2.0 ft / Elev 348.2 ft								
	ED WATER											
LOGGED BY	/ MXL/TFM			DATE 5/14/07								
DEPTH (feet)	NUMBER U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCRIP	TION	ELEVATIONS (feet)	PID or OVA (ppm)	V	VELL (	DIAGRAM	DEPTH (feet)	
		20000	0.3	Asphalt		\359.9				¹-Concrete/Grout		
5	SM		1.7	Fill, silt with gravel Silty Sand with gravel/cobbles, moist fine to medium sized, moderate sorti cobbles 2" to 6" inches in size, subar (~25%), 10YR 5/1, silt loose, low pla	ing, gravel and ngular to rounded	358.5	1.0			2" Dia. Sch 40 PVC Casing	5	
- - - 15	ML		12.3	Silt, very moist to wet, 10YR 4/1, org plasticity, some sands present (~5% Sand Silt lense, very fine grained san Fe oxide staining visible 16 to 18'	), very fine grained	347.9	1.2	30000000000000000000000000000000000000		←Hydrated Bentonite Chips	15	
20				(Continued Next Pag	داء		1.5				20	
- 20 COMMEN		La	<b>△</b>	Charles 10/10							R	

		ty Cleaners Blunstein, I			W	ELL NUMBER MW7 PAGE 2 OF
DEPTH (feet) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG DEPTHS		ELEVATIONS (feet)	PID or OVA (ppm)	WELL DIAGRAM
	ML	20.5	Sandy gravel/cobbles, sand fine to medium sized grains, 10YR 4/1, coarse gravel and cobbles are subangular to rounded, 10YR 6/1, moderate to poor sorting	339.7		—2" Dia. Sch 40 PVC Casing
25					1.1	Hydrated Bentonite Chips
30			Driller added water to cool down casing at 30 '		1.2	
35	GM				1.0	
40					0.8	-Bentonite Pellets -10/20 Colorado Silica Sand
45				T - CONTROL CO	0.8	
50 COMMENTS			(Continued Next Page)			2" Dia, Sch 40 PVC, 20 Slot Screen

	PROJECT NAME_New City Cleaners  CLIENT Landye Bennett Blunstein, LLP  PAGE 3 OF 3										
DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCRIPTION	ELEVATIONS (feet)	PID or OVA (ppm)	WELL DIAGRAM	DEPTH (feet)		
555		ML		51.7 52.3	Silt, brown, 10YR 4/3, moist, dense, low plasticity, some fine sand present (15%) Silt, moist, Gley 1 3/10Y, some clay present (~5%), some very fine sand grains present (15%), low plasticity, dense	308.5 307.9	0.5	End Cap Bentonite Pellets	55		
CON	<u>/MENTS</u>	İ	1	<u> </u>							
АРР	ROVED BY:	heg	ha	<u></u>	LLLY DATE: 10/10/07		*******		1		
			)								

BORING+WELL 2006 027-30021.GPJ LFR SEPT 2006.GDT 10/10/07

PROJECT LOCATION			in, LLF			ELL NUMBER MW88 PAGE 1 OF 1					
	747 9	Steve	ens Dri	ive, Richland WA DRILLING CONTRACT							
					DRILLING METHOD Sonic						
LOCATION NE corner	r of pro	pert	у	STAMP (IF APPLICAB	STAMP (IF APPLICABLE) AND/OR NOTES						
OVA EQUIPMENT Mir	ni Rae	2000	0 PID								
GROUND ELEVATION	√ 360.2	2 ft		HOLE DIAMETER 6-5/8"							
TOP OF CASING ELE	VATIO	N 35	59.66	ft HOLE DEPTH 17.5 ft							
☑ FIRST ENCOUNTE	RED W	VATE	ER 11	.5 ft / Elev 348.7 ft							
T STABILIZED WATE	ER_12.	0 ft /	Elev	348.2 ft							
LOGGED BY MXL		<u>-</u>		DATE _5/16/07							
DEPTH (feet) SAMPLE TYPE NUMBER	U.S.C.S.	907 1008	DEPTHS (feet)	LITHOLOGIC DESCRIPTION	ELEVATIONS (feet)	WELL DIAGRAM HELD DE					
	- K>		0.3/	Asphalt Fill, silt with gravel	359.9	-Concrete/Grout					
	Fill 🖔	$\bigotimes_{i}$	2.0	Thi, on thin grate.	358.2						
	SM		No. V	Silty Sand with gravel cobbles, moist, 10YR 4/2, sand fine to medium sized, moderate sorting, gravel and cobbles 2" to 6" inches in size, subangular to rounded (~25%), 10YR 5/1, silt loose, low plasticity	3332	2" Dia. Sch 40 PVC Casing 5					
			6.0	Silt, moist, 10YR 4/1, organics present, low plasticity, some sands present (~5%), very fine grained, dense, very moist at 8'	354.2	-Hydrated Bentonite Chips					
_10	ML		∑ Ž	Fe oxide staining visiable 11-17.5'		- 10/20 Colorado Silica Sand					
15				Increase in sand grains at 14'		2" Dia. Sch 40 PVC, 20 Slot Screen 15					
			17.5		342.7	End Cap  ■ Bentonite Pellets					
COMMENTS											

	IECT NAME_No NT_Landye Ber								W	/ELL	NUN	IBER MV PAGE 1	
PROJ	ECT LOCATIO	N 74	7 Ste	vens [	Orive, F	Richland WA	DRILLING CON	ITRACTO	R Env	vironmenta	al West		
PROJ	ECT NUMBER	027	3002	1-00		MARANASA AT STATE OF THE STATE	DRILLING MET	HOD Soi	nic	**************************************	~44-1-7-1\		
LOCA	TION NE corn	er of	prope	erty			STAMP (IF APF	LICABLE	E) AND	OOR NOT	ES		
OVA	EQUIPMENT_N	⁄lini R	ae 20	000 PII	)	***************************************							
GROI	JND ELEVATIO	N 3	30 ft	· · · · · · · · · · · · · · · · · · ·		HOLE DIAMETER 8-5/8" 0-20	bgs, 6-5/8" 20-59'	bgs					
TOP (	OF CASING EL	EVA	TION	359.5	7 ft	HOLE DEPTH 59.0 ft							
Ţ FIF	RST ENCOUNT	ERE	D WA	TER_1	1.5 ft /	Elev 348.5 ft							
¥ st	ABILIZED WA	TER_	13.0 1	ft / Elev	√347.0	ı ft							
LOGO	SED BY MXL				DA [*]	TE <u>5/16/07</u>							
DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCR	RIPTION	ELEVATIONS (feet)	PID or OVA (ppm)	V	VELL DI	AGRAM	DEPTH (feet)
				<b>300000</b>	0.3/	Asphalt Fill, silt with gravel		\3.59 _. Z	······································			Concrete/Grout	
			Fill		2.0	This out wat graves		358.0					-
- - - 5			SM			Silty Sand with gravel/cobbles, sand fine to medium sized, mor gravel and cobbles 2" to 6" inch subangular to rounded (~25%), loose, low plasticity	derate sorting, ses in size,	336.0	0.7				-5
-					6.0	Silt, moist, 10YR 4/1, organics plasticity, some sands present grained, dense, very moist to w	(~5%), very fine	354.0	1.1				
10			ML			Fe oxide staining visiable 11-18	y.		2.1				10
10/10/07	MW8D -15 @ 8:45				Ä	Increase in sand at 14'			7.0			2" Dìa. Sch 40 PVC Casing	15
LFR SEPT 2006.GDT	MW8D -17.5 @ 8:50		GM		18.0	Sandy gravel/cobbles, sand fine grains, 10YR 4/1, coarse grave subangular to rounded, 10YR 6 poor sorting	l and cobbles are	342.0	6.0				20
L 2006 027-30021	MMENTS ROVED BY:	Me	ęki	/ ZA	L	(Continued Next P					A CONTRACTOR OF THE CONTRACTOR	la) <b>LF</b>	R

	ndye Ben			aners tein, L				W	ELL NUMBER MV PAGE 2	
DEP 1R (reet)	SAMPLE 11PE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCRIPTION	ELEVATIONS (feet)	PID or OVA (ppm)	WELL DIAGRAM	DEPTH (feet)
MW8 @	D -20.5 10:00					Sandy gravel/cobbles, sand fine to medium sized grains, 10YR 4/1, coarse gravel and cobbles are subangular to rounded, 10YR 6/1, moderate to poor sorting (continued)		6.0	Hydrated Bentonite Chips	25
30								1.9		3(
35			GM					2.6		_ 3
40								0.4	~-10/20 Colorado Silica Sand	4
45	***************************************							1.9	Silica Sand	4
50						(Continued Next Page)		2.0	2" Dia. Sch 40 PVC, 20 Slot Screen	Ę

	JECT NAME N NT Landye Be					aldrianni kannindini minin manani manani manani na 12 perente manani na 12 perente manani na 12 perente manani		W	/ELL NUMBER MW PAGE 3 0	
DEPTH (feet)	T EII	SAMPLE RECOVERY		GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCRIPTION	ELEVATIONS (feet)	PID or OVA (ppm)	WELL DIAGRAM	DEPTH (feet)
BORING+WELL 2006 027-30021.GPJ LFR SEPT 2006.GDT 10/10/07	MMENTS		ML		59.0 59.0	Silt, brown, 10YR 4/3, moist, dense, low plasticity, some fine sand present (15%) Silt, moist, Gley 1 3/10Y, some clay present (~5%), some very fine sand grains present (15%), low plasticity, dense	301.0	0.5 0.5	End CapBentonite Pellets	55
BORING+WELL 2006 02		lles	ka	لد.	X	Ary DATE: 10/10/07				R

APPROVED BY: Meghan Thrug DATE: 10/10/07



		ECT NAME N IT Landye Bei				P		W	ELL N	UMBER MV	
	PROJ	ECT LOCATIO	N 74	7 Ste	vens Dr	rive, Richland WA	DRILLING CONTRACT	ΓOR Envi	ironmental V	······································	
		ECT NUMBER						Sonic			
	LOCA	TION N/NW p	ortion	of pr				LE) AND			
						THE PROPERTY OF THE PROPERTY O	·	,			
	GROU	IND ELEVATION	ON_35	59.8 fi	t	HOLE DIAMETER 6-5/8"					
	TOP C	F CASING EL	.EVA	TION	359.54	ft HOLE DEPTH 21.0 ft					
	∑ FIR	ST ENCOUNT	ERE	o WA	TER 11	.0 ft / Elev 348.8 ft					
	¥ st	ABILIZED WA	TER_	12.4 (	t / Elev	347.4 ft					
	LOGG	ED BY MXL	···········	·	<del></del>	DATE 5/17/07					<del></del>
	DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC	DEPTHS (feet)	LITHOLOGIC DES	CRIPTION	ELEVATIONS (feet)	WEI	LL DIAGRAM	DEPTH (feet)
Ì				$\boxtimes$	\$	Gravel surface Fill, silt with gravel				✓-Concrete/Grout	1
Ì	-		Fill		× ×2.0	This one than graver		_357.8			
	-					Silty Sand with gravel cobbles, mo medium sized, moderate sorting, g inches in size, subangular to round	ravel and cobbles 2" to 6"				-
	-		SM			loose, low plasticity	sea ( 2070), 1011X 0/1, 3/1			2" Dia. Sch 40	-
	5									PVC Casing	5
	-				6.0	Silt, very moist, 10YR 4/1, organic	s present, moderate	353.8		Hydrated Bentonite	-
	-					plasticity, some sands present (~5 dense, very moist to wet at 11'	%), very fine grained,			Chips	_
	-										-
	- 10										-
	_10_				, t-7						10
	-				ΠŻ						-
	-				Ţ	Fe oxide staining visiable			560 5		-
	*		ML						a salus and a salu		-
	- 15					Increase in fine to very fine grainer (20%), well sorted, loose, low plas	d sand at 13.8 to 16.2' ticity, very moist to wet			Silica Sand	15
10/07						, ,	,				
)T 10/											
006.GE										2" Dia. Sch 40	
SEPT 2	_									PVC, 20 Slot Screen	
J.F.R.	20					Sandy Silt lense (19.5'-20.7'), loos					20
21.GPJ	CON	<u>IMENTS</u>				(Continued Nex	t Page)				
127-300											
2006 (						ĵ.					
WELL				1						ag ggossoca.	
BORING+WELL 2006 027-30021.GPJ LFR SEPT 2006.GDT 10/10/07	APPI	ROVED BY:	lep	ko.	<u> </u>	hereybate: 10/10	67				R

		ECT NAME N IT Landye Be				<b>P</b>		WE	LL NU	MBER MV PAGE 2	<b>V9S</b> OF 2
	DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC	DEPTHS (feet)		LITHOLOGIC DESCRIPTION	ELEVATIONS (feet)	WELL	DIAGRAM	DEPTH (feet)
BORING+WELL 2006 027-30021.GPJ LFR SEPT 2006.GDT 10/10/07			ML		21.0	wet, 10YR 3/1		338.8		End Cap  de Bentonite Pellets	
NG+WELL 2006 027-30		ROVED BY:	Ti i		****	J	y DATE: 10/10/07				R
BOR	APPI	ROVED BY: //	Tegn	Q1	<u> </u>	SAL	C DATE: 10/10/07	 			

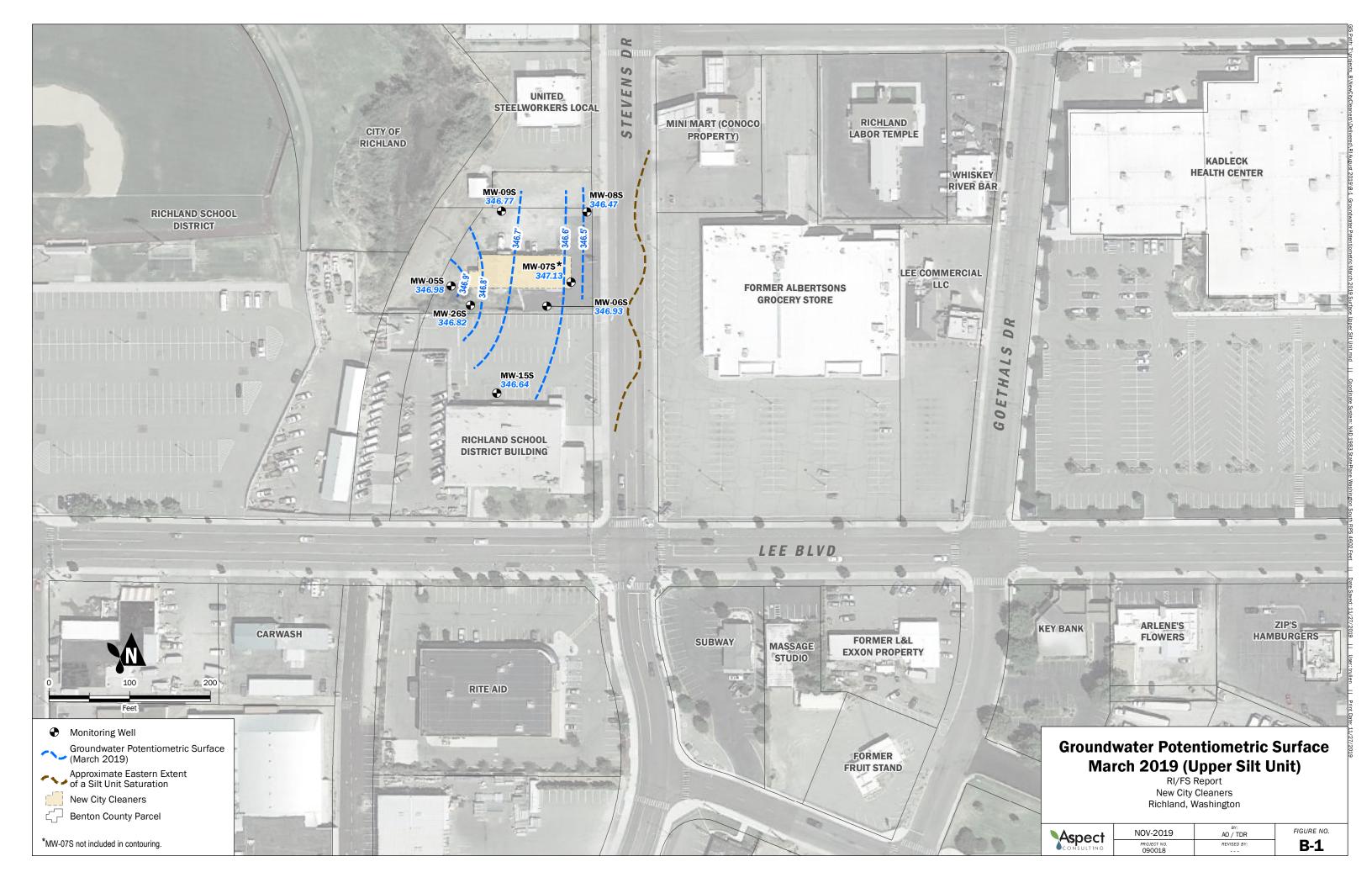
PROJECT NAME CLIENT Landye B		•		)			W	'ELL I	NUI	MBER MW PAGE 1 (	
PROJECT LOCAT	ION_74	7 Steve	ens Dri	ve, Richland WA	DRILLING CONT	RACTO	R Env	ironmenta	i Wes		***************************************
PROJECT NUMB	ER_027-	-30021	-00		DRILLING METH	OD Sor	nic				
LOCATION N/NV	√ portion	of pro	perty	10/1/10/00/00/10/10/10/10/10/10/10/10/10	STAMP (IF APPL	ICABLE	E) AND	OR NOT	E\$		
OVA EQUIPMENT							,				
				HOLE DIAMETER 8-5/8" 0-19'	bas. 6-5/8" 19-58.85	5' bas					
				ft HOLE DEPTH 58.9 ft		9-					
				.0 ft / Elev 348.8 ft							
▼ STABILIZED W											
LOGGED BY MX		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		DATE <u>5/17/07</u>							
DEPTH (feet) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	DEPTHS (feet)	LITHOLOGIC DESCRIP	TION	ELEVATIONS (feet)	PID or OVA (ppm)	V	/ELL	DIAGRAM	DEPTH (feet)
	p=-//		***************************************	Gravel surface Fill, silt with gravel	***************************************				17	-Concrete/Grout	
- - - 5	Fill SM		2.0	Silty Sand with gravel/cobbles, moist fine to medium sized, moderate sorti cobbles 2" to 6" inches in size, subat (~25%), 10YR 5/1, silt loose, low pla	ng, gravel and ngular to rounded	357.8	0.0				
-			6.0	Silt, very moist, 10YR 4/1, organics plasticity, some sands present (~5% dense, very moist to wet at 11'	oresent, medium ), very fine grained,	353.8	0.0	800000000000000000000000000000000000000			-
- - - 15	ML		<u>√</u>	Fe oxide staining visiable  Increase in fine to very fine grained s to 16.2', well sorted, loose, low plasti wet	sand (20%) at13.8 city, very moist to		0.2			2" Dia. Sch 40 PVC Casing	10
- - - 20				Sandy Silt lense (19.5'-20.7'), loose,	low plasticity.		0.5	888888888888888888888888888888888888888			20
20 COMMENTS	Meg	hai		(Continued Next Pag				***************************************			R

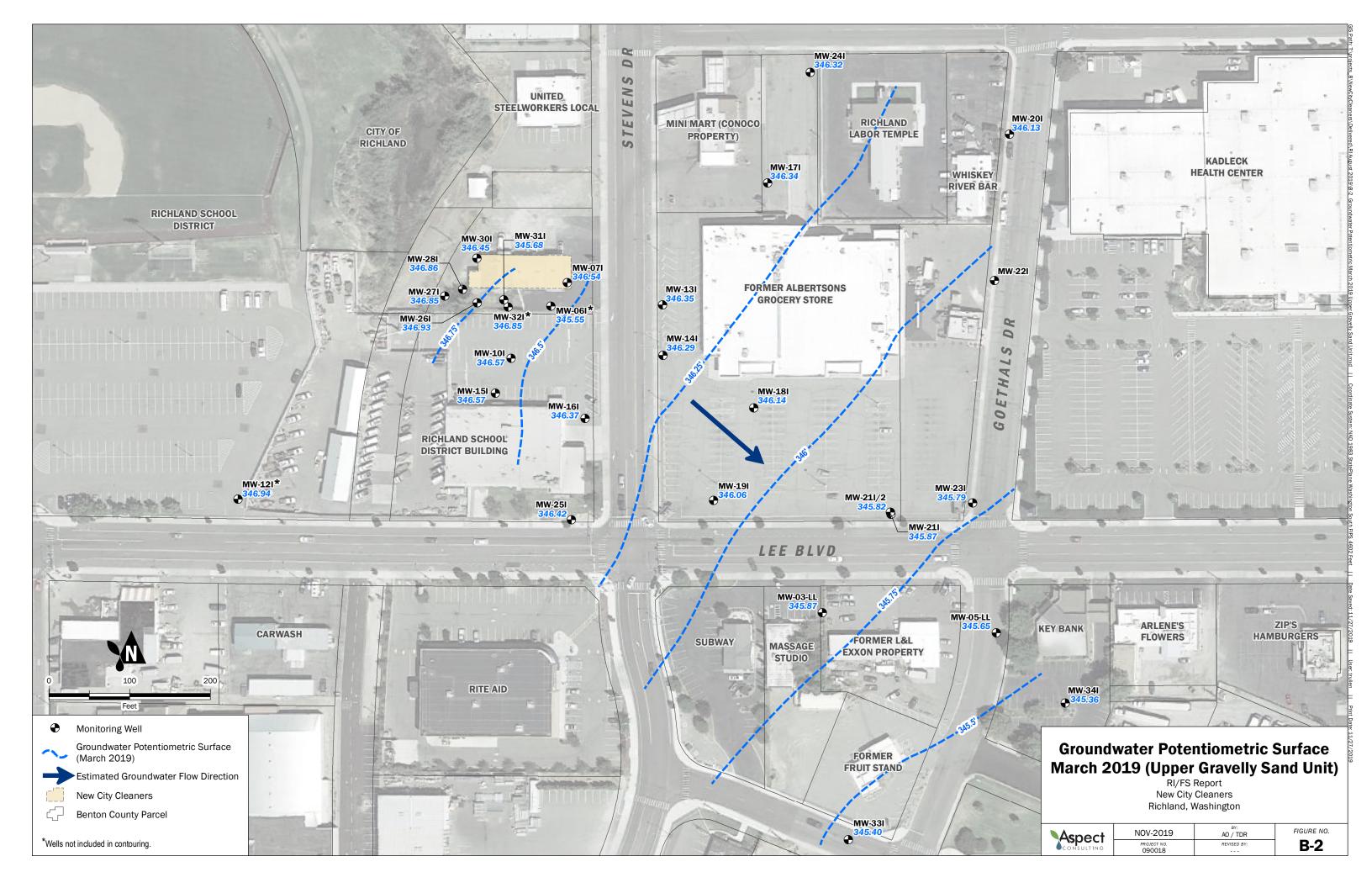
PROJECT NAME CLIENT Landye			<b>5</b>		W	ELL NUMBER MW:
DEPTH (feet) SAMPLE TYPE NUMBER	U.S.C.S. GRAPHIC	LOG DEPTHS (feet)	LITHOLOGIC DESCRIPTION	ELEVATIONS (feet)	PID or OVA (ppm)	WELL DIAGRAM
25	ML-	21.4	moist to wet, 10YR 3/1  Sandy gravel/cobbles, sand fine to medium sized grains, 10YR 4/1, coarse gravel and cobbles are subangular to rounded, 10YR 6/1, moderate to poor sorting	338.4	0.4	Hydrated Bentonite Chips
30			Driller added water to decrease heat on casing		0.0	
40	GM					
45					0.4	Silica Sand
50 COMMENTS			(Continued Next Page)			2" Dia. Sch 40 PVC, 20 Slot Screen
COMMENTS	Megl	han	(Continued Next Page)  Alegare: 10/10/07			

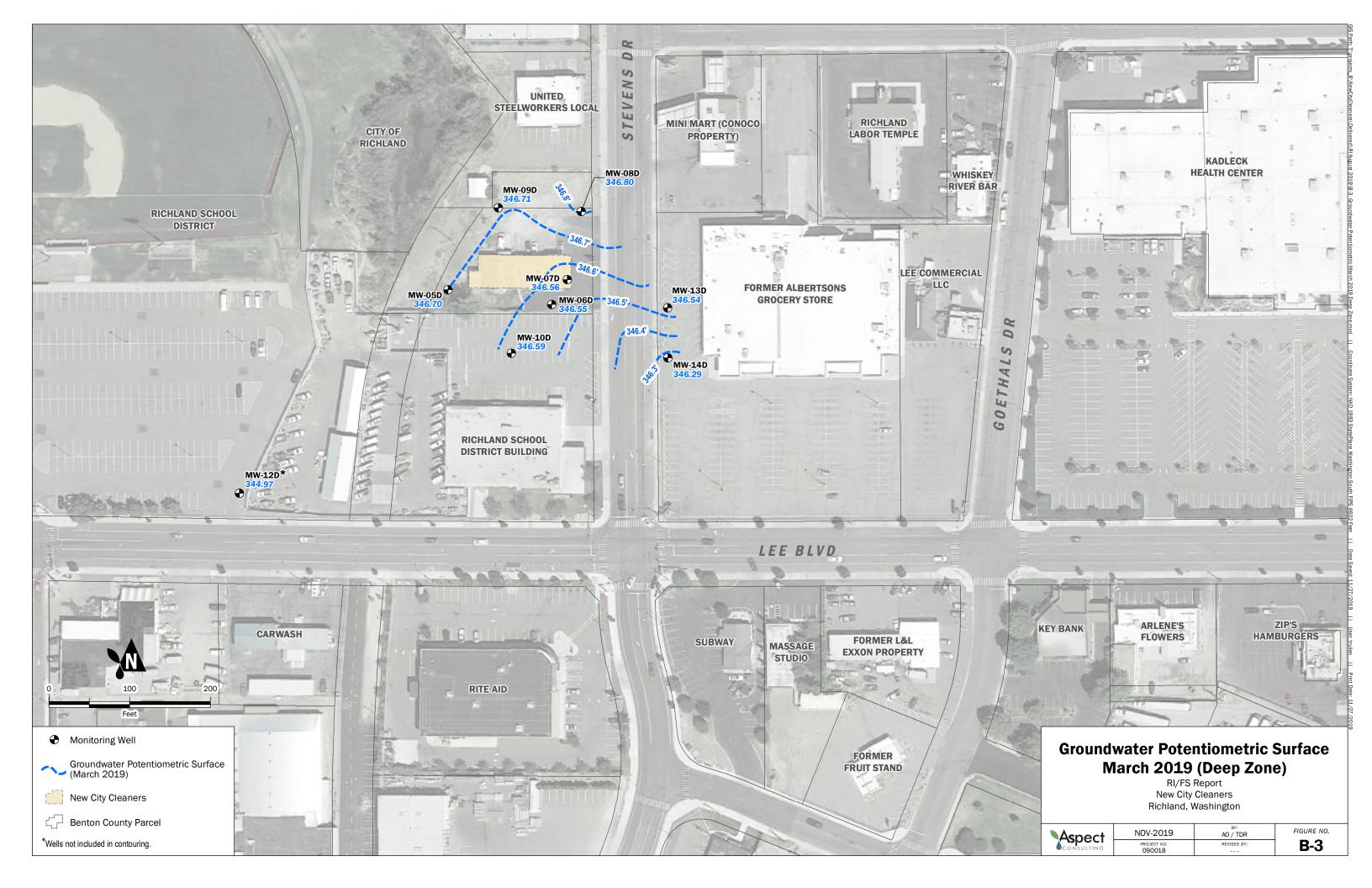
	CT NAME_N Landye Be				P		W	ELL NUMBER MW9 PAGE 3 OF
DEPTH (feet)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC	DEPTHS (feet)	LITHOLOGIC DESCRIPTION	ELEVATIONS (feet)	PID or OVA (ppm)	WELL DIAGRAM
		GM ML		51.3 51.6	Silt, brown, 10YR 4/3, moist, dense, low plasticity, some fine sand present (15%) Silt, moist, Gley 1 3/10Y, some clay present (~5%), some very fine sand grains present (15%), low plasticity, dense	308.5 \308.2	0.1	End Cap
55		ML					0.0	Bentonite Pellets
	·			58.9		301.0	0.0	
1								
***************************************				And Address of the Control of the Co				
						g man num pyrimines projekt popular		
	AFANYO							
COMN	<u>MENTS</u>			n.	N			
APPRO	OVED BY: _	he	ekc	an_	MARUDATE: 10/10/07			(Pa) LFR

#### **APPENDIX B**

Groundwater Water Level Data (Site Water Levels and Columbia River Stage, Potentiometric Maps)

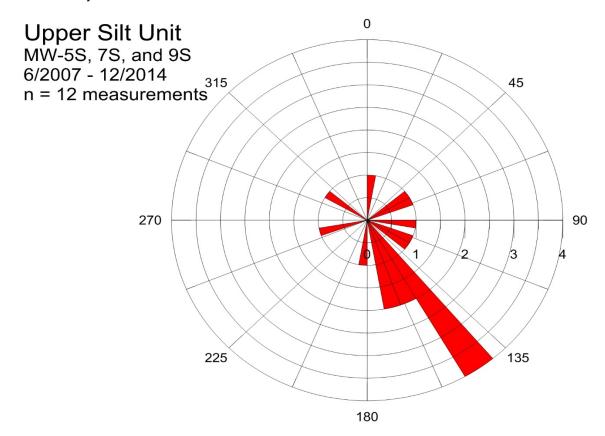


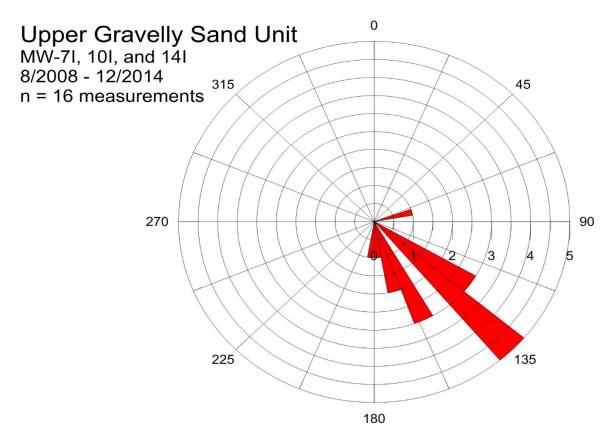




#### Figure B-4 - Groundwater Flow Directions

090018 New City Cleaners





#### **APPENDIX C**

**Simplified Terrestrial Ecological Form** 

#### **Table C-1 Simplified Terrestrial Ecologoical Evaluation**

Project No. 090018, New City Cleaners Richland, Washington

Estimate the area of contiguous (connected) undeveloped 500 feet of any area of the contaminated soil to the near		
Enter the number of points corresponding to the area of contiguous undeveloped land (see MTCA Table 749-1 for points)	2.2 acres	8
2) Is this an industrial or commercial property? If yes, enter a 3. If no, enter a 1.	Yes	3
3) Enter a score for the habitat quality of the contaminated soil and surrounding area (High =1; Intermediate = 2; Low =3)	High	1
4) Is the undeveloped land like to attract wildlife? If yes, enter a 1. If no, enter a 2.	Yes	1
5) Are there any of the following hazardous substances present in soil (see MTCA Table 749-1 for list), If yes, enter a 1. If no, enter a 4.	No	4
Add the numbers in boxes 2 through 5 and enter it to the right. If this number is larger than the number in box 1, the simplified TEE may be ended under WAC 173-340-7292(2)(a)(ii).		9

Note: The exposure analysis has been completed using conservative scores for questions 3 and 4.

#### **APPENDIX D**

**Historical Soil Sampling Results** 

	Location Date	A-01 03/10/1997	A-02 03/10/1997	A-03 03/10/1997	A-04 03/12/1997	A-06 03/12/1997	B-05 03/10/1997	B-07 03/13/1997	BOT-A1-A 03/07/2000	BOT-A1-B 03/07/2000	BS-A2-12 03/03/2000	BS-A2-13 03/03/2000	BS-A2-G 02/29/2000	BS-A2-R 03/01/2000	BS-A3-1 03/10/2000	BS-A3-2 03/15/2000	BS-CR-12 05/26/2000	BS-CR-19 05/31/2000	BS-CR-21 05/31/2000	BS-CR-24 06/01/2000	BS-CR-28 06/01/2000
	Sample Depth	SS-A1	SS-A2	SS-A3	SS-A4	SS-A6	SS-B5	SS-B7	BOT-A1-A/ 8 - 8 ft	BOT-A1-B/ 8 - 8 ft	BS-A2-12/10 10 - 10 ft	BS-A2-13/10 10 - 10 ft	BS-A2-G/13 13 - 13 ft	BS-A2-R/10 10 - 10 ft	BS-A3-1/10 10 - 10 ft	BS-A3-2/10 10 - 10 ft	BS-CR-12/9.5 9.5 - 9.5 ft	BS-CR-19/8 8 - 8 ft	BS-CR-21/8 8 - 8 ft	BS-CR-24/10 10 - 10 ft	BS-CR-28/9.5 9.5 - 9.5 ft
Analyte	Unit	-	-		-	-	-	-	0-011	0-011	10 - 10 10	10 - 10 11	13 - 13 11	10 - 10 11	10 - 10 10	10 - 10 11	9.5 - 9.5 10	0-011	0-011	10 - 10 10	9.5 - 9.5 11
BTEX			T .	ı	1	ı									1	T	1 1			T	
Benzene Toluene	mg/kg mg/kg																				
Ethylbenzene	mg/kg																				
Total Xylenes	mg/kg				-	-	_														
Conventionals																					
Total Organic Carbon	mg/kg																		-		
Other SVOCs Hexachlorobutadiene	malka		T							1				1	1	ı	1		1	T	
PAHs	mg/kg							1													
Naphthalene	mg/kg																				
TPHs					•																
Gasoline-Range Organics	mg/kg		-			-					< 10 U	< 10 U		< 10 U			-		-		
Diesel-Range Organics	mg/kg		-		-		-		< 20 U	< 20 U	< 20 U	< 20 U		< 20 U	< 20 U	< 20 U			-		-
Motor Oil-Range Organics Total Petroleum Hydrocarbons by 418.1	mg/kg mg/kg							-	< 40 U	52	< 40 U	< 40 U		< 40 U	< 40 U	< 40 U					
VOCs	mg/kg								<del></del>												
1,1,1,2-Tetrachloroethane	mg/kg									-	-										
1,1,1-Trichloroethane	mg/kg						-	-		-			-						-		
1,1,2,2-Tetrachloroethane	mg/kg						-			-											
1,1,2-Trichloroethane 1,1-Dichloroethane	mg/kg mg/kg		-																		
1,1-Dichloroethane	mg/kg		-	-		-	-	-													
1,1-Dichloropropene	mg/kg			-	-	-	-	-		-			-	-						-	
1,2,3-Trichlorobenzene	mg/kg		-			-	-	-		-	-		-	-					-		
1,2,3-Trichloropropane	mg/kg					-	-	-		-	-	-	-	-		-	-	-	-		
1,2,4-Trichlorobenzene	mg/kg						-										-		-		-
1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane	mg/kg mg/kg							-													
1,2-Dibromoethane (EDB)	mg/kg																		_		
1,2-Dichlorobenzene	mg/kg		-				-			-	-		-				-		-		
1,2-Dichloroethane (EDC)	mg/kg		-			-				-	-						-		-		
1,2-Dichloropropane	mg/kg		-	-	-	-	-			-				-					-		
1,3,5-Trimethylbenzene 1,3-Dichlorobenzene	mg/kg mg/kg							-													
1,3-Dichloropropane	mg/kg					_	_														
1,4-Dichlorobenzene	mg/kg						-			-			-						-		
2,2-Dichloropropane	mg/kg		-			-	-			-	-										
2-Chlorotoluene	mg/kg								<u></u>												
4-Chlorotoluene Acetone	mg/kg mg/kg	0.05	0.05	0.05 J	0.05	0.05 J	0.062	0.2		-	-								-		
Bromobenzene	mg/kg										-								_		
Bromochloromethane	mg/kg				-		-														
Bromodichloromethane	mg/kg						-														
Bromoform Bromomethana	mg/kg							-													
Bromomethane Carbon Disulfide	mg/kg mg/kg					-				-											
Carbon Tetrachloride	mg/kg					_	-												-		
Chlorobenzene	mg/kg						-												-		
Chloroethane	mg/kg						-				-		-								
Chloromethane	mg/kg																				
Chloromethane cis-1,2-Dichloroethene (DCE)	mg/kg mg/kg																				
cis-1,3-Dichloropropene	mg/kg				-		-												-		
Dibromochloromethane	mg/kg		-	-		-		-		-	-		-	-					-		
Dibromomethane	mg/kg						-			-	-			-							
Dichlorodifluoromethane	mg/kg						-			-	-		-	-		-					
Isopropylbenzene m.p-Xvlenes	mg/kg mg/kg																				
Methyl tert-butyl ether (MTBE)	mg/kg		-		-	-	_	-		-	-		-	-		-			-		
Methylene Chloride	mg/kg						-			-		-	-	-					-		
n-Butylbenzene	mg/kg						-	-		-			-						-		
n-Propylbenzene	mg/kg								-	-			-	-					-	-	
o-Xylene p-Isopropyltoluene	mg/kg mg/kg																				
sec-Butylbenzene	mg/kg		-		-	-	-	-													
Styrene	mg/kg		-		-	-	-	-	-	-	-		-	-		-			_	-	
tert-Butylbenzene	mg/kg		-				-			-	-		-				-		-		
Tetrachloroethene (PCE)	mg/kg	0.005	0.29	0.31 J	0.005	0.18 J	0.005	0.005	0.25	0.24	0.33	2.03	3.18	1.05	2.04	1.95	0.48	< 0.050 U	0.1	0.13	< 0.050 U
trans-1,2-Dichloroethene trans-1,3-Dichloropropene	mg/kg		-				-			-			-				-	-	-		-
Trichloroethene (TCE)	mg/kg mg/kg							-													
Trichlorofluoromethane	mg/kg		-			-	-	-													
Vinyl Chloride	mg/kg								-	-	-		-	-		-			-		
<u>-</u>		Notes																			

#### Notes Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

X - Chromatographic pattern does not match fuel standard used for quantitation.

ft = feet, mg/kg = milligrams per kilogram PAH = polycyclic aromatic hydrocarbons SVOC = semivolatile organic compound

	Location	BS-CR-8	BS-NP-14	BS-NP-20	BS-NP-8	BS-RSD-12	BS-RSD-14	BS-RSD-8	C-02	C-03	C-04	C-06	C-1	D-04	DP-01	DP-01	DP-01	DP-02	DP-02	DP-02	DP-03	DP-03	DP-03	DP-04
	Date	05/25/2000	06/06/2000	06/06/2000	06/06/2000	05/24/2000	05/24/2000	05/24/2000	03/10/1997	03/10/1997	03/10/1997	03/13/1997	03/10/1997	03/10/1997	10/12/2009	10/12/2009		0/12/2009	10/12/2009	10/12/2009	10/12/2009	10/12/2009	10/12/2009	10/12/2009
	Sample	BS-CR-8/9.5	BS-NP-14/10	BS-NP-20/10	BS-NP-8/9.5	BS-RSD-12/9	BS-RSD-14/9.5	BS-RSD-8/9.5	SS-C2	SS-C3	SS-C4	SS-C6	SS-C1	SS-D4	DP-01-10	DP-01-22		DP-02-10	DP-02-20		DP-03-12.5	DP-03-23	DP-03-26	DP-04-5
Australia	Depth	9.5 - 9.5 ft	10 - 10 ft	10 - 10 ft	9.5 - 9.5 ft	9 - 9 ft	9.5 - 9.5 ft	9.5 - 9.5 ft	-	-	-	-	-	-	10 - 10 ft	22 - 22 ft	25 - 25 ft	10 - 10 ft	20 - 20 ft	26 - 26 ft	12.5 - 12.5 ft	23 - 23 ft	26 - 26 ft	5 - 5 ft
Analyte	Unit																							
BTEX Benzene	mg/kg														< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.02811	< 0.028 U
Toluene	mg/kg								-		-				< 0.040 U	< 0.040 U		< 0.040 U                < 0.040 U	< 0.040 U					
Ethylbenzene	mg/kg		-		-			-	-		-				< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U
Total Xylenes	mg/kg				-			-							< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U
Conventionals	/Is		1	1		l	l e	ľ						I		ı	ı .	1						
Total Organic Carbon Other SVOCs	mg/kg				-	-				-		<del>-</del>									-			
Hexachlorobutadiene	mg/kg				-										< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
PAHs				•					ı			ı												
Naphthalene	mg/kg														< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
TPHs			1				I	I	1				1	ı		1	ı							
Gasoline-Range Organics Diesel-Range Organics	mg/kg mg/kg				-					-		-					-						-	
Motor Oil-Range Organics	mg/kg								-															
Total Petroleum Hydrocarbons by 418.1	mg/kg								-		-												-	
VOCs																								
1,1,1,2-Tetrachloroethane	mg/kg				-										< 0.030 U	< 0.030 U		< 0.030 U                < 0.030 U	< 0.030 U					
1,1,1-Trichloroethane	mg/kg		-	-	-	-		-			-				< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane	mg/kg mg/kg														< 0.020 U < 0.030 U	< 0.020 U < 0.030 U		< 0.020 U < 0.030 U   < 0.020 U < 0.030 U	< 0.020 U < 0.030 U					
1,1-Dichloroethane	mg/kg								+			<del></del>	=		< 0.030 U	< 0.030 U		< 0.030 U                < 0.030 U	< 0.030 U					
1,1-Dichloroethene	mg/kg		-	_	_	_		-							< 0.050 U	< 0.050 U		< 0.020 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
1,1-Dichloropropene	mg/kg				-										< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
1,2,3-Trichlorobenzene	mg/kg		-		-						-				< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichloropropane	mg/kg		-		-	-	-	-	-		-		-		< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
1,2,4-Trichlorobenzene	mg/kg				-										< 0.050 U	< 0.050 U		< 0.050 U                < 0.050 U	< 0.050 U					
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-					-		-		< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB)	mg/kg mg/kg				-										< 0.030 U < 0.0050 U	< 0.030 U < 0.0050 U		< 0.030 U < 0.0050 U	< 0.030 U	< 0.030 U < 0.0050 U	< 0.030 U < 0.0050 U			
1,2-Dichlorobenzene	mg/kg														< 0.0030 U	< 0.0030 U		< 0.0030 U               < 0.0030 U	< 0.0030 U					
1,2-Dichloroethane (EDC)	mg/kg							_							< 0.030 U	< 0.030 U		< 0.030 U                < 0.030 U	< 0.030 U					
1,2-Dichloropropane	mg/kg										-				< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
1,3,5-Trimethylbenzene	mg/kg		-		-			-							< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,3-Dichlorobenzene	mg/kg		-		-			-					-		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,3-Dichloropropane	mg/kg				-										< 0.050 U	< 0.050 U		< 0.050 U                < 0.050 U	< 0.050 U					
1,4-Dichlorobenzene	mg/kg												-		< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
2,2-Dichloropropane 2-Chlorotoluene	mg/kg mg/kg				-										< 0.050 U < 0.020 U	< 0.050 U < 0.020 U		< 0.050 U < 0.020 U   < 0.050 U < 0.020 U	< 0.050 U < 0.020 U					
4-Chlorotoluene	mg/kg														< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
Acetone	mg/kg								0.05 J	0.05	0.052	0.05	0.05	0.069 J										
Bromobenzene	mg/kg	-	-		-		-	-	-	-			-		< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U
Bromochloromethane	mg/kg				-										-				-					
Bromodichloromethane	mg/kg				-								-		< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
Bromoform	mg/kg				-	-					-				< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
Bromomethane Carbon Disulfide	mg/kg mg/kg				-							<del></del>			< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U
Carbon Tetrachloride	mg/kg														< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
Chlorobenzene	mg/kg		_		-						-				< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
Chloroethane	mg/kg										-				< 0.060 U	< 0.060 U		< 0.060 U                < 0.060 U	< 0.060 U					
Chloroform	mg/kg														< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
Chloromethane	mg/kg				-										< 0.060 U	< 0.060 U		< 0.060 U                < 0.060 U	< 0.060 U					
cis-1,2-Dichloroethene (DCE)	mg/kg	-	-	-	-	-		-							< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U			< 0.020 U	< 0.020 U
cis-1,3-Dichloropropene Dibromochloromethane	mg/kg mg/kg				-										< 0.020 U < 0.030 U	< 0.020 U	0.020 0	< 0.020 U < 0.030 U   < 0.020 U < 0.030 U	< 0.020 U					
Dibromomethane	mg/kg	<del></del>			-										< 0.030 U	< 0.030 U		< 0.030 U	< 0.030 U	< 0.030 U		< 0.030 U	< 0.030 U	< 0.030 U
Dichlorodifluoromethane	mg/kg		-		_	-			-		-		-		< 0.040 U	< 0.060 U		< 0.040 U		< 0.060 U		< 0.060 U	< 0.060 U	< 0.060 U
Isopropylbenzene	mg/kg	_	-	-	-	-		-			-				< 0.080 U	< 0.080 U		< 0.080 U                < 0.080 U	< 0.080 U					
m,p-Xylenes	mg/kg																						-	
Methyl tert-butyl ether (MTBE)	mg/kg				-										< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U
Methylene Chloride	mg/kg	-			-				-		-		-		< 0.020 U	< 0.020 U			< 0.020 U	< 0.020 U		< 0.020 U		< 0.020 U
n-Butylbenzene n-Propylbenzene	mg/kg mg/kg				-										< 0.020 U < 0.020 U	< 0.020 U < 0.020 U		< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U		< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U
o-Xylene	mg/kg mg/kg												-		< 0.020 0	< 0.020 0	< 0.020 0	< 0.020 0	~ U.UZU U	< 0.020 0	< 0.020 0	< 0.020 0	< 0.020 0	- U.UZU U
p-Isopropyltoluene	mg/kg				-	-									< 0.020 U	< 0.020 U			< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U
sec-Butylbenzene	mg/kg				-				-	-	_		_		< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
Styrene	mg/kg				-										< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
tert-Butylbenzene	mg/kg				-						-				< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
Tetrachloroethene (PCE)	mg/kg	0.1	0.28	0.16	0.06	0.16	1.21	0.9	0.25 J	0.028	0.005	0.005	0.005	0.57 J	0.093	0.13		< 0.020 U		< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U
trans-1,2-Dichloroethene	mg/kg														< 0.020 U	< 0.020 U		< 0.020 U                < 0.020 U	< 0.020 U					
trans-1,3-Dichloropropene	mg/kg	-	-	-	-	-		-			-				< 0.030 U	< 0.030 U		< 0.030 U                < 0.030 U	< 0.030 U					
Trichloroethene (TCE) Trichlorofluoromethane	mg/kg				-										< 0.030 U < 0.050 U	<b>0.085</b> < 0.050 U		< 0.030 U < 0.050 U   < 0.030 U < 0.050 U	< 0.030 U < 0.050 U					
Vinyl Chloride	mg/kg mg/kg														< 0.050 U		< 0.050 U			< 0.050 U		< 0.050 U		
		Notes	1	1	1	1	I.	I.	1			1	1	1	0.020 0	0.0200	0.0200	0.020 0	0.020 0	0.020 0	0.0200	0.020 0	0.020 0	0.020

Notes
Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated ft = feet, mg/kg = milligrams per kilogram TPH = total petroleum hydrocarbon Y - Chromatographic pattern does not match fuel standard used for quantitation. PAH = polycyclic aromatic hydrocarbons VOC = volatile organic compound SVOC = semivolatile organic compound

Second Deput   Seco		Location	DP-04	DP-04	DP-04	DP-05	DP-05	DP-05	DP-06	DP-06	DP-06	DP-07	DP-07	DP-07	DP-08	DP-08	DP-08	DP-09	DP-09	DP-09	DP-10	DP-10	DP-10	DP-10	DP-11	DP-11	DP-11	DP-13
Mary		Date Sample	10/12/2009 DP-04-10	10/12/2009 DP-04-18		1	DP-05-22		10/12/2009 DP-06-10	10/12/2009 DP-06-18		10/12/2009 DP-07-10			10/12/2009 DP-08-10	10/12/2009 DP-08-16				10/13/2009 DP-09-25.5		10/13/2009 DP-10-9		10/13/2009 DP-10-16	10/13/2009 DP-11-4			10/13/2009 DP-13-8
The column   The	Analyte		10 - 10 ft	18 - 18 ft	24 - 24 ft	13 - 13 ft	22 - 22 ft	25 - 25 ft	10 - 10 ft	18 - 18 ft	25 - 25 ft	10 - 10 ft	18 - 18 ft	21 - 21 ft	10 - 10 ft	16 - 16 ft	20 - 20 ft	12 - 12 ft	20 - 20 ft	25.5 - 25.5 ft	6 - 6 ft	9 - 9 ft	12 - 12 ft	16 - 16 ft	4 - 4 ft	12 - 12 ft	24 - 24 ft	8 - 8 ft
Dec.   Column   Col		J.II.					ı									l	<u> </u>									ı		
December   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   1986   198																												< 0.028 U
Column   C		- 0																										< 0.040 U < 0.040 U
The content																												< 0.080 U
Section   Sect						ı	1					1				1	1						ı					
Company   Comp	3	mg/kg	<u> </u>	<u> </u>	<u> </u>																							
Capacity		mg/kg	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
The control of the		ma/ka	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	- 0.0E0.II	- 0.0E0.11	- 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	- 0.0E0.11	- 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.0E0.11	< 0.050 U
Figure   Control   Contr		Hig/kg	V 0.050 O	V 0.030 0	V 0.030 0	V 0.030 0	V 0.030 0	V 0.030 0	V 0.030 0	V 0.030 0	<u> </u>	V 0.030 0	V 0.030 0	V 0.030 0	<u> </u>	V 0.030 0	V 0.030 0	V 0.030 0	< 0.030 U	V 0.030 0	V 0.050 0 1	V 0.030 0	V 0.030 0	V 0.030 0	V 0.030 0	< 0.030 U	V 0.030 0	V 0.030 0
Mary Confession   Part   Mary   Confession   Part   Mary   Confession   Part   Mary   Confession   Part   Mary   Confession   Part   Mary   Confession   Part   Mary   Confession   Part   Part   Confession   Part   Par	<u> </u>				ł			ļ	-		-				-													
Teach Part   Teach	ŭ ŭ			-			-																					
1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.   1.1.	ÜÜ										-		-															
1.   1.   1.   1.   1.   1.   1.   1.		m=11-=	< 0.020.11	< 0.02011	< 0.02011	< 0.02011	< 0.02011	< 0.02011		< 0.02011	< 0.02011	~ 0.020 LL	< 0.02011	< 0.020.11	< 0.02011	~ 0 020 L	< 0.02011	< 0.02011	< 0.020 II	< 0.02011	< 0.02011	< 0.02011	~ 0 020 II I	< 0.02011	< 0.02011	< 0.02011	< 0.02011	< 0.030 U
12.21   Continuementary   Co																												< 0.030 U < 0.020 U
International Control	1,1,2,2-Tetrachloroethane	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50   1.50							_																					< 0.030 U < 0.020 U
12-11-11-11-11-11-11-11-11-11-11-11-11-1	•	- 0					_																					< 0.020 U
1.2.3 Technologous   malph   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000	1,1-Dichloropropene	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1.2.1 Print print print																												< 1.0 U < 0.020 U
Debtors   Company   Comp																												< 0.050 U
Descriptions	• • •						_																					< 0.020 U
		3: 3																										< 0.030 U < 0.0050 U
1.2.	, , , , , , , , , , , , , , , , , , , ,	3: 3																										< 0.020 U
13.5 Terrisphenemen mg/lg < 0.0001																												< 0.030 U
1.5 Calishiorisements																												< 0.020 U < 0.020 U
Face	,-,-						_																					< 0.020 U
22-Deteroscopeame																												< 0.050 U
Chrostotoleme																												< 0.020 U < 0.050 U
Acetane	2-Chlorotoluene		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Bromochismoremethane									1																			< 0.020 U
Bromochinomethane																												< 0.030 U
Formordem							-								-					-			-					
Bromomethane																												< 0.020 U < 0.020 U
Cathon Tetrachloride		0.0					_																					< 0.090 U
Chioroehane		- 0																										
Chioromethane							_																					< 0.020 U < 0.020 U
Chioromethane   mg/kg   0.060 U																												< 0.060 U
Cis-1,2-Dichloroethene (DCE)   mg/kg   < 0.020 U   <							_																					< 0.020 U < 0.060 U
Cis-1,3-Dichloropropene										0.000																		< 0.000 U
Dibromomethane   mg/kg   < 0.040 U   < 0																												
Dichlorodiffluoromethane   mg/kg   < 0.060 U   < 0.0																												< 0.030 U < 0.040 U
mp-Xylenes   mg/kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -							_																					< 0.040 U
Methyl tert-butyl ether (MTBE) mg/kg < 0.020 U							< 0.080 U								< 0.080 U		< 0.080 U	< 0.080 U					< 0.080 U		< 0.080 U			< 0.080 U
Methylene Chloride mg/kg < 0.020 U <							< 0.020 11								< 0.020 []		< 0.020 11	< 0.020 11					 < 0.020 II		< 0.02011			< 0.020 U
n-Propylbenzene mg/kg < 0.020 U < 0.	, , , ,	_					_					< 0.020 U	< 0.020 U															< 0.020 U
o-Xylene mg/kg																												< 0.020 U
																												< 0.020 U
	p-Isopropyltoluene	mg/kg											< 0.020 U				< 0.020 U	< 0.020 U			< 0.020 U							< 0.020 U
	,																											< 0.020 U
							_																					< 0.020 U < 0.020 U
Tetrachioroethene (PCE) mg/kg < 0.020 U < 0.02	Tetrachloroethene (PCE)	mg/kg	< 0.020 U	< 0.020 U	0.048	< 0.020 U	< 0.020 U	0.059	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	0.24	0.11	0.13	0.14	0.08	0.21	3.54	< 0.020 U
																												< 0.020 U < 0.030 U
																												< 0.030 U
Trichlorofluoromethane mg/kg < 0.050 U < 0.050	Trichlorofluoromethane	mg/kg	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
Vinyl Chloride   mg/kg   < 0.020 U   < 0	Vinyl Chloride	mg/kg		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated ft = feet, mg/kg = milligrams per kilogram TPH = total petroleum hydrocarbon X - Chromatographic pattern does not match fuel standard used for quantit PAH = polycyclic aromatic hydrocarbons VOC = volatile organic compound

SVOC = semivolatile organic compound

	Location DP-13	DP-13	DP-13	DP-13	DP-14	DP-14	DP-14	DP-15	DP-15	DP-15	DP-15	DP-16	DP-16	DP-16	DP-17	DP-17	DP-17	DP-18	DP-18	DP-18	DP-19	DP-19	DP-19	DP-19	DP-20
	Date 10/13/2009 Sample DP-13-13			10/13/2009 DP-13-27	10/13/2009 DP-14-7	10/13/2009 DP-14-20	10/13/2009 DP-14-23	10/14/2009 DP15-6	10/14/2009 DP15-8	10/14/2009 DP15-14	10/14/2009 DP15-23	10/14/2009 DP16-7	10/14/2009 DP16-13	10/14/2009 DP16-24	10/14/2009 DP-17-10	10/14/2009 DP17-19	10/14/2009 DP17-25.5	10/14/2009 DP-18-10	10/14/2009 DP-18-20.5	10/14/2009 DP-18-23.5	11/02/2009 DP-19-7	11/02/2009 DP-19-10	11/02/2009 DP-19-17	11/02/2009 DP-19-21	11/02/2009 DP-20-5
	Depth 13 - 13 ft		1	27 - 27 ft	7 - 7 ft	20 - 20 ft	23 - 23 ft	6 - 6 ft	8 - 8 ft	14 - 14 ft	23 - 23 ft	7 - 7 ft	13 - 13 ft	24 - 24 ft	10 - 10 ft	19 - 19 ft	25.5 - 25.5 ft	10 - 10 ft	20.5 - 20.5 ft	23.5 - 23.5 ft	7 - 7 ft	10 - 10 ft	17 - 17 ft	21 - 21 ft	5 - 5 ft
Analyte	Unit																								
BTEX	ma/ka < 0.020 LI	1 < 0.02011	- 0 020 II	< 0.028 U	- 0 020 II	- 0 020 II	< 0.03011	1 × 0 020 II	~ 0.02011	L < 0.020 II	~ 0 020 II	- 0 020 II	< 0.02011	< 0.028 U	~ 0 020 II	< 0.028 U	< 0.039 11	< 0.03911	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.030 II	< 0.028 U	< 0.028 U
Benzene Toluene	mg/kg < 0.028 U mg/kg < 0.040 U	< 0.028 U < 0.040 U	< 0.028 U < 0.040 U	< 0.026 U	< 0.028 U < 0.040 U	< 0.028 U < 0.040 U	< 0.028 U < 0.040 U	< 0.028 U < 0.040 U	< 0.028 U < 0.040 U	< 0.028 U < 0.040 U	< 0.028 U < 0.040 U	< 0.028 U < 0.040 U	< 0.028 U < 0.040 U	< 0.028 U	< 0.028 U < 0.040 U	< 0.028 U	< 0.028 U < 0.040 U	< 0.028 U < 0.040 U	< 0.040 U	< 0.028 U	< 0.028 U	< 0.026 U	< 0.028 U < 0.040 U	< 0.028 U	< 0.028 U
Ethylbenzene	mg/kg < 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U
Total Xylenes	mg/kg < 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U
Conventionals Total Organic Carbon	mg/kg	T	T	T	I	T			I			I	_	l					I					1	
Other SVOCs	Hig/kg			<u> </u>								<u> </u>					<del></del>								
Hexachlorobutadiene	mg/kg < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
PAHs Naphthalene	mg/kg < 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
TPHs	ingrity 10.000 0	10.000 0	1 0.000 0	- 0.000 0	1 0.000 0	1 0.000 0	1 0.000 0	10.000 0	10.0000	1 0.000 0	10.0000	10.0000	1 0.000 0	1 0.000 0	1 0.000 0	10.0000	10.000 0	- 0.000 0	1 0.000 0	10.000 0	10.0000	1 0.000 0	1 0.000 0	- 0.000 0	1 0.000 0
Gasoline-Range Organics	mg/kg	-		-	-		-				-		-						-						
Diesel-Range Organics  Motor Oil-Range Organics	mg/kg mg/kg			-		<del>-</del> -				< 25 U < 40 U			-							-					
Total Petroleum Hydrocarbons by 418.1	mg/kg	-		-	-	-	_				-		-												-
VOCs								1						1											
1,1,1,2-Tetrachloroethane 1,1,1-Trichloroethane	mg/kg < 0.030 U mg/kg < 0.020 U	< 0.030 U < 0.020 U	< 0.030 U < 0.020 U	< 0.030 U < 0.020 U	< 0.030 U < 0.020 U	< 0.030 U < 0.020 U	< 0.030 U < 0.020 U	< 0.030 U < 0.020 U	< 0.030 U < 0.020 U	< 0.030 U < 0.020 U															
1,1,2,2-Tetrachloroethane	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,1,2-Trichloroethane	mg/kg < 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U
1,1-Dichloroethane	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,1-Dichloroethene 1,1-Dichloropropene	mg/kg < 0.050 U mg/kg < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U															
1,2,3-Trichlorobenzene	mg/kg < 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichloropropane	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene	mg/kg < 0.050 U mg/kg < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U															
1,2-Dibromo-3-chloropropane	mg/kg < 0.020 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.020 U	< 0.020 U	< 0.030 U	< 0.020 U	< 0.020 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.020 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U						
1,2-Dibromoethane (EDB)	mg/kg < 0.0050 L	J < 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
1,2-Dichlorobenzene	mg/kg < 0.020 U mg/ka < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U						
1,2-Dichloroethane (EDC) 1,2-Dichloropropane	mg/kg < 0.030 U mg/kg < 0.020 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U < 0.020 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U < 0.020 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U
1,3,5-Trimethylbenzene	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,3-Dichlorobenzene	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,3-Dichloropropane 1,4-Dichlorobenzene	mg/kg < 0.050 U mg/kg < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U															
2,2-Dichloropropane	mg/kg < 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
2-Chlorotoluene	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
4-Chlorotoluene Acetone	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Bromobenzene	mg/kg < 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U
Bromochloromethane	mg/kg			-			-				-														
Bromodichloromethane	mg/kg < 0.020 U mg/kg < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U															
Bromoform Bromomethane	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Carbon Disulfide	mg/kg	-		-	-	-	-		-		-		-												
Carbon Tetrachloride	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Chlorobenzene Chloroethane	mg/kg < 0.020 U mg/kg < 0.060 U	< 0.020 U < 0.060 U	< 0.020 U < 0.060 U	< 0.020 U < 0.060 U	< 0.020 U < 0.060 U	< 0.020 U < 0.060 U	< 0.020 U < 0.060 U	< 0.020 U < 0.060 U	< 0.020 U < 0.060 U	< 0.020 U < 0.060 U															
Chloroform	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Chloromethane	mg/kg < 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U
cis-1,2-Dichloroethene (DCE) cis-1,3-Dichloropropene	mg/kg < 0.020 U mg/kg < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	<b>0.13</b> < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	<b>0.071</b>	<b>0.15</b> < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U
Dibromochloromethane		< 0.030 U		< 0.030 U													< 0.030 U	< 0.030 U	< 0.030 U		< 0.030 U			< 0.030 U	< 0.030 U
Dibromomethane	mg/kg < 0.040 U				< 0.040 U	< 0.040 U	< 0.040 U		< 0.040 U		< 0.040 U	< 0.040 U		< 0.040 U		< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U		< 0.040 U		< 0.040 U	< 0.040 U
Dichlorodifluoromethane Isopropylbenzene	mg/kg < 0.060 U mg/kg < 0.080 U	< 0.060 U < 0.080 U	< 0.060 U < 0.080 U	< 0.060 U < 0.080 U		< 0.060 U < 0.080 U		< 0.060 U < 0.080 U		< 0.060 U < 0.080 U	< 0.060 U < 0.080 U	< 0.060 U < 0.080 U	< 0.060 U < 0.080 U	< 0.060 U < 0.080 U		< 0.060 U < 0.080 U		< 0.060 U < 0.080 U	< 0.060 U < 0.080 U						
m,p-Xylenes	mg/kg																								
Methyl tert-butyl ether (MTBE)	0 0	< 0.020 U			< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U		< 0.020 U	< 0.020 U
Methylene Chloride n-Butylbenzene	mg/kg < 0.020 U			< 0.020 U		< 0.020 U < 0.020 U	< 0.020 U	< 0.020 U < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U < 0.020 U		< 0.020 U	< 0.020 U < 0.020 U
n-Butylbenzene n-Propylbenzene	mg/kg < 0.020 U mg/kg < 0.020 U	< 0.020 U < 0.020 U		< 0.020 U < 0.020 U		< 0.020 U	< 0.020 U < 0.020 U	< 0.020 U	< 0.020 U < 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U		< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U < 0.020 U	< 0.020 U
o-Xylene	mg/kg																								
p-Isopropyltoluene	mg/kg < 0.020 U			< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U													
sec-Butylbenzene Styrene	mg/kg < 0.020 U mg/kg < 0.020 U			< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U													
tert-Butylbenzene	mg/kg < 0.020 U			< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U													
Tetrachloroethene (PCE)	mg/kg < 0.020 U	< 0.020 U	0.32	0.049	0.21	0.7	1.34	< 0.020 U	0.047	0.12	0.34	0.024	0.23	0.3	0.07	0.07	< 0.020 U	0.3	0.27	0.026	< 0.020 U				
trans-1,2-Dichloroethene	mg/kg < 0.020 U			< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U													
trans-1,3-Dichloropropene Trichloroethene (TCE)	mg/kg < 0.030 U mg/kg < 0.030 U		< 0.030 U 0.13	< 0.030 U 0.038	< 0.030 U < 0.030 U	< 0.030 U 0.13	< 0.030 U 0.49	< 0.030 U < 0.030 U	< 0.030 U < 0.030 U	< 0.030 U 0.16	< 0.030 U 0.096	< 0.030 U < 0.030 U	< 0.030 U	< 0.030 U 0.31	< 0.030 U < 0.030 U	< 0.030 U < 0.030 U	< 0.030 U < 0.030 U	< 0.030 U 0.063	< 0.030 U < 0.030 U	< 0.030 U < 0.030 U	< 0.030 U < 0.030 U	< 0.030 U < 0.030 U	< 0.030 U < 0.030 U	< 0.030 U < 0.030 U	< 0.030 U < 0.030 U
Trichlorofluoromethane	mg/kg < 0.050 U		< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U														
Vinyl Chloride	mg/kg < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
	Notes																								

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated ft = feet, mg/kg = milligrams per kilogram TPH = total petroleum hydrocarbon X - Chromatographic pattern does not match fuel standard used for quantit PAH = polycyclic aromatic hydrocarbons VOC = volatile organic compound

SVOC = semivolatile organic compound

	Location Date	DP-20 11/02/2009		DP-20 11/02/2009			DP-21 11/02/2009	DP-21 11/02/2009	DP-28 01/10/2012	DP-29 01/10/2012	DP-30 01/10/2012	DP-31 01/11/2012	DP-32 01/10/2012	DP-32 01/10/2012	DP-33 01/10/2012	DP-33 01/10/2012	DP-34 01/10/2012	DP-35 01/11/2012	DP-36 01/10/2012
	Sample Depth	DP-20-11 11 - 11 ft	DP-20-18 18 - 18 ft	DP-20-22 22 - 22 ft	DP-21-5 5 - 5 ft		DP-21-16 16 - 16 ft	DP-21-19.5 19.5 - 19.5 ft	DP-28-13.5-011012 13.5 - 13.5 ft	DP-29-13-011012 13 - 13 ft	DP-30-13.5-011012 13.5 - 13.5 ft	DP-31-12.5-011112 12.5 - 12.5 ft	2 DP-32-3.5-011012 3.5 - 3.5 ft	DP-32-13.5-011012 13.5 - 13.5 ft	DP-33-3.5-011012 3.5 - 3.5 ft	DP-33-13-011012 13 - 13 ft	DP-34-13-011012 13 - 13 ft	DP-35-13-011112 13 - 13 ft	DP-36-10-011012 10 - 10 ft
Analyte	Unit																		
BTEX Benzene	mg/kg	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U
Toluene	mg/kg	< 0.028 U	< 0.028 U	< 0.028 U	< 0.028 U		< 0.028 U	< 0.028 U	< 0.10 U	< 0.10 U	< 0.028 U	< 0.028 U	< 0.10 U	< 0.10 U	< 0.028 U	< 0.028 U	< 0.10 U	< 0.028 U	< 0.10 U
Ethylbenzene	mg/kg	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U		< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U
Total Xylenes	mg/kg	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U
Conventionals						, ,					1	T	_			1	T		
Total Organic Carbon	mg/kg		-										-						
Other SVOCs Hexachlorobutadiene	mg/kg	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
PAHs	1g,g	0.100	0.100	0.100	0.100		0.100	33	0.100		0.100	0.100	0.100	0.10	0.10	0.100	0.100	0.100	0.100
Naphthalene	mg/kg	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
TPHs		ı		1	1							I							
Gasoline-Range Organics Diesel-Range Organics	mg/kg mg/kg																		-
Motor Oil-Range Organics	mg/kg		-		-	- 1	_			-			-		_				-
Total Petroleum Hydrocarbons by 418.1	mg/kg		-		-	-	-			1		-	-		-			-	-
VOCs																			
1,1,1,2-Tetrachloroethane	mg/kg	< 0.030 U		< 0.030 U			< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	mg/kg mg/kg	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U		< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U
1,1,2-Trichloroethane	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.020 U	< 0.030 U	< 0.030 U	0.03	< 0.030 U	< 0.030 U	< 0.030 U
1,1-Dichloroethane	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,1-Dichloroethene	mg/kg	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U		< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
1,1-Dichloropropene	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,2,3-Trichlorobenzene 1,2,3-Trichloropropane	mg/kg mg/kg	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U	< 1.0 U < 0.020 U
1,2,4-Trichlorobenzene	mg/kg	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U		< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
1,2,4-Trimethylbenzene	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,2-Dibromo-3-chloropropane	mg/kg	< 0.030 U		< 0.030 U			< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U
1,2-Dibromoethane (EDB) 1,2-Dichlorobenzene	mg/kg	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U	< 0.0050 U < 0.020 U		< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U	< 0.0050 U < 0.020 U
1,2-Dichloroethane (EDC)	mg/kg mg/kg	< 0.020 U	< 0.020 U	< 0.020 U < 0.030 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,2-Dichloropropane	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,3,5-Trimethylbenzene	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,3-Dichlorobenzene	mg/kg	< 0.020 U		< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
1,3-Dichloropropane 1,4-Dichlorobenzene	mg/kg mg/kg	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U		< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U	< 0.050 U < 0.020 U
2,2-Dichloropropane	mg/kg	< 0.020 U	< 0.050 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
2-Chlorotoluene	mg/kg	< 0.020 U		< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
4-Chlorotoluene	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Acetone	mg/kg																		-
Bromobenzene Bromochloromethane	mg/kg mg/kg	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U
Bromodichloromethane	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Bromoform	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Bromomethane	mg/kg	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U
Carbon Disulfide	mg/kg																		
Carbon Tetrachloride Chlorobenzene	mg/kg mg/kg	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U		< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U
Chloroethane	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.060 U	< 0.020 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.020 U	< 0.060 U	< 0.020 U
Chloroform	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Chloromethane (205)	mg/kg	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U		< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U
cis-1,2-Dichloroethene (DCE)	mg/kg	< 0.020 U	- 0 000 11	< 0.020 U	- 0 000 11	. 0 000 11	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Dibromochloromethane	mg/kg mg/kg		< 0.020 U			< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U	< 0.020 U < 0.030 U
Dibromomethane	mg/kg	< 0.040 U					< 0.030 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U	< 0.040 U
Dichlorodifluoromethane	mg/kg	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U	< 0.060 U
Isopropylbenzene	mg/kg	< 0.080 U		< 0.080 U			< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U
m,p-Xylenes Methyl tert-butyl ether (MTBE)	mg/kg	 0.020 II	 < 0.020 U		< 0.020 U		 < 0.020 U	 < 0.020 U	< 0.020 U	 < 0.020 U	 < 0.020 U	 < 0.020 U	 < 0.020 U	 < 0.020 U	 < 0.020 U	 < 0.020 U	 < 0.020 U	 < 0.020 U	 < 0.020 U
Methylene Chloride	mg/kg mg/kg	< 0.020 U < 0.020 U		< 0.020 U < 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U < 0.10 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
n-Butylbenzene	mg/kg	< 0.020 U		< 0.020 U			< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
n-Propylbenzene	mg/kg	< 0.020 U		< 0.020 U			< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
o-Xylene	mg/kg																		
p-Isopropyltoluene	mg/kg	< 0.020 U		< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
sec-Butylbenzene Styrene	mg/kg mg/kg	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U		< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U	< 0.020 U < 0.020 U
tert-Butylbenzene	mg/kg	< 0.020 U		< 0.020 U			< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Tetrachloroethene (PCE)	mg/kg	< 0.020 U	< 0.020 U	0.04	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	0.03	0.15	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	0.035	< 0.020 U	< 0.020 U
trans-1,2-Dichloroethene	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U		< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
trans-1,3-Dichloropropene	mg/kg	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U		< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U
Trichloroethene (TCE) Trichlorofluoromethane	mg/kg	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	<b>0.07</b> < 0.050 U	< 0.030 U < 0.050 U		< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U	< 0.030 U < 0.050 U
Vinyl Chloride	mg/kg mg/kg	< 0.050 U					< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
VIII SIIIOING	my/ky	Notes	- 0.020 U	- 0.020 U	- 0.020 U	- 0.020 U	- 0.020 0	- 0.020 U	- 0.020 U	~ U.UZU U	- 0.020 U	~ U.UZU U	~ U.UZU U	~ U.UZU U	~ U.UZU U	~ U.UZU U	- 0.020 U	~ 0.020 U	~ U.UZU U

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation.

ft = feet, mg/kg = milligrams per kilogram PAH = polycyclic aromatic hydrocarbons SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VOC = volatile organic compound

Part		Location	DP-36	DP-37	DP-37	DP-38	DP-38	DP-39	DP-40	DP-41	DP-42	DP-43	DP-44	DP-44	DP-45	DP-45	E-02	E-03	E-04	E-06
Part		Date	01/10/2012 DD 36 43 5 044043	01/10/2012 DB 37 3 044043	01/10/2012 DD 37 43 5 044043	01/11/2012	01/11/2012	01/11/2012	01/11/2012 DB 40 42 044442	01/11/2012	01/10/2012 DB 43 43 5 044043	01/10/2012	01/11/2012 DB 44 43 044443	01/11/2012	01/11/2012 DD 45 43 044443	01/11/2012 DB 45 24 044442	03/10/1997	03/10/1997	03/11/1997	03/12/1997
April   Apri																	33-E2 -	- 35-E3	33-E4 -	- 33-E6
Column   C	Analyte		10.0 10.0 10		10.0 10.0 1	0.0 0.0	10 10 10	10 10 11		10.0 10.0 1	10.0 10.0 10	10 10 11		20 20 11		21 211				
Section   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985   1985																				
The column   The																				
Column   C																				+
The second   The column   The	Total Xylenes	mg/kg	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U	< 0.080 U				
The content		//cm					I		1	I		I	I	I	1					
Company   Comp		rng/kg	<del></del>		<del></del>												-			
Secondary   Control   Co		mg/kg	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U			-	
Section   Sect	PAHs		- 0.050.11	. 0.050.11	-0.05011	. 0.050.11	. 0 050 11	. 0.050.11	- 0.050.11	. 0 050 11	. 0.050.11	. 0.050.11	. 0 050 11	. 0.050.11		. 0 050 11				
Section   Sect		mg/kg	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0	< 0.050 0				
No. Confession and the control of th	Gasoline-Range Organics	mg/kg																		
The property of the property						-														
Column   C	ŭ ŭ																			
Administration   Applied	,	mg/kg																		
1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43   1.43	7.7.																			
All Friendsche   1960   C. 1960																				<del></del>
Company   Comp	1,1-Dichloroethane	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U				
22-551   1-15																				<u> </u>
A																				<del>                                     </del>
2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-	1,2,3-Trichloropropane	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U				t
Authors   Column	1,2,4-Trichlorobenzene																			
																				<b>+</b>
Company   Comp																				t
2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001   2001																				t
1.3.5 Franchischeme																				
Abditioned   Company   C	1,3,5-Trimethylbenzene																			
Addresses   Proping   County		mg/kg																		
2 Obstroomer																				<b>+</b>
Company   Comp																				
According	2-Chlorotoluene	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U				-	
Semontanemen											1									
Semanticinementaries																	0.05			
Servedemen						-											-		-	
Second-marked   Physics   Colored																				<u> </u>
Carbon Designation   Propriet																				
Charachemene																	-			_
Chromethane																				t
Chloroform																				<del></del>
18-12-Dehropropere	Chloroform																			
18:13-10-hibrorpropene																				
District Control Con																				<del>-</del>
Decomposition   Target   Control	Dibromochloromethane																			
Septopsylberizene	Dibromomethane	mg/kg						< 0.040 U												<del>                                     </del>
mp/kgenes																				1
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	m,p-Xylenes																			
	Methyl tert-butyl ether (MTBE)	mg/kg																		
Propylbenzene   mg/kg   < 0.020 U   < 0.	,																			<del>                                     </del>
Sec-Butylbenzene	o-Xylene	mg/kg																		+
Styrené mg/kg < 0.020 U <																				
ert-Butylbenzene mg/kg < 0.020 U < 0	,																			<del>-</del>
Tetrachloroethene (PCE) mg/kg < 0.020 U < 0.02	tert-Butylbenzene																			
rans-1,3-Dichloropropene mg/kg < 0.030 U	Tetrachloroethene (PCE)	mg/kg	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	0.039	0.5				t —
Trichloroethene (TCE)         mg/kg         < 0.030 U	·																			
Trichlorofluoromethane mg/kg < 0.050 U < 0.050																				+
			< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U				
	Vinyl Chloride			< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U			-	

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation.

ft = feet, mg/kg = milligrams per kilogram PAH = polycyclic aromatic hydrocarbons SVOC = semivolatile organic compound

	Location Date	EB-01N 05/24/2007	EB-01S 05/24/2007	EB-02 05/24/2007	EB-02 05/24/2007	EB-03 05/24/2007	EB-03 05/24/2007	EB-04 05/24/2007	EB-04 05/24/2007	EB-05 05/24/2007	EB-05 05/24/2007	F-05 03/12/1997	G0-2 03/10/1997	G0-3 03/10/1997	G0-3 03/13/1997	G-04 03/10/1997	G-06 03/13/1997	GP-01 03/12/1997	GP-01 03/12/1997	GP-02 03/13/1997	GP-02 03/13/1997	GP-03 03/13/1997	GP-04 03/13/1997	GP-04 03/13/1997	GP-05 03/11/1997	GP-05 03/11/1997
	Sample	EB1-N-1	EB1-S-1	EB2-1	EB2-7	EB3-1	EB3-6.5	EB4-1	EB4-5	EB5-1	EB5-5	SS-F5	SS-G2	SS-G3	G-3-15	SS-G4	SS-G6	GP-1-5	GP-1-19	GP-2-5	GP-2-21	GP-3-19	GP-4-7	GP-4-19	GP-5-11	GP-5-21.5
Analyte	Depth Unit	1 - 1 ft	1 - 1 ft	1 - 1 ft	7 - 7 ft	1 - 1 ft	6.5 - 6.5 ft	1 - 1 ft	5 - 5 ft	1 - 1 ft	5 - 5 ft	-	-	-	15 - 15 ft	-	-	5 - 5 ft	19 - 19 ft	5 - 5 ft	21 - 21 ft	19 - 19 ft	7 - 7 ft	19 - 19 ft	11 - 11 ft	21.5 - 21.5 ft
BTEX					•	•						ı		•								•			•	
Benzene	mg/kg		-		-	-	-				-				-						-	-				-
Toluene	mg/kg	-								-	-				-											
Ethylbenzene Total Xvlenes	mg/kg mg/kg														-											
Conventionals	ilig/kg																									
Total Organic Carbon	mg/kg							1			-								I							
Other SVOCs		•	•		•	*	•	•	•				•	•	•				•		•	•	•		•	•
Hexachlorobutadiene	mg/kg	-					-				-															
PAHs					•	•						ı		•								•			•	
Naphthalene	mg/kg																	-			L					
TPHs Gasoline-Range Organics	mg/kg				T	I	T						I	I	T T						T		I	T	I	
Diesel-Range Organics	mg/kg																									
Motor Oil-Range Organics	mg/kg				-		-			-	-															
Total Petroleum Hydrocarbons by 418.1	mg/kg																									
VOCs					•	•	•							•							•	•			•	
1,1,1,2-Tetrachloroethane	mg/kg	-	-		-	-	-	-		-	-		-		-	-		-				-		-		-
1,1,1-Trichloroethane	mg/kg																					-				
1,1,2,2-Tetrachloroethane 1.1.2-Trichloroethane	mg/kg																									-
1,1,2-1 richloroethane 1,1-Dichloroethane	mg/kg mg/kg					-																				
1,1-Dichloroethane	mg/kg		<del>-</del>			-		_							-									-	-	
1,1-Dichloropropene	mg/kg		-								-				-							-				
1,2,3-Trichlorobenzene	mg/kg	-	-							-	-							-								
1,2,3-Trichloropropane	mg/kg	-	-		-		-	-		-	-				-			-			-	-				-
1,2,4-Trichlorobenzene	mg/kg	-					-				-													-		
1,2,4-Trimethylbenzene	mg/kg	-													0.02			2	0.12	2	0.02	0.02	0.02	0.02	51 J	0.02
1,2-Dibromo-3-chloropropane	mg/kg		-		-	-	-	-	-	-	-		-		-							-		-		
1,2-Dibromoethane (EDB) 1,2-Dichlorobenzene	mg/kg mg/kg																									
1,2-Dichloroethane (EDC)	mg/kg				-								-									-		-	-	
1,2-Dichloropropane	mg/kg									_	-					-										
1,3,5-Trimethylbenzene	mg/kg														0.02			2	0.12	2	0.02	0.02	0.02	0.02	16 J	0.02
1,3-Dichlorobenzene	mg/kg																									
1,3-Dichloropropane	mg/kg	-	-		-	-	-	-	-	-	-		-		-					-		-		-	-	
1,4-Dichlorobenzene	mg/kg						-				-											-				
2,2-Dichloropropane	mg/kg										-															
2-Chlorotoluene 4-Chlorotoluene	mg/kg mg/kg				-			-																		
Acetone	mg/kg	< 0.0314 U		< 0.175 U	< 0.0293 U	0.119	< 0.0272 U	< 1.66 U	< 0.0301 U	1.55	< 0.032 U	0.05	0.05	0.05	0.05	0.05	0.05	5	0.3	5	0.05	0.05	0.05	0.05	10 J	0.06
Bromobenzene	mg/kg																									
Bromochloromethane	mg/kg				-	-	-	_	-	_	-		-		-							-		_		-
Bromodichloromethane	mg/kg	< 0.00523 U	J < 0.00507 U	< 0.175 U	< 0.00488 U	< 0.00462 U	< 0.00453 U	< 0.0039 U	< 0.00502 U	< 0.00436 U	< 0.00533 U											-				
Bromoform	mg/kg																									
Bromomethane	mg/kg	-			-		-			-	-		-													
Carbon Disulfide	mg/kg	-	-	-		-		-		-	-			-	0.005			0.5	0.03	0.5	0.005	0.005	0.005	0.005	1 J	0.008
Carbon Tetrachloride Chlorobenzene	mg/kg mg/kg				-		-																			
Chloroethane	mg/kg	-	-					-			_				-							-				
Chloroform	mg/kg	< 0.00262 U	J < 0.00253 U	< 0.175 U	< 0.00244 U	< 0.00231 U	< 0.00227 U	< 0.00195 U	< 0.00251 U	< 0.00218 U	< 0.00266 U															
Chloromethane	mg/kg	< 0.0105 U		< 0.877 U	< 0.00975 U	< 0.00923 U	< 0.00906 U	< 0.00779 U	< 0.010 U	< 0.00871 U	< 0.0107 U				-	-		-			-	-	-	-		
cis-1,2-Dichloroethene (DCE)	mg/kg	< 0.00314 U	J < 0.00304 U	< 0.175 U	< 0.00293 U	< 0.00277 U	< 0.00272 U	< 0.00234 U	< 0.00301 U	< 0.00261 U	< 0.0032 U				0.005	-		0.5	0.03	26	0.005	0.005	0.005	0.005	1 J	0.005
cis-1,3-Dichloropropene	mg/kg		-				-								-							-				
Dibromochloromethane	mg/kg														-											-
Dibromomethane  Dichlorodifluoromethane	mg/kg mg/kg														-										-	
Isopropylbenzene	mg/kg				-	-	-						-		_						-	-		-		
m,p-Xylenes	mg/kg	-	-		_		-	-		-	-				-	-		-			-	-		-	-	
Methyl tert-butyl ether (MTBE)	mg/kg	-	-		-		-	-	-	-	-				-			-			-	-		-		
Methylene Chloride	mg/kg		-		-			-														-				
n-Butylbenzene	mg/kg														0.02			2	0.12	2	0.02	0.02	0.02	0.02	8 J	0.02
n-Propylbenzene	mg/kg														0.02			2	0.12	2	0.02	0.02	0.02	0.02	10 J	0.02
o-Xylene p-Isopropyltoluene	mg/kg mg/kg														0.02			2	0.12	2	0.02	0.02	0.02	0.02	9 J	0.02
sec-Butylbenzene	mg/kg		<del>-</del>			-	-	_							0.02		-	2	0.12	2	0.02	0.02	0.02	0.02	7 J	0.02
Styrene Styrene	mg/kg		-								-															
tert-Butylbenzene	mg/kg	-					-								0.02			2	0.12	2	0.02	0.02	0.02	0.02	7 J	0.02
Tetrachloroethene (PCE)	mg/kg	< 0.00209 U	J < 0.00203 U	< 0.175 U	< 0.00195 U	0.00417	< 0.00181 U	< 0.00156 U	< 0.00201 U	< 0.00175 U	< 0.00213 U	0.023	0.005	5	0.085	27	0.049	7.5	0.44	0.5	0.009	0.15	0.19	0.15	1 J	0.98
trans-1,2-Dichloroethene	mg/kg	-	-		-		-	-		-	-		-		-			-				-		-		-
trans-1,3-Dichloropropene	mg/kg																									
Trichloroethene (TCE)	mg/kg		J < 0.00253 U	< 0.175 U		< 0.00231 U	< 0.00227 U	< 0.00195 U		< 0.00218 U	< 0.00266 U				0.005			0.5	0.03	0.5	0.005	0.005	0.005	0.005	1 J	0.1
Trichlorofluoromethane	mg/kg	 0.00363.11	 I < 0.00253.II	 < 0.175 II	 < 0.0024411	 < 0.0023111	 < 0.0022711	 < 0.00195 U	 < 0.00251 II	 < 0.00218.11	 < 0.00266 U				-	-						-			-	_
Vinyl Chloride	mg/kg						u.uuzzi U	- U.UU 13U U	- U.UUZJI U	- U.UUZ 10 U	- 0.00200 U							-								1

Notes
Bold - Analyte Detected

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ft = feet, mg/kg = milligrams per kilogram TPH = total petroleum hydrocarbon

X - Chromatographic pattern does not match fuel standard used for quantitat PAH = polycyclic aromatic hydrocarbons VOC = volatile organic compound SVOC = semivolatile organic compound

	Location Date	GP-06 03/12/1997	GP-06 03/12/1997	GP-07 03/12/1997	GP-07 03/12/1997	GP-08 03/11/1997	GP-08 03/11/1997	GP-08 03/11/1997	GP-09 03/11/1997	GP-09 03/11/1997	GP-10 03/12/1997	GP-10 03/12/1997	I-03 03/10/1997	I-04 03/10/1997	I-06 03/12/1997	IB-01 05/23/2007	IB-01 05/24/2007	IB-02 05/23/2007	IB-02 05/24/2007	IB-03 05/23/2007	IB-03 05/24/2007	IB-04 05/23/2007	IB-04 05/24/2007	IB-05 05/23/2007	IB-05 05/24/2007
	Sample Depth	GP-6-11-15 15 - 15 ft	GP-6-21.5 21.5 - 21.5 ft	GP-7-15 15 - 15 ft	GP-7-21.5 21.5 - 21.5 ft	GP-8-1 1 - 1 ft	GP-8-15 15 - 15 ft	GP-8-21 21 - 21 ft	GP-9-12 12 - 12 ft	GP-9-23 23 - 23 ft	GP-10-17 17 - 17 ft	GP-10-21 21 - 21 ft	SS-I3	SS-I4	SS-I6	IB15 0.5 - 0.5 ft	IB1-1 1 - 1 ft	IB25 0.5 - 0.5 ft	IB2-2.2 2.2 - 2.2 ft	IB35 0.5 - 0.5 ft	IB3-2 2 - 2 ft	IB45 0.5 - 0.5 ft	IB4-2 2 - 2 ft	IB55 0.5 - 0.5 ft	IB5-2.2 2.2 - 2.2 ft
Analyte	Unit	15 - 15 11	21.5 - 21.5 10	15-1511	21.5 - 21.5 10	1-111	15 - 15 11	21-2111	12 - 12 11	23 - 23 11	17 - 17 11	21-2111	-	-	-	0.5 - 0.5 11	1-111	0.5 - 0.5 11	2.2 - 2.2 11	0.5 - 0.5 11	2-211	0.5 - 0.5 11	2-211	0.5 - 0.5 11	2.2 - 2.2 11
BTEX																									
Benzene	mg/kg	-	-		-		-	-		-	-										-	-			-
Toluene Ethylbenzene	mg/kg mg/kg																								
Total Xylenes	mg/kg	-																							
Conventionals														1	ı		,				•		_	ı	
Total Organic Carbon Other SVOCs	mg/kg																				-				
Hexachlorobutadiene	mg/kg	-	T	I	T	I				I	I	T	I I			I		I				I			
PAHs			1			l						l	l .	l.	l.		L				l.			l	
Naphthalene	mg/kg	-						-													-	-			
TPHs Gasoline-Range Organics	mg/kg		T		I						T	T	I I			I		T				T			
Diesel-Range Organics	mg/kg	-		-					-						-				-		-	-		-	
Motor Oil-Range Organics	mg/kg	-						-							-				-		-	-		-	
Total Petroleum Hydrocarbons by 418.1	mg/kg																								
VOCs 1,1,1,2-Tetrachloroethane	mg/kg												I												
1,1,1-Trichloroethane	mg/kg	-																			-				
1,1,2,2-Tetrachloroethane	mg/kg	-	-	-	-		-				-				-	-	-		_		-	-	-	-	
1,1,2-Trichloroethane 1,1-Dichloroethane	mg/kg																		-						
1,1-Dichloroethane 1,1-Dichloroethene	mg/kg mg/kg	-	-		-						-	-			-				-						-
1,1-Dichloropropene	mg/kg	-																			-				
1,2,3-Trichlorobenzene	mg/kg				-						-								-					-	
1,2,3-Trichloropropane 1,2,4-Trichlorobenzene	mg/kg				-						-														
1,2,4-1 richlorobenzene 1,2,4-Trimethylbenzene	mg/kg mg/kg	2 J	0.14	0.12	0.14	0.02	0.02	0.02	0.02	0.02	0.02	0.02										-			
1,2-Dibromo-3-chloropropane	mg/kg																		-		-	-			
1,2-Dibromoethane (EDB)	mg/kg	-		-															-		-	-			
1,2-Dichlorobenzene	mg/kg	-		-											-				-		-	-			
1,2-Dichloroethane (EDC) 1,2-Dichloropropane	mg/kg mg/kg	-																							
1,3,5-Trimethylbenzene	mg/kg	2 J	0.14	0.12	0.14	0.02	0.02	0.02	0.02	0.02	0.02	0.02			-			-	-		-	_			_
1,3-Dichlorobenzene	mg/kg	-						-							-				-		-	-		-	
1,3-Dichloropropane	mg/kg	-																			-	-			
1,4-Dichlorobenzene 2,2-Dichloropropane	mg/kg mg/kg																								
2-Chlorotoluene	mg/kg	-				-																_			
4-Chlorotoluene	mg/kg	-																	-		-				
Acetone	mg/kg	5 J	0.35	0.3	0.35	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.057	0.069 J	0.05	0.033	< 0.0247 U	0.0378	< 0.0271 U	0.03	0.0379	< 0.0256 U	< 0.024 U	< 0.0223 U	< 0.0024 U
Bromobenzene Bromochloromethane	mg/kg mg/kg			-		-		-														-			-
Bromodichloromethane	mg/kg	-							-							< 0.00443 U	< 0.00411 U	< 0.00425 U	< 0.00451 U	< 0.00409 U		< 0.00426 U	< 0.0040 U	< 0.00372 U	< 0.040 U
Bromoform	mg/kg	-		-				-											-		-	-		-	
Bromomethane	mg/kg																				-	-			
Carbon Disulfide Carbon Tetrachloride	mg/kg mg/kg	0.5 J	0.035	0.03	0.035	0.005	0.005	0.005	0.005	0.005	0.005	0.005													
Chlorobenzene	mg/kg			-				-		-		-					-	-					-		
Chloroethane	mg/kg	-						-											-		-	-			
Chloroform	mg/kg	1		-				-	-							< 0.00222 U	< 0.00206 U	< 0.00213 U	< 0.00226 U	< 0.00204 U	< 0.00234 U	< 0.00213 U	< 0.0020 U	< 0.00186 U	< 0.0020 U
Chloromethane cis-1,2-Dichloroethene (DCE)	mg/kg mg/kg	0.5 J	0.035	0.03	0.035	0.005	0.005	0.005	0.028	0.005	0.005	0.005				< 0.00887 U < 0.00266 U	< 0.00823 U < 0.00247 U	< 0.0085 U < 0.00255 U	< 0.00903 U	< 0.00817 U < 0.00245 U	< 0.00937 U	< 0.00853 U < 0.00256 U	< 0.00801 U < 0.0024 U	< 0.00744 U < 0.00223 U	< 0.00799 U < 0.0024 U
cis-1,3-Dichloropropene	mg/kg																						- 0.0024 0		
Dibromochloromethane	mg/kg	-	-	-	-		-				-				-				-		-	-		-	-
Dibromomethane	mg/kg	-																	-		-	-			
Dichlorodifluoromethane Isopropylbenzene	mg/kg mg/kg				-														-			-			-
m,p-Xylenes	mg/kg																		-						
Methyl tert-butyl ether (MTBE)	mg/kg	-	-	-	-						-								-			-		-	
Methylene Chloride	mg/kg	-													-				-		-	-			-
n-Butylbenzene n-Propylbenzene	mg/kg mg/kg	2 J 2 J	0.14 0.14	0.12 0.12	0.14 0.14	0.02 0.02	0.02 0.02	0.02 0.02	0.02 0.02	0.02 0.02	0.02 0.02	0.02 0.02													
o-Xylene	mg/kg																		-						
p-Isopropyltoluene	mg/kg	2 J	0.14	0.12	0.14	0.02	0.02	0.02	0.02	0.02	0.02	0.02		-	-		-	-	-		-	-	-	-	
sec-Butylbenzene	mg/kg	2 J	0.14	0.12	0.14	0.02	0.02	0.02	0.02	0.02	0.02	0.02			-				-		-	-	-		-
Styrene tert-Butylbenzene	mg/kg mg/kg	 2 J	0.14	0.12	0.14	0.02	0.02	0.02	0.02	0.02	0.02	0.02													
Tetrachloroethene (PCE)	mg/kg mg/kg	0.6 J	6.5	0.12	0.14	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.005	0.005 J	0.005	0.005	0.00931	0.044	0.0545	0.00569	0.017	0.0202	0.00715	0.00423	< 0.0016 U
trans-1,2-Dichloroethene	mg/kg																								
trans-1,3-Dichloropropene	mg/kg	-			-									-					-			-		-	
Trichloroethene (TCE)	mg/kg	0.6 J	0.21	0.03	0.035	0.005	0.005	0.12	0.005	0.023	0.027	0.026				< 0.00222 U	< 0.00206 U	< 0.00213 U		< 0.00204 U	< 0.00234 U	< 0.00213 U	< 0.0020 U	< 0.00186 U	< 0.0020 U
Trichlorofluoromethane Vinyl Chloride	mg/kg mg/kg			-	-											< 0.00222 U	< 0.00206 U	 < 0.00213 U	 < 0.00226 U	< 0.00204 U	< 0.00234 U	 < 0.00213 U	< 0.0020 U	 < 0.00186 U	< 0.0020 U
y. z.noneo		Notes	1	1	1	1	1	1	1	1	1	1			1		0.002000	. 0.002100	0.002200	0.00204 0	. 0.002070	. 0.002100	. 0.0020 0	0.001000	0.00200

Notes
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J - Result value estimated ft = feet, mg/kg = milligrams per kilogram TPH = total petroleum hydrocarbon X - Chromatographic pattern does not match fuel standard used for quantitation. PAH = polycyclic aromatic hydrocarbons VOC = volatile organic compound

SVOC = semivolatile organic compound

	Location	IW-02	IW-02	IW-02C	IW-02C	IW-04	IW-04	IW-04C	IW-04C	IW-10	IW-10C	MW-01	MW-01	MW-01	MW-02	MW-02	MW-03	MW-03	MW-04	MW-04	MW-06I	MW-06I	MW-08D	MW-08D	MW-08D
	Date	02/18/2014	02/18/2014	12/15/2014	12/15/2014	02/13/2014	02/13/2014	12/16/2014	12/16/2014	02/13/2014	12/15/2014	05/01/1997		05/01/1997		04/30/1997		04/30/1997	04/30/1997	04/30/1997	10/25/2010	10/25/2010	05/16/2007	05/16/2007	05/16/2007
	Sample Depth	IW-2-10-11	IW-2-15-16 15 - 16 ft	IW-2C-10-11 10 - 11 ft	IW-2C-15-16 15 - 16 ft	IW-4-15-16 15 - 16 ft	IW-4-18-19 18 - 19 ft	IW-4C-15-16 15 - 16 ft	IW-4C-18-19 18 - 19 ft	10 - 11 ft	IW-10C-10-11 10 - 11 ft	MW-1-7 7 - 7 ft	MW-1-17.5 17.5 - 17.5 ft	MW-1-27 27 - 27 ft	MW-2-12.5 12.5 - 12.5 ft	MW-2-27 t 27 - 27 ft	MW-3-9	MW-3-27 27 - 27 ft	MW-4-17.5 17.5 - 17.5 ft	MW-4-29 29 - 29 ft	MW-6I-15 15 - 15 ft	MW-6I-24.5 24.5 - 24.5 ft	MW8D-15 15 - 15 ft	MW8D-17.5 17.5 - 17.5 ft	MW8D-20.5 20.5 - 20.5 ft
Analyte	Unit	10 - 11 ft	15 - 16 π	10 - 11 π	15-16π	15 - 16 π	16 - 19 π	15 - 16 π	10 - 19 π	10 - 11 π	10 - 11 π	7-7π	17.5 - 17.5 IL	21 - 21 π	12.5 - 12.5 11	21 - 21 11	9 - 9 ft	21 - 21 π	17.5 - 17.5 π	29 - 29 π	15 - 15 11	24.5 - 24.5 II	15 - 15 11	17.5 - 17.5 π	20.5 - 20.5 π
BTEX		<u> </u>	<u>'</u>	•	•					•					•				<u>'</u>						
Benzene	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U										< 0.0012 U	< 0.0011 U			
Toluene	mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U	< 0.0017 U	< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U		-								< 0.0024 U	< 0.0021 U		-	
Ethylbenzene	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U		-		-						< 0.0012 U	< 0.0011 U		-	
Total Xylenes Conventionals	mg/kg				-		-		-								-								
Total Organic Carbon	mg/kg	560	480	630	1100	860	1200	< 330 U	1300	1000	480														
Other SVOCs												•	-												
Hexachlorobutadiene	mg/kg	< 0.0014 U	< 0.0015 U	< 0.0020 U	< 0.0021 U	< 0.00086 U	< 0.0011 U	< 0.0025 U	< 0.0025 U	< 0.0011 U	< 0.0021 U							-			< 0.0012 U	< 0.0011 U			
PAHs Naphthalene	mg/kg	< 0.0068 U	< 0.007611	< 0.0049 U	< 0.0053.11	< 0.0043 U	< 0.0055 U	< 0.0063 U	< 0.0063.11	< 0.0053 U	< 0.0053 U	1	T T			1			T I		< 0.0061 U	< 0.0053 U		I	
TPHs	Hig/kg	< 0.0000 0	< 0.0070 0	< 0.0049 0	< 0.0033 0	< 0.0043 0	< 0.0055 0	< 0.0003 0	< 0.0003 0	< 0.0055 0	< 0.0055 0										< 0.0001 0	V 0.0055 0			
Gasoline-Range Organics	mg/kg										**														
Diesel-Range Organics	mg/kg								-																
Motor Oil-Range Organics	mg/kg			-					-				-		-										
Total Petroleum Hydrocarbons by 418.1 VOCs	mg/kg								-				1												
1,1,1,2-Tetrachloroethane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U	I	Г Г		Τ		I		T T		< 0.0012 U	< 0.0011 U			
1,1,1-Trichloroethane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U		-	-	-		-	-		-	< 0.0012 U	< 0.0011 U	-	-	
1,1,2,2-Tetrachloroethane	mg/kg	< 0.0027 UJ	< 0.0030 UJ	< 0.0020 U	< 0.0021 U	< 0.0017 UJ	< 0.0022 UJ	< 0.0025 U	0.0025 J	< 0.0021 UJ	0.0021 J		-								< 0.0024 U	< 0.0021 U		-	
1,1,2-Trichloroethane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.0020 U	< 0.0021 U	< 0.00086 U	< 0.0011 U	< 0.0025 U	0.0025 J	< 0.0011 U	0.0021 J		-		-						< 0.0012 U	< 0.0011 U		-	
1,1-Dichloroethane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U < 0.0053 U	< 0.00086 U < 0.0043 U	< 0.0011 U	< 0.0013 U < 0.0063 U	< 0.0013 U	< 0.0011 U	< 0.0011 U		-		-		-				< 0.0012 U	< 0.0011 U			
1,1-Dichloroethene 1,1-Dichloropropene	mg/kg mg/kg	< 0.0068 U < 0.0014 U	< 0.0076 U < 0.0015 U	< 0.0049 U < 0.00098 U	< 0.0053 U < 0.0011 U	< 0.0043 U	< 0.0055 U < 0.0011 U	< 0.0063 U < 0.0013 U	< 0.0063 U < 0.0013 U	< 0.0053 U < 0.0011 U	< 0.0053 U < 0.0011 U		-		-		-				< 0.0061 U < 0.0012 U	< 0.0053 U < 0.0011 U			
1,2,3-Trichlorobenzene	mg/kg	< 0.0017 U	< 0.0013 U	< 0.0020 U	< 0.0021 U	< 0.0017 U	< 0.0011 U	< 0.0015 U	< 0.0015 U	< 0.0011 U	< 0.0011 U		-		_		-	-		-	< 0.0012 U	< 0.0011 U	-		
1,2,3-Trichloropropane	mg/kg	< 0.0013 U	< 0.0014 U	< 0.00098 U	< 0.0011 U	< 0.00086 UJ	< 0.0011 UJ	< 0.0013 U	0.0013 J	< 0.0011 UJ	0.0011 J		-		-		-	-			< 0.0012 U	< 0.0011 U		-	
1,2,4-Trichlorobenzene	mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U	< 0.0017 U	< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U			-	-		-	-		-	< 0.0024 U	< 0.0021 U		-	
1,2,4-Trimethylbenzene	mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U	< 0.0017 U	< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	< 0.0024 U	< 0.0021 U		-	
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB)	mg/kg ma/ka	< 0.0027 U < 0.0014 U	< 0.0030 U < 0.0015 U	< 0.0020 U < 0.00098 U	< 0.0021 U < 0.0011 U	< 0.0017 U < 0.00086 U	< 0.0022 U < 0.0011 U	< 0.0025 U < 0.0013 U	< 0.0025 U < 0.0013 U	< 0.0021 U < 0.0011 U	< 0.0021 U < 0.0011 U						-				< 0.0024 U < 0.0012 U	< 0.0021 U < 0.0011 U			
1.2-Dichlorobenzene	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00030 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0015 U	< 0.0015 U	< 0.0011 U	< 0.0011 U		-		-	-					< 0.0012 U	< 0.0011 U			
1,2-Dichloroethane (EDC)	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U				-						< 0.0012 U	< 0.0011 U			
1,2-Dichloropropane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U		-		-			-			< 0.0012 U	< 0.0011 U			
1,3,5-Trimethylbenzene	mg/kg	< 0.0068 U	< 0.0076 U	< 0.0049 U	< 0.0053 U	< 0.0043 U	< 0.0055 U	< 0.0063 U	< 0.0063 U	< 0.0053 U	< 0.0053 U	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	< 0.0061 U	< 0.0053 U		-	
1,3-Dichlorobenzene 1,3-Dichloropropane	mg/kg mg/kg	< 0.0014 U < 0.0014 U	< 0.0015 U < 0.0015 U	< 0.0020 U < 0.0020 U	< 0.0021 U < 0.0021 U	< 0.00086 U < 0.00086 U	< 0.0011 U < 0.0011 U	< 0.0025 U < 0.0025 U	< 0.0025 U < 0.0025 U	< 0.0011 U < 0.0011 U	< 0.0021 U < 0.0021 U										< 0.0012 U < 0.0012 U	< 0.0011 U < 0.0011 U		-	
1,4-Dichlorobenzene	mg/kg	< 0.0014 U	< 0.0015 U	< 0.0020 U	< 0.0021 U	< 0.00086 U	< 0.0011 U	< 0.0023 U	< 0.0023 U	< 0.0011 U	< 0.0021 U				-		-				< 0.0012 U	< 0.0011 U			
2,2-Dichloropropane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.0049 U	< 0.0053 U	< 0.00086 U	< 0.0011 U	< 0.0063 U	< 0.0063 U	< 0.0011 U	< 0.0053 U		-								< 0.0012 U	< 0.0011 U			
2-Chlorotoluene	mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U	< 0.0017 U	< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U										< 0.0024 U	< 0.0021 U			
4-Chlorotoluene	mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U	< 0.0017 U	< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U										< 0.0024 U	< 0.0021 U			
Acetone Bromobenzene	mg/kg mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U	< 0.0017 U	< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	< 0.0024 U	< 0.0021 U	0.0286	< 0.0287 U	0.0583
Bromochloromethane	mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U	< 0.00017 U	< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U										< 0.0024 U	< 0.0021 U			
Bromodichloromethane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U			-				-			< 0.0012 U	< 0.0011 U	< 0.00472 U	< 0.00479 U	< 0.00436 U
Bromoform	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U										< 0.0012 U	< 0.0011 U			
Bromomethane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 UJ	< 0.0011 UJ	< 0.0013 U	< 0.0013 U	< 0.0011 UJ	< 0.0011 U										< 0.0012 U	< 0.0011 U			
Carbon Disulfide	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	< 0.0012 U	< 0.0011 U			
Carbon Tetrachloride Chlorobenzene	mg/kg mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U										< 0.0012 U	< 0.0011 U		-	
Chloroethane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 UJ	< 0.0011 UJ	< 0.0013 U	< 0.0013 U	< 0.0011 UJ	< 0.0011 U										< 0.0012 U	< 0.0011 U			
Chloroform	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U		-								< 0.0012 U	< 0.0011 U	< 0.00236 U	< 0.00239 U	< 0.00218 U
Chloromethane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 UJ	< 0.0011 UJ	< 0.0013 U	< 0.0013 U	< 0.0011 UJ	< 0.0011 U										< 0.0012 U	< 0.0011 U	< 0.00944 U	< 0.00957 U	< 0.00873 U
cis-1,2-Dichloroethene (DCE)	mg/kg mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	0.0016 < 0.0011 U	<b>0.015</b>	0.044	<b>0.11</b> < 0.0013 U	<b>0.33</b>	0.013	0.088 < 0.0011 II	0.005	0.005	0.005	0.005	0.005	0.009	0.005	0.005	0.005	< 0.0012 U	0.004	< 0.00283 U	< 0.00287 U	< 0.00262 U
Cis-1,3-Dichloropropene Dibromochloromethane	mg/kg mg/kg	< 0.0014 U	· 0.0013 0	< 0.00098 U < 0.0020 U	< 0.0011 U < 0.0021 U	< 0.00086 U	< 0.0011 U < 0.0011 U	< 0.0013 U < 0.0025 U	< 0.0013 U < 0.0025 U	< 0.0011 U < 0.0011 U	< 0.0011 U < 0.0021 U										< 0.0012 U < 0.0012 U	< 0.0011 U < 0.0011 U			
Dibromomethane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.0020 U	< 0.0021 U		< 0.0011 U	< 0.0023 U	0.0013 J	< 0.0011 U	0.0021 J		-		-		-		-		< 0.0012 U	< 0.0011 U	-	-	
Dichlorodifluoromethane	mg/kg	< 0.0014 U		< 0.00098 U		< 0.00086 U	< 0.0011 U	< 0.0013 U		< 0.0011 U	< 0.0011 U		-		-	-	-	-			< 0.0012 U	< 0.0011 U	-	-	
Isopropylbenzene	mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U	< 0.0017 U	< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U		-								< 0.0024 U	< 0.0021 U			
m,p-Xylenes	mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U	< 0.0017 U	< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U		-	-	-		-	-			< 0.0024 U	< 0.0021 U	-		
Methyl tert-butyl ether (MTBE) Methylene Chloride	mg/kg mg/kg	< 0.0014 U < 0.020 U	< 0.0015 U < 0.023 U	< 0.00098 U < 0.015 U	< 0.0011 U < 0.016 U		< 0.0011 U < 0.016 U	< 0.0013 U < 0.019 U	<b>0.0013 J</b> < 0.019 U	< 0.0011 U < 0.016 U	<b>0.0011 J</b> < 0.016 U		-				-				< 0.0012 U < 0.018 U	< 0.0011 U < 0.016 U			
n-Butylbenzene	mg/kg	< 0.020 U	< 0.0030 U	< 0.0020 U	< 0.0021 U	< 0.0017 U	< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	< 0.0024 U	< 0.0021 U			
n-Propylbenzene	mg/kg	< 0.0014 U	< 0.0015 U	< 0.0020 U	< 0.0021 U	< 0.00086 U	< 0.0011 U	< 0.0025 U	< 0.0025 U	< 0.0011 U	< 0.0021 U	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	< 0.0012 U	< 0.0011 U			
o-Xylene	mg/kg	< 0.0014 U	< 0.0015 U	< 0.0020 U	< 0.0021 U	< 0.00086 U	< 0.0011 U	< 0.0025 U	< 0.0025 U	< 0.0011 U	< 0.0021 U										< 0.0012 U	< 0.0011 U			
p-Isopropyltoluene	mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U		< 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	< 0.0024 U	< 0.0021 U			
sec-Butylbenzene	mg/kg	< 0.0027 U	< 0.0030 U	< 0.0020 U	< 0.0021 U < 0.0021 U	< 0.0017 U < 0.0017 U	< 0.0022 U	<b>0.0078</b> < 0.0025 U	< 0.0025 U < 0.0025 U	< 0.0021 U < 0.0021 U	< 0.0021 U	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	< 0.0024 U < 0.0024 U	< 0.0021 U < 0.0021 U			
Styrene tert-Butylbenzene	mg/kg mg/kg	< 0.0027 U < 0.0027 U	< 0.0030 U < 0.0030 U	< 0.0020 U < 0.0020 U	< 0.0021 U < 0.0021 U	< 0.0017 U < 0.0017 U	< 0.0022 U < 0.0022 U	< 0.0025 U	< 0.0025 U	< 0.0021 U	< 0.0021 U < 0.0021 U	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	< 0.0024 U	< 0.0021 U < 0.0021 U			
Tetrachloroethene (PCE)	mg/kg	0.0027 0	0.0034	0.0032	< 0.0021 U	0.011	0.012	< 0.0023 U	< 0.0023 U	0.073	0.00210	4.4	0.02	0.02	0.02	0.006	0.65	0.005	0.063	0.005	0.0015	< 0.0021 U	< 0.00189 U	< 0.00191 U	0.0048
trans-1,2-Dichloroethene	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	0.0015	< 0.0011 U	< 0.0011 U										< 0.0012 U	< 0.0011 U		-	
trans-1,3-Dichloropropene	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U		-								< 0.0012 U	< 0.0011 U			
Trichloroethene (TCE)	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	0.04	0.49	< 0.0013 U	< 0.0013 U	0.2	0.1	0.09	0.005	0.005	0.005	0.005	0.006	0.005	0.005	0.005	< 0.0012 U	0.0071	< 0.00236 U	< 0.00239 U	< 0.00218 U
Trichlorofluoromethane	mg/kg	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.0011 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U		-		-						< 0.0012 U	< 0.0011 U	 	< 0.0022011	 < 0.00218 I I
Vinyl Chloride	mg/kg	< 0.0014 U Notes	< 0.0015 U	< 0.00098 U	< U.UU11 U	< 0.00086 U	< 0.0011 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< U.UU11 U		-		-		-				< 0.0012 U	< 0.0011 U	< 0.00236 U	< 0.00239 U	< 0.00218 U
		Rold - Analyte [						L. Recult value									atralaum hydra								

Bold - Analyte Detected
U - Analyte not detected at or above Reporting Limit (RL) shown.
UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated ft = feet, mg/kg = milligrams per kilogram TPH = total petroleum hydrocarbon X - Chromatographic pattern does not match fuel standard used for quantitation. PAH = polycyclic aromatic hydrocarbons VOC = volatile organic compound

SVOC = semivolatile organic compound

	Location Date		MW-08D 05/16/2007	MW-10D 04/30/1997	MW-10I 04/30/1997	MW-15I 10/26/2010	MW-15I 10/26/2010	MW-16I 10/26/2010	MW-16I 10/26/2010	MW-17I 10/28/2010	MW-19I 10/27/2010	MW-21I/2 10/27/2010	MW-26I 01/10/2012	MW-26S 02/13/2014	MW-26S 02/13/2014	MW-26SC 12/15/2014	MW-26SC 12/15/2014	MW-27I 02/14/2014	MW-27I 02/14/2014	MW-27IC 12/15/2014	MW-27IC 12/15/2014
	Sample	MW8D-22-22	2 MW-8D-50.3	MW-10-27	MW-10-12.5	MW-15I-19	MW-15I-25	MW-16I-15	MW-16I-20	MW-17I-15	MW-19I-19	MW-21D-20	MW-26I-25-011012	MW-26S-10-11	MW-26S-19-20	MW-26SC-10-11	MW-26SC-19-20	MW-27I-20-21	MW-27I-30-31	MW-27IC-20-21	MW-27IC-30-31
Analyte	Depth Unit	22 - 22 ft	50.3 - 50.3 ft	27 - 27 ft	12.5 - 12.5 ft	19 - 19 ft	25 - 25 ft	15 - 15 ft	20 - 20 ft	15 - 15 ft	19 - 19 ft	20 - 20 ft	25 - 25 ft	10 - 11 ft	19 - 20 ft	10 - 11 ft	19 - 20 ft	20 - 21 ft	30 - 31 ft	20 - 21 ft	30 - 31 ft
BTEX																					
Benzene Toluene	mg/kg			-	-	< 0.0012 U		< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.028 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
Ethylbenzene	mg/kg mg/kg				-	< 0.0025 U < 0.0012 U	< 0.0018 U < 0.00092 U	< 0.0023 U < 0.0012 U	< 0.0016 U < 0.00081 U	< 0.0021 U < 0.0010 U	< 0.0018 U < 0.00088 U	< 0.0021 U < 0.0010 U	< 0.10 U < 0.040 U	< 0.0021 U < 0.0010 U	< 0.0023 U < 0.0012 U	< 0.0020 U < 0.0010 U	< 0.0021 U < 0.0011 U	< 0.0021 U < 0.0011 U	< 0.0025 U < 0.0013 U	< 0.0021 U < 0.0010 U	< 0.0019 U < 0.00095 U
Total Xylenes	mg/kg												< 0.080 U								
Conventionals																					
Total Organic Carbon Other SVOCs	mg/kg				-			-						840	710	< 320 U	430	590	480	720	1300
Hexachlorobutadiene PAHs	mg/kg			-		< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.10 U	< 0.0010 U	< 0.0012 U	< 0.0020 U	< 0.0021 U	< 0.0011 U	< 0.0013 U	< 0.0021 U	< 0.0019 U
Naphthalene	mg/kg		T			< 0.0061 U	< 0.0046 U	< 0.0058 U	< 0.0040 U	< 0.0051 U	< 0.0044 U	< 0.0052 U	< 0.050 U	< 0.0052 U	< 0.0058 U	< 0.0050 U	< 0.0053 U	< 0.0054 U	< 0.0063 U	< 0.0052 U	< 0.0047 U
TPHs		1	1	1		.5411		.0511			1	ı			I	I	1				
Gasoline-Range Organics Diesel-Range Organics	mg/kg mg/kg				-	< 5.4 U < 33 U	< 5.3 U < 30 U	< 6.5 U < 31 U	< 3.3 UJ < 27 U												
Motor Oil-Range Organics	mg/kg					< 67 U	< 59 U	< 63 U	< 53 U				-								
Total Petroleum Hydrocarbons by 418.1	mg/kg				-				-				-								
VOCs 1,1,1,2-Tetrachloroethane	mg/kg	T		T	1	< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.030 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
1,1,1-Trichloroethane	mg/kg					< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.030 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
1,1,2,2-Tetrachloroethane	mg/kg					< 0.0025 U	< 0.0018 U	< 0.0023 U	< 0.0016 U	< 0.0021 U	< 0.0018 U	< 0.0021 U	< 0.020 U	< 0.0021 UJ	< 0.0023 UJ	0.002 J	0.0021 J	< 0.0021 UJ	< 0.0025 U	0.0021 J	< 0.0019 U
1,1,2-Trichloroethane	mg/kg					< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.030 U	< 0.0010 U	< 0.0012 U	0.002 J	0.0021 J	< 0.0011 U	< 0.0013 U	0.0021 J	< 0.0019 U
1,1-Dichloroethane	mg/kg			-	-	< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
1,1-Dichloroethene 1,1-Dichloropropene	mg/kg mg/kg					< 0.0061 U < 0.0012 U	< 0.0046 U < 0.00092 U	< 0.0058 U < 0.0012 U	< 0.0040 U < 0.00081 U	< 0.0051 U < 0.0010 U	< 0.0044 U < 0.00088 U	< 0.0052 U < 0.0010 U	< 0.050 U < 0.020 U	< 0.0052 U < 0.0010 U	< 0.0058 U < 0.0012 U	< 0.0050 U < 0.0010 U	< 0.0053 U < 0.0011 U	< 0.0054 U < 0.0011 U	< 0.0063 U < 0.0013 U	< 0.0052 U < 0.0010 U	< 0.0047 U < 0.00095 U
1,2,3-Trichlorobenzene	mg/kg				-	< 0.0012 U	< 0.0018 U	< 0.0012 U	< 0.0016 U	< 0.0010 U	< 0.0018 U	< 0.0010 U	< 1.0 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0015 U	< 0.0010 U	< 0.0019 U
1,2,3-Trichloropropane	mg/kg			-	-	< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 UJ	< 0.0012 UJ	0.001 J	0.0011 J	< 0.0011 UJ	0.0013 J	0.001 J	< 0.00095 U
1,2,4-Trichlorobenzene	mg/kg					< 0.0025 U	< 0.0018 U	< 0.0023 U	< 0.0016 U	< 0.0021 U	< 0.0018 U	< 0.0021 U	< 0.050 U	< 0.0021 U	< 0.0023 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0025 U	< 0.0021 U	< 0.0019 U
1,2,4-Trimethylbenzene	mg/kg			0.02	0.02	< 0.0025 U	< 0.0018 U	< 0.0023 U	< 0.0016 U	< 0.0021 U < 0.0021 U	< 0.0018 U	< 0.0021 U	< 0.020 U < 0.030 U	< 0.0021 U < 0.0021 U	< 0.0023 U < 0.0023 U	< 0.0020 U < 0.0020 U	< 0.0021 U < 0.0021 U	< 0.0021 U	< 0.0025 U < 0.0025 U	< 0.0021 U < 0.0021 U	< 0.0019 U
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB)	mg/kg mg/kg					< 0.0025 U < 0.0012 U	< 0.0018 U < 0.00092 U	< 0.0023 U < 0.0012 U	< 0.0016 U < 0.00081 U	< 0.0021 U	< 0.0018 U < 0.00088 U	< 0.0021 U < 0.0010 U	< 0.030 U	< 0.0021 U	< 0.0023 U	< 0.0020 U	< 0.0021 U	< 0.0021 U < 0.0011 U	< 0.0025 U	< 0.0021 U	< 0.0019 U < 0.00095 U
1,2-Dichlorobenzene	mg/kg					< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 U	< 0.0012 U	< 0.0020 U	< 0.0021 U	< 0.0011 U	< 0.0010 U	< 0.0021 U	< 0.0019 U
1,2-Dichloroethane (EDC)	mg/kg					< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.030 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
1,2-Dichloropropane	mg/kg					< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
1,3,5-Trimethylbenzene 1,3-Dichlorobenzene	mg/kg mg/kg			0.02	0.02	< 0.0061 U < 0.0012 U	< 0.0046 U < 0.00092 U	< 0.0058 U < 0.0012 U	< 0.0040 U < 0.00081 U	< 0.0051 U < 0.0010 U	< 0.0044 U < 0.00088 U	< 0.0052 U < 0.0010 U	< 0.020 U < 0.020 U	< 0.0052 U < 0.0010 U	< 0.0058 U < 0.0012 U	< 0.0050 U < 0.0020 U	< 0.0053 U < 0.0021 U	< 0.0054 U < 0.0011 U	< 0.0063 U < 0.0013 U	< 0.0052 U < 0.0021 U	< 0.0047 U < 0.0019 U
1,3-Dichloropropane	mg/kg	<b>-</b>			-	< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.050 U	< 0.0010 U	< 0.0012 U	< 0.0020 U	< 0.0021 U	< 0.0011 U	< 0.0013 U	< 0.0021 U	< 0.0019 U
1,4-Dichlorobenzene	mg/kg				-	< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
2,2-Dichloropropane	mg/kg				-	< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.050 U	< 0.0010 U	< 0.0012 U	< 0.0050 U	< 0.0053 U	< 0.0011 U	< 0.0013 U	< 0.0052 U	< 0.0047 U
2-Chlorotoluene 4-Chlorotoluene	mg/kg mg/kg				-	< 0.0025 U < 0.0025 U	< 0.0018 U < 0.0018 U	< 0.0023 U < 0.0023 U	< 0.0016 U < 0.0016 U	< 0.0021 U < 0.0021 U	< 0.0018 U < 0.0018 U	< 0.0021 U < 0.0021 U	< 0.020 U < 0.020 U	< 0.0021 U < 0.0021 U	< 0.0023 U < 0.0023 U	< 0.0020 U < 0.0020 U	< 0.0021 U < 0.0021 U	< 0.0021 U < 0.0021 U	< 0.0025 U < 0.0025 U	< 0.0021 U < 0.0021 U	< 0.0019 U < 0.0019 U
Acetone	mg/kg	< 0.0275 U	< 0.0322 U	0.05	0.05																
Bromobenzene	mg/kg				-	< 0.0025 U	< 0.0018 U	< 0.0023 U	< 0.0016 U	< 0.0021 U	< 0.0018 U	< 0.0021 U	< 0.030 U	< 0.0021 U	< 0.0023 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0025 U	< 0.0021 U	< 0.0019 U
Bromochloromethane	mg/kg			-	-	< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	-	< 0.0010 U	< 0.0012 U	< 0.0020 U	< 0.0021 U	< 0.0011 U	< 0.0013 U	< 0.0021 U	< 0.0019 U
Bromodichloromethane Bromoform	mg/kg	< 0.00459 U	< 0.00537 U			< 0.0012 U < 0.0012 U	< 0.00092 U < 0.00092 U	< 0.0012 U < 0.0012 U	< 0.00081 U < 0.00081 U	< 0.0010 U < 0.0010 U	< 0.00088 U < 0.00088 U	< 0.0010 U < 0.0010 U	< 0.020 U < 0.020 U	< 0.0010 U < 0.0010 U	< 0.0012 U < 0.0012 U	< 0.0010 U < 0.0010 U	< 0.0011 U < 0.0011 U	< 0.0011 U < 0.0011 U	< 0.0013 U < 0.0013 U	< 0.0010 U < 0.0010 U	< 0.00095 U < 0.00095 U
Bromomethane	mg/kg mg/kg					< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 UJ	< 0.0012 UJ	< 0.0010 U	< 0.0011 U	< 0.0011 UJ	< 0.0013 U	< 0.0010 U	< 0.00095 U
Carbon Disulfide	mg/kg			0.005	0.005																
Carbon Tetrachloride	mg/kg			-	-	< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
Chlorobenzene	mg/kg					< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
Chloroethane Chloroform	mg/kg mg/kg	< 0.00229 U	< 0.00268 U			< 0.0012 U < 0.0012 U	< 0.00092 U < 0.00092 U	< 0.0012 U < 0.0012 U	< 0.00081 U < 0.00081 U	< 0.0010 U < 0.0010 U	< 0.00088 U < 0.00088 U	< 0.0010 U < 0.0010 U	< 0.060 U < 0.020 U	< 0.0010 UJ < 0.0010 U	< 0.0012 UJ < 0.0012 U	< 0.0010 U < 0.0010 U	< 0.0011 U < 0.0011 U	< 0.0011 UJ < 0.0011 U	< 0.0013 U < 0.0013 U	< 0.0010 U < 0.0010 U	< 0.00095 U < 0.00095 U
Chloromethane	mg/kg	< 0.00223 U				< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 UJ	< 0.0012 UJ	< 0.0010 U	< 0.0011 U	< 0.0011 UJ	< 0.0013 U	< 0.0010 U	< 0.00095 U
cis-1,2-Dichloroethene (DCE)	mg/kg	< 0.00275 U	_	0.005	0.005	0.0072	0.001	0.0032	0.0012	< 0.0010 U	< 0.00088 U	< 0.0010 U	0.37	0.022	0.0028	0.018	0.07	0.016	< 0.0013 U	0.028	< 0.00095 U
cis-1,3-Dichloropropene	mg/kg				-	< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
Dibromochloromethane Dibromomethane	mg/kg mg/kg					< 0.0012 U < 0.0012 U			< 0.00081 U < 0.00081 U	< 0.0010 U < 0.0010 U	< 0.00088 U < 0.00088 U	< 0.0010 U < 0.0010 U	< 0.030 U < 0.040 U	< 0.0010 U < 0.0010 U	< 0.0012 U < 0.0012 U	< 0.0020 U 0.001 J	< 0.0021 U 0.0011 J	< 0.0011 U < 0.0011 U	< 0.0013 U < 0.0013 U	< 0.0021 U 0.001 J	< 0.0019 U < 0.00095 U
Dichlorodifluoromethane	mg/kg				-	< 0.0012 U			< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.040 U	< 0.0010 U	< 0.0012 U	< 0.001 J	< 0.0011 J	< 0.0011 U	< 0.0013 U	< 0.001 J	< 0.00095 U
Isopropylbenzene	mg/kg					< 0.0025 U	< 0.0018 U	< 0.0023 U	< 0.0016 U	< 0.0021 U	< 0.0018 U	< 0.0021 U	< 0.080 U	< 0.0021 U	< 0.0023 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0025 U	< 0.0021 U	< 0.0019 U
m,p-Xylenes	mg/kg			-	-	< 0.0025 U	< 0.0018 U	< 0.0023 U	< 0.0016 U	< 0.0021 U	< 0.0018 U	< 0.0021 U	-	< 0.0021 U	< 0.0023 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0025 U	< 0.0021 U	< 0.0019 U
Methyl tert-butyl ether (MTBE)	mg/kg					< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 U	< 0.0012 U	0.001 J	0.0011 J	< 0.0011 U	< 0.0013 U	0.001 J	< 0.00095 U
Methylene Chloride n-Butylbenzene	mg/kg mg/kg			0.02	0.02	< 0.018 U < 0.0025 U	< 0.014 U < 0.0018 U	< 0.017 U < 0.0023 U	< 0.012 U < 0.0016 U	< 0.015 U < 0.0021 U	< 0.013 U < 0.0018 U	< 0.016 U < 0.0021 U	< 0.20 U < 0.020 U	< 0.016 U < 0.0021 U	< 0.017 U < 0.0023 U	< 0.015 U < 0.0020 U	< 0.016 U < 0.0021 U	< 0.016 U < 0.0021 U	< 0.019 U < 0.0025 U	< 0.016 U < 0.0021 U	< 0.014 U < 0.0019 U
n-Propylbenzene	mg/kg			0.02	0.02	< 0.0023 U	< 0.00092 U		< 0.00081 U	< 0.0021 U	< 0.00088 U	< 0.0021 U	< 0.020 U	< 0.0021 U	< 0.0023 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0019 U
o-Xylene	mg/kg					< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	1	< 0.0010 U	< 0.0012 U	< 0.0020 U	< 0.0021 U	< 0.0011 U	< 0.0013 U	< 0.0021 U	< 0.0019 U
p-Isopropyltoluene	mg/kg			0.02	0.02	< 0.0025 U	< 0.0018 U	< 0.0023 U	< 0.0016 U	< 0.0021 U	< 0.0018 U	< 0.0021 U	< 0.020 U	< 0.0021 U	< 0.0023 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0025 U	< 0.0021 U	< 0.0019 U
sec-Butylbenzene Styrene	mg/kg			0.02	0.02	< 0.0025 U < 0.0025 U	< 0.0018 U < 0.0018 U	< 0.0023 U < 0.0023 U	< 0.0016 U < 0.0016 U	< 0.0021 U < 0.0021 U	< 0.0018 U < 0.0018 U	< 0.0021 U < 0.0021 U	< 0.020 U < 0.020 U	< 0.0021 U < 0.0021 U	< 0.0023 U < 0.0023 U	< 0.0020 U < 0.0020 U	< 0.0021 U < 0.0021 U	< 0.0021 U < 0.0021 U	< 0.0025 U < 0.0025 U	< 0.0021 U < 0.0021 U	< 0.0019 U < 0.0019 U
Styrene tert-Butylbenzene	mg/kg mg/kg			0.02	0.02	< 0.0025 U	< 0.0018 U	< 0.0023 U	< 0.0016 U	< 0.0021 U	< 0.0018 U	< 0.0021 U	< 0.020 U	< 0.0021 U	< 0.0023 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0025 U	< 0.0021 U	< 0.0019 U
Tetrachloroethene (PCE)	mg/kg	< 0.00183 U			0.016	0.0068	< 0.00092 U	0.027	0.0072	< 0.0010 U	< 0.00088 U	0.0011	0.12	0.07	0.15	0.034	0.12	0.15	< 0.0013 U	0.015	< 0.00095 U
trans-1,2-Dichloroethene	mg/kg			-	-	< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.020 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
trans-1,3-Dichloropropene	mg/kg	 - 0.00000 I				< 0.0012 U	< 0.00092 U	< 0.0012 U	< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.030 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
Trichloroethene (TCE) Trichlorofluoromethane	mg/kg mg/kg	< 0.00229 U	< 0.00268 U	0.005	0.005	<b>0.0094</b> < 0.0012 U	<b>0.0042</b> < 0.00092 U	<b>0.011</b> < 0.0012 U	0.0036 < 0.00081 U	< 0.0010 U < 0.0010 U	< 0.00088 U < 0.00088 U	< 0.0010 U < 0.0010 U	<b>0.19</b> < 0.050 U	<b>0.2</b> < 0.0010 U	<b>0.08</b> < 0.0012 U	<b>0.071</b> < 0.0010 U	<b>0.058</b> < 0.0011 U	<b>0.027</b> < 0.0011 U	< 0.0013 U < 0.0013 U	0.0039 < 0.0010 U	< 0.00095 U < 0.00095 U
Vinyl Chloride	mg/kg	< 0.00229 U			-	< 0.0012 U	< 0.00092 U		< 0.00081 U	< 0.0010 U	< 0.00088 U	< 0.0010 U	< 0.030 U	< 0.0010 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0010 U	< 0.00095 U
		Notes			•								. /=								

Notes
Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

X - Chromatographic pattern does not match fuel standard used for quantitation.

ft = feet, mg/kg = milligrams per kilogram PAH = polycyclic aromatic hydrocarbons SVOC = semivolatile organic compound

	Location	MW-28I	MW-28IC	MW-31I	MW-31I	MW-31IC	MW-31IC	NTS-1	NTS-13	NTS-2	NTS-4	NTS-5	NTS-6	SB-01	SB-01	SB-01	SB-2	SB-2	SS-01	SS-02	SS-03	SS-04	SW-A1-3	SW-A1-4
	Date Sample	02/11/2014 MW-28I-20-21	12/15/2014 MW-28-IC-20-21	02/13/2014 MW-31I-20-21	02/13/2014 MW-31I-25-26	12/16/2014 MW-31IC-20-21	12/16/2014 MW-31IC-25-26	04/10/1992 NTS-1-92	04/10/1992 NTS-13-92	04/10/1992 NTS-2-92	04/28/1992 NTS-4-92	04/28/1992 NTS-5-92	04/28/1992 NTS-6-92	05/01/1997 SB-1-12.5	05/01/1997 SB-1-27	05/02/1997 SB-1-40	05/01/1997 SB-2-9	05/01/1997 SB-2-35	03/21/2011 SS-01-3.0	03/21/2011 SS-02-3.5	03/21/2011 SS-03-4.0	03/22/2011 SS-04-5.0	03/07/2000 SW-A1-3/4-8	03/07/2000 SW-A1-4/0-4
	Depth	20 - 21 ft	20 - 21 ft	20 - 21 ft	25 - 26 ft	20 - 21 ft	25 - 26 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft	12.5 - 12.5 ft		40 - 40 ft	9 - 9 ft	35 - 35 ft	3 - 3 ft	3.5 - 3.5 ft	4 - 4 ft	5 - 5 ft	4 - 8 ft	0 - 4 ft
Analyte	Unit																							
BTEX Benzene	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.00069 U	0.146	l	< 0.028 U		T			l				< 0.001411	< 0.0011 U	< 0.001211	< 0.0011111		
Toluene	mg/kg	< 0.0022 UJ	< 0.0022 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.0014 U	< 0.10 U		0.051			-	-					< 0.0014 U	< 0.0011 U	< 0.0012 U	< 0.0011 UJ		
Ethylbenzene	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.00069 U	< 0.040 U		< 0.040 U		-		-		-			< 0.0014 U	< 0.0011 U	< 0.0012 U	< 0.0011 UJ		
Total Xylenes	mg/kg							< 0.080 U		0.116						-		-						
Conventionals Total Organic Carbon	mg/kg	2700	< 350 U	4100	2000	3600	1200	I	I	- 1				T	I			-		1		1	1	
Other SVOCs	, , ,																							
Hexachlorobutadiene	mg/kg	< 0.0011 UJ	< 0.0022 U	< 0.0013 U	< 0.0014 U	< 0.0020 U	< 0.0014 U									-			< 0.0014 U	< 0.0011 U	< 0.0012 U	< 0.0011 UJ		
PAHs Naphthalene	mg/kg	0.0064 J	< 0.0054 U	< 0.0065 U	< 0.0070 U	< 0.0051 U	< 0.0034 U	I	I	- 1				T	I				< 0.0069 U	< 0.0054 U	< 0.0058 U	< 0.0053 UJ	1	
TPHs																								
Gasoline-Range Organics Diesel-Range Organics	mg/kg mg/kg																						 11000	 < 20 U
Motor Oil-Range Organics	mg/kg													-				-					< 40 U	< 40 U
Total Petroleum Hydrocarbons by 418.1	mg/kg								< 5.0 U		1200	13	436					-						
VOCs 1,1,1,2-Tetrachloroethane	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.00069 U	1		l 1		T		T					< 0.0014.11	< 0.0011 U	< 0.0012 U	< 0.0011111		
1,1,1-Trichloroethane	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.00069 U	-				-		-		-	-	-		< 0.0011 U	< 0.0012 U			
1,1,2,2-Tetrachloroethane	mg/kg	< 0.0022 UJ	< 0.0022 U	< 0.0026 U	< 0.0028 UJ	0.002 J	< 0.0014 U					-		-				-	< 0.0027 U	< 0.0021 U	< 0.0023 U			
1,1,2-Trichloroethane 1,1-Dichloroethane	mg/kg mg/kg	< 0.0011 UJ < 0.0011 UJ	< 0.0022 U < 0.0011 U	< 0.0013 U < 0.0013 U	< 0.0014 U < 0.0014 U	<b>0.002 J</b> < 0.0010 U	< 0.0014 U < 0.00069 U												< 0.0014 U < 0.0014 U	< 0.0011 U < 0.0011 U	< 0.0012 U < 0.0012 U			
1,1-Dichloroethene	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0065 U	< 0.0070 U	< 0.0010 U	< 0.0034 U	-											< 0.0014 U	< 0.0011 U	< 0.0012 U	< 0.0011 UJ		
1,1-Dichloropropene	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.00069 U												< 0.0014 U	< 0.0011 U	< 0.0012 U			-
1,2,3-Trichlorobenzene 1,2,3-Trichloropropane	mg/kg mg/kg	< 0.0022 UJ < 0.0011 UJ	< 0.0022 U < 0.0011 U	< 0.0026 U < 0.0013 U	< 0.0028 U < 0.0014 UJ	< 0.0020 U 0.001 J	< 0.0014 U < 0.00069 U												< 0.0027 U < 0.0014 U	< 0.0021 U < 0.0011 U	< 0.0023 U < 0.0012 U			
1,2,4-Trichlorobenzene	mg/kg	< 0.0022 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 03 < 0.0028 U	< 0.001 J	< 0.0014 U							-		-	-	-	< 0.0014 U	< 0.0011 U	< 0.0012 U			
1,2,4-Trimethylbenzene	mg/kg	0.0031 J	< 0.0022 U	< 0.0026 U	< 0.0028 U	< 0.0020 U	< 0.0014 U							0.43 J	2	0.02	0.12	0.02		< 0.0021 U	< 0.0023 U			
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB)	mg/kg mg/kg	< 0.0022 UJ < 0.0011 UJ	< 0.0022 U < 0.0011 U	< 0.0026 U < 0.0013 U	< 0.0028 U < 0.0014 U	< 0.0020 U < 0.0010 U	< 0.0014 U < 0.00069 U											-	< 0.0027 U	< 0.0021 U < 0.0011 U	< 0.0023 U < 0.0012 U	< 0.0021 UJ		
1,2-Dichlorobenzene	mg/kg	< 0.0011 UJ	< 0.0022 U	< 0.0013 U	< 0.0014 U	< 0.0020 U	< 0.0014 U									-			< 0.0014 U	< 0.0011 U		< 0.0011 UJ		
1,2-Dichloroethane (EDC)	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.00069 U	< 0.030 U		< 0.030 U		-		-					< 0.0014 U	< 0.0011 U	< 0.0012 U			
1,2-Dichloropropane 1,3,5-Trimethylbenzene	mg/kg mg/kg	< 0.0011 UJ < 0.0054 UJ	< 0.0011 U < 0.0054 U	< 0.0013 U < 0.0065 U	< 0.0014 U < 0.0070 U	< 0.0010 U < 0.0051 U	< 0.00069 U < 0.0034 U							0.18 J	2	0.02	0.12	0.02	< 0.0014 U < 0.0069 U	< 0.0011 U < 0.0054 U	< 0.0012 U < 0.0058 U	< 0.0011 UJ < 0.0053 UJ		
1,3-Dichlorobenzene	mg/kg	< 0.0011 UJ	< 0.0022 U	< 0.0013 U	< 0.0014 U	< 0.0020 U	< 0.0014 U						-		-					< 0.0011 U		< 0.0011 UJ		
1,3-Dichloropropane	mg/kg	< 0.0011 UJ	< 0.0022 U	< 0.0013 U	< 0.0014 U	< 0.0020 U	< 0.0014 U					-		-							< 0.0012 U			
1,4-Dichlorobenzene 2,2-Dichloropropane	mg/kg mg/kg	< 0.0011 UJ < 0.0011 UJ	< 0.0011 U < 0.0054 U	< 0.0013 U < 0.0013 U	< 0.0014 U < 0.0014 U	< 0.0010 U < 0.0051 U	< 0.00069 U < 0.0034 U	-				-				-			< 0.0014 U < 0.0014 U	< 0.0011 U < 0.0011 U	< 0.0012 U < 0.0012 U	< 0.0011 UJ < 0.0011 UJ		
2-Chlorotoluene	mg/kg	< 0.0022 UJ	< 0.0022 U	< 0.0026 U	< 0.0028 U	< 0.0020 U	< 0.0014 U	-		-		-		-		-			< 0.0027 U	< 0.0021 U	< 0.0023 U	< 0.0021 UJ		
4-Chlorotoluene Acetone	mg/kg mg/kg	< 0.0022 UJ	< 0.0022 U	< 0.0026 U	< 0.0028 U	< 0.0020 U	< 0.0014 U	-						0.3 J	 5	0.05	0.3	0.05	< 0.0027 U	< 0.0021 U	< 0.0023 U	< 0.0021 UJ		
Bromobenzene	mg/kg	< 0.0022 UJ	< 0.0022 U	< 0.0026 U	< 0.0028 U	< 0.0020 U	< 0.0014 U									U.U5 	U.S	U.U5 	< 0.0027 U	< 0.0021 U	< 0.0023 U	< 0.0021 UJ		
Bromochloromethane	mg/kg	< 0.0011 UJ	< 0.0022 U	< 0.0013 U	< 0.0014 U	< 0.0020 U	< 0.0014 U										-	-	< 0.0014 U	< 0.0011 U	< 0.0012 U	< 0.0011 UJ		
Bromodichloromethane Bromoform	mg/kg mg/kg	< 0.0011 UJ < 0.0011 UJ	< 0.0011 U < 0.0011 U	< 0.0013 U < 0.0013 U	< 0.0014 U < 0.0014 U	< 0.0010 U < 0.0010 U	0.0013 < 0.00069 U					-							< 0.0014 U < 0.0014 U	< 0.0011 U < 0.0011 U	< 0.0012 U < 0.0012 U	< 0.0011 UJ < 0.0011 UJ		
Bromomethane	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 UJ	< 0.0010 U	< 0.00069 U						-	-					< 0.0014 U	< 0.0011 U	< 0.0012 U	< 0.0011 UJ		
Carbon Disulfide	mg/kg													0.03 J	0.5	0.005	0.03	0.005						
Carbon Tetrachloride Chlorobenzene	mg/kg mg/kg	< 0.0011 UJ < 0.0011 UJ	< 0.0011 U < 0.0011 U	< 0.0013 U < 0.0013 U	< 0.0014 U < 0.0014 U	< 0.0010 U < 0.0010 U	< 0.00069 U < 0.00069 U					-							< 0.0014 U < 0.0014 U	< 0.0011 U < 0.0011 U	< 0.0012 U < 0.0012 U			
Chloroethane	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 UJ	< 0.0010 U	< 0.00069 U							-				-	< 0.0014 U	< 0.0011 U	< 0.0012 U			
Chloroform	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.00069 U												< 0.0014 U	< 0.0011 U	< 0.0012 U	< 0.0011 UJ		
Chloromethane cis-1,2-Dichloroethene (DCE)	mg/kg mg/kg	< 0.0011 UJ 0.0079 J	< 0.0011 U 0.0082	< 0.0013 U 0.038	< 0.0014 UJ 0.0048	< 0.0010 U 0.3	< 0.00069 U 0.12	0.707		0.437				0.56 J	0.5	0.005	0.03	0.005	< 0.0014 U	< 0.0011 U < 0.0011 U	< 0.0012 U	< 0.0011 UJ < 0.0011 UJ		
cis-1,3-Dichloropropene	mg/kg	< 0.0011 UJ	< 0.0032	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.00069 U													< 0.0011 U				
Dibromochloromethane	mg/kg	< 0.0011 UJ	< 0.0022 U	< 0.0013 U	< 0.0014 U	< 0.0020 U	< 0.0014 U	-				-		-		-	-	-		< 0.0011 U				
Dibromomethane Dichlorodifluoromethane	mg/kg mg/kg	< 0.0011 UJ < 0.0011 UJ	< 0.0011 U < 0.0011 U	< 0.0013 U < 0.0013 U	< 0.0014 U < 0.0014 U	<b>0.001 J</b> < 0.0010 U	< 0.00069 U < 0.00069 U													< 0.0011 U < 0.0011 U				
Isopropylbenzene	mg/kg	< 0.0022 UJ	< 0.0022 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.0014 U												< 0.0027 U	< 0.0021 U	< 0.0023 U	< 0.0021 UJ		
m,p-Xylenes	mg/kg	0.003 J	< 0.0022 U	< 0.0026 U	< 0.0028 U	< 0.0020 U	< 0.0014 U					-		-		-	-	-		< 0.0021 U				-
Methyl tert-butyl ether (MTBE) Methylene Chloride	mg/kg mg/kg	< 0.0011 UJ < 0.016 UJ	< 0.0011 U < 0.016 U	< 0.0013 U < 0.019 U	< 0.0014 U < 0.021 U	<b>0.001 J</b> < 0.015 U	< 0.00069 U < 0.010 U													< 0.0011 U < 0.016 U				
n-Butylbenzene	mg/kg	< 0.0022 UJ	< 0.0022 U	< 0.0026 U	< 0.0028 U	< 0.0020 U	< 0.0014 U					_		0.15 J	2	0.02	0.12	0.02			< 0.0023 U			
n-Propylbenzene	mg/kg	< 0.0011 UJ	< 0.0022 U	< 0.0013 U	< 0.0014 U	< 0.0020 U	< 0.0014 U						-	0.12 J	2	0.02	0.12	0.02		< 0.0011 U				
o-Xylene p-Isopropyltoluene	mg/kg mg/kg	< 0.0011 UJ < 0.0022 UJ	< 0.0022 U < 0.0022 U	< 0.0013 U < 0.0026 U	< 0.0014 U < 0.0028 U	< 0.0020 U < 0.0020 U	< 0.0014 U < 0.0014 U					-		0.19 J	2	0.02	0.12	0.02	<b>0.0021</b> < 0.0027 U	< 0.0011 U < 0.0021 U	< 0.0012 U < 0.0023 U			
sec-Butylbenzene	mg/kg	< 0.0022 UJ	< 0.0022 U	< 0.0026 U	< 0.0028 U	< 0.0020 U	< 0.0014 U							0.18 J	2	0.02	0.12	0.02	< 0.0027 U	< 0.0021 U	< 0.0023 U	< 0.0021 UJ		-
Styrene	mg/kg	< 0.0022 UJ	< 0.0022 U	< 0.0026 U	< 0.0028 U	< 0.0020 U	< 0.0014 U													< 0.0021 U				
tert-Butylbenzene Tetrachloroethene (PCE)	mg/kg mg/kg	< 0.0022 UJ 0.098 J	< 0.0022 U 0.02	< 0.0026 U 0.03	< 0.0028 U 0.73	< 0.0020 U 0.13	< 0.0014 U 0.039	< 0.0050 U		0.597				0.12 J 0.03 J	2 0.5	0.02 0.005	0.12 0.03	0.02 0.005	< 0.0027 U 0.0097	< 0.0021 U 0.0015	< 0.0023 U 0.0013	< 0.0021 UJ 0.0063 J	 11.34	 < 0.050 U
trans-1,2-Dichloroethene	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 U	0.0033	0.001												< 0.0037	< 0.0011 U	< 0.0012 U	< 0.0011 UJ		
trans-1,3-Dichloropropene	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.00069 U														< 0.0012 U			
Trichloroethene (TCE) Trichlorofluoromethane	mg/kg mg/kg	<b>0.076 J</b> < 0.0011 UJ	<b>0.0017</b> < 0.0011 U	<b>5.5</b> < 0.0013 U	<b>0.085</b> < 0.0014 U	<b>3.8 J</b> < 0.0010 U	<b>0.15</b> < 0.00069 U	< 0.030 U		< 0.030 U				0.35 J	0.5	0.005	0.03	0.005		< 0.0011 U < 0.0011 U	< 0.0012 U < 0.0012 U			
Vinyl Chloride	mg/kg	< 0.0011 UJ	< 0.0011 U	< 0.0013 U	< 0.0014 U	< 0.0010 U	< 0.00069 U													< 0.0011 U				_
·		Notes																						

#### Notes Bold - Analyte Detected

SVOC = semivolatile organic compound

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

ft = feet, mg/kg = milligrams per kilogram TPH = total petroleum hydrocarbon

X - Chromatographic pattern does not match fuel standard used for quantitPAH = polycyclic aromatic hydrocarbons VOC = volatile organic compound

	Location SW-A1-5 Date 03/07/2000		SW-A2-1 03/07/2000	SW-A2-10 05/24/2000	SW-A2-26 03/06/2000	SW-A-2-30 05/24/2000	SW-A-2-31 05/24/2000	SW-A-2-32 05/25/2000	SW-A2-A 02/28/2000	SW-A2-B 02/28/2000	SW-A2-E 02/29/2000	SW-A2-F 02/29/2000	SW-A2-N 02/29/2000	SW-A3-30 05/24/2000	SW-A3-8 03/15/2000	SW-CR-10 05/25/2000	SW-CR-11 05/26/2000	SW-CR-13 05/30/2000	SW-CR-16 05/30/2000	SW-CR-18 05/31/2000	SW-CR-20 05/31/2000
	Sample SW-A1-5/4-8 Depth 4 - 8 ft	3 SW-A1-9/4-8 4 - 8 ft	SW-A2-1/0-4 0 - 4 ft	SW-A2-10/0-4 0 - 4 ft	SW-A2-26/0-4 0 - 4 ft	SW-A2-30/4-8 4 - 8 ft	SW-A2-31/4-8 4 - 8 ft	SW-A2-32/0-4 0 - 4 ft	SW-A2-A/8-10 8 - 10 ft	SW-A2-B/8-10 8 - 10 ft	SW-A2-E/4-8 4 - 8 ft	SW-A2-F/0-4 0 - 4 ft	SW-A2-N/4-8 4 - 8 ft	SW-A3-30/0-4 0 - 4 ft	SW-A3-8/4-8 4 - 8 ft	SW-CR-10/0-4 0 - 4 ft	SW-CR-11/0-4 0 - 4 ft	SW-CR-13/4-8 4 - 8 ft	SW-CR-16/0-4 0 - 4 ft	SW-CR-18/4-8 4 - 8 ft	SW-CR-20/0-4 0 - 4 ft
Analyte	Unit			,	,												,				,
BTEX Benzene	mg/kg	T		- 1				l	T	I							l	I			
Toluene	mg/kg	-			-		-								-						
Ethylbenzene	mg/kg		-	-			-		-					-	-	-	-				
Total Xylenes Conventionals	mg/kg	-				-															
Total Organic Carbon	mg/kg																				
Other SVOCs		1	1						•	1		· I	T	T		T	•	1			
Hexachlorobutadiene PAHs	mg/kg														-						
Naphthalene	mg/kg																				
TPHs		1	T	T T		- 40 11	. 40.11	. 40.11	. 40.11	. 40.11	- 40 11	. 40.11	Т	. 40.11		Т	1	T			
Gasoline-Range Organics Diesel-Range Organics	mg/kg mg/kg < 20 U		11000			< 10 U < 20 U	< 10 U < 20 U	< 10 U < 20 U	< 10 U 6200	< 10 U < 20 U	< 10 U < 20 U	< 10 U < 20 U		< 10 U < 20 U	< 20 U					-	
Motor Oil-Range Organics	mg/kg < 40 U		< 40 U			< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U		< 40 U	< 40 U						
Total Petroleum Hydrocarbons by 418.1	mg/kg																				
VOCs 1,1,1,2-Tetrachloroethane	mg/kg	T	I	I - I					I	I		I	I	I		I	I	I			
1,1,1-Trichloroethane	mg/kg					-															
1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane	mg/kg	-					-		-						-						
1,1-Dichloroethane	mg/kg mg/kg	-													-						
1,1-Dichloroethene	mg/kg	-	-			-	-				-				-					-	
1,1-Dichloropropene 1,2,3-Trichlorobenzene	mg/kg mg/ka						-		-					-	-		-				
1,2,3-Trichloropenzene	mg/kg mg/kg																				
1,2,4-Trichlorobenzene	mg/kg						-								-						
1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane	mg/kg mg/kg																				
1,2-Dibromoethane (EDB)	mg/kg						-														
1,2-Dichlorobenzene	mg/kg						-								-						
1,2-Dichloroethane (EDC) 1,2-Dichloropropane	mg/kg mg/kg						-								-						
1,3,5-Trimethylbenzene	mg/kg																				
1,3-Dichlorobenzene	mg/kg						-								-						
1,3-Dichloropropane 1,4-Dichlorobenzene	mg/kg mg/kg						-														
2,2-Dichloropropane	mg/kg						-								-						
2-Chlorotoluene	mg/kg				-		-								-						
4-Chlorotoluene Acetone	mg/kg mg/kg														-						
Bromobenzene	mg/kg						_								-					-	
Bromochloromethane	mg/kg																				
Bromodichloromethane Bromoform	mg/kg mg/kg						-								-					-	
Bromomethane	mg/kg						-								-						
Carbon Disulfide	mg/kg						-							-	-						
Carbon Tetrachloride Chlorobenzene	mg/kg mg/kg						-							-	-						
Chloroethane	mg/kg					-															
Chloroform Chloromethane	mg/kg mg/kg																				
cis-1,2-Dichloroethene (DCE)	mg/kg	-		-		-	-								-						
cis-1,3-Dichloropropene	mg/kg																				
Dibromochloromethane Dibromomethane	mg/kg mg/kg																				
Dichlorodifluoromethane	mg/kg						-				-				-					-	
Isopropylbenzene	mg/kg		-	-	-	-	-		-	-		-		-	-	-	-	-			
m,p-Xylenes Methyl tert-butyl ether (MTBE)	mg/kg mg/kg						-								-						
Methylene Chloride	mg/kg	-		-		-	-	-	-		-			-	-		-		-	-	
n-Butylbenzene	mg/kg			-			-				-			-	-					-	
n-Propylbenzene o-Xylene	mg/kg mg/kg																				
p-Isopropyltoluene	mg/kg	-		-		-	-	-	-	-	-			-	-	-	-	-		-	
sec-Butylbenzene	mg/kg	-	-	-	-	-	-				-	-		-	-				-		
Styrene tert-Butylbenzene	mg/kg mg/kg																				
Tetrachloroethene (PCE)	тg/кg mg/kg <b>0.11</b>	< 0.050 U	0.42	 < 0.050 U	0.08	< 0.050 U	< 0.050 U	< 0.050 U	8.61	0.85	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	0.27	< 0.050 U					
trans-1,2-Dichloroethene	mg/kg						-								-						
trans-1,3-Dichloropropene Trichloroethene (TCE)	mg/kg	-	-	-	-	-	-				-	-		-	-				-		
Trichloroethene (TCE) Trichlorofluoromethane	mg/kg mg/kg						-								-					-	
Vinyl Chloride	mg/kg					-	-								-						
	Notes																				

Notes
Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

X - Chromatographic pattern does not match fuel standard used for quantitation.

ft = feet, mg/kg = milligrams per kilogram PAH = polycyclic aromatic hydrocarbons SVOC = semivolatile organic compound

	Location Date Sample	05/31/2000 SW-CR-20/4-8		SW-CR-22 06/01/2000 SW-CR-22/4-8		SW-CR-25 06/01/2000 SW-CR-25/4-8		SW-CR-27 06/01/2000 SW-CR-27/0-4	SW-CR-7 05/25/2000 SW-CR-7/4-8	SW-GP-4A 02/28/2000 SW-GP4-A/0-4	SW-GP-4B 02/28/2000 SW-GP4-B/4-8	SW-GP-4C 02/28/2000 SW-GP4-C/0-4	SW-GP-4D 02/28/2000 SW-GP4-D/4-8		SW-NP-1 06/01/2000 SW-NP-1/4-8	SW-NP-10 06/06/2000 SW-NP-10/4-8	SW-NP-12 06/06/2000 SW-NP-12/4-8	SW-NP-15 06/06/2000 SW-NP-15/4-8	SW-NP-16 06/06/2000 SW-NP-16/4-8	SW-NP-18 06/06/2000 SW-NP-18/4-8	SW-NP-19 06/06/2000 SW-NP-19/4-8	SW-NP-2 06/05/2000 SW-NP-2/0-4
Analyte	Depth Unit	4 - 8 ft	0 - 4 ft	4 - 8 ft	0 - 4 ft	4 - 8 ft	4 - 8 ft	0 - 4 ft	4 - 8 ft	0 - 4 ft	4 - 8 ft	0 - 4 ft	4 - 8 ft	0 - 4 ft	4 - 8 ft	4 - 8 ft	4 - 8 ft	4 - 8 ft	4 - 8 ft	4 - 8 ft	4 - 8 ft	0 - 4 ft
BTEX			•	•						•	•			•								
Benzene	mg/kg																		**			
Toluene Ethylbenzene	mg/kg mg/kg																				-	
Total Xylenes	mg/kg																				-	
Conventionals																						
Total Organic Carbon Other SVOCs	mg/kg					-				<u> </u>			-									
Hexachlorobutadiene	mg/kg		T		I	I	1		I	I			I	I	I	I	I					
PAHs	J J			•							•											
Naphthalene	mg/kg													-								
TPHs Gasoline-Range Organics	mg/kg				I					T				T								< 10 U
Diesel-Range Organics	mg/kg									< 20 U	< 20 U	< 20 U	< 20 U								-	< 20 U
Motor Oil-Range Organics	mg/kg									< 40 U	< 40 U	< 40 U	< 40 U									< 40 U
Total Petroleum Hydrocarbons by 418.1	mg/kg													-								
VOCs 1,1,1,2-Tetrachloroethane	mg/kg	-			I	_	1			I			_	I	I	_	_		-		_	
1,1,1-Trichloroethane	mg/kg		-		-					-	-			-								-
1,1,2,2-Tetrachloroethane	mg/kg					-		-											-		-	
1,1,2-Trichloroethane 1,1-Dichloroethane	mg/kg mg/kg							-						-								
1,1-Dichloroethene	mg/kg							-													-	
1,1-Dichloropropene	mg/kg					-		-					-			-					-	
1,2,3-Trichlorobenzene	mg/kg																					
1,2,3-Trichloropropane 1,2,4-Trichlorobenzene	mg/kg mg/kg							-						-					-			-
1,2,4-Trimethylbenzene	mg/kg																					
1,2-Dibromo-3-chloropropane	mg/kg																					
1,2-Dibromoethane (EDB)	mg/kg																					
1,2-Dichlorobenzene 1,2-Dichloroethane (EDC)	mg/kg mg/kg													-							-	
1,2-Dichloropropane	mg/kg																					
1,3,5-Trimethylbenzene	mg/kg		-		-	-				-			-	-							-	-
1,3-Dichlorobenzene	mg/kg mg/kg													-							-	
1,3-Dichloropropane 1,4-Dichlorobenzene	mg/kg																					
2,2-Dichloropropane	mg/kg																					
2-Chlorotoluene	mg/kg																				-	
4-Chlorotoluene Acetone	mg/kg mg/kg																				-	
Bromobenzene	mg/kg																					
Bromochloromethane	mg/kg							-						-							-	
Bromodichloromethane Bromoform	mg/kg mg/kg																				-	
Bromomethane	mg/kg																				-	
Carbon Disulfide	mg/kg																					
Carbon Tetrachloride	mg/kg							-													-	
Chlorobenzene Chloroethane	mg/kg mg/kg												-			-					-	-
Chloroform	mg/kg	-				-		-				-	-			-	-		-		-	
Chloromethane	mg/kg																					
cis-1,2-Dichloroethene (DCE)	mg/kg mg/ka																				-	
Dibromochloromethane	mg/kg	-						-				-							-		-	
Dibromomethane	mg/kg																		**			
Dichlorodifluoromethane Isopropylbenzene	mg/kg mg/kg																					
m,p-Xylenes	mg/kg	-						-						-							-	
Methyl tert-butyl ether (MTBE)	mg/kg					-		-				-	-			-	-				-	
Methylene Chloride	mg/kg																				-	
n-Butylbenzene n-Propylbenzene	mg/kg mg/kg																					
o-Xylene	mg/kg	-						-											-		-	
p-Isopropyltoluene	mg/kg																					
sec-Butylbenzene	mg/kg		-		-			-		-				-							-	-
Styrene tert-Butylbenzene	mg/kg mg/kg													-							-	-
Tetrachloroethene (PCE)	mg/kg	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	0.11	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U
trans-1,2-Dichloroethene	mg/kg		-		_	-		-		-	-	-	-	-	-	-	-		-		-	-
trans-1,3-Dichloropropene Trichloroethene (TCE)	mg/kg mg/kg							-														-
Trichlorofluoromethane	mg/kg					-							-			-	-		-		-	
Vinyl Chloride	mg/kg							-													-	
<u> </u>		Notes																				

Notes Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

X - Chromatographic pattern does not match fuel standard used for quantitation.

ft = feet, mg/kg = milligrams per kilogram PAH = polycyclic aromatic hydrocarbons SVOC = semivolatile organic compound

Margin   Data		Location Date Sample	SW-NP-3 06/05/2000 SW-NP-3/0-4	SW-NP-4 06/05/2000 SW-NP-4/0-4	SW-NP-5 06/06/2000 SW-NP-5/0-4	SW-NP-6 06/05/2000 SW-NP-6/0-4		SW-RSD-13 05/24/2000 SW-RSD-13/0-4	SW-RSD-15 05/24/2000 SW-RSD-15/0-4		SW-RSD-17 05/26/2000 SW-RSD-17/4-8	SW-RSD-7 05/24/2000 SW-RSD-7/4-8	SW-RSD-9 05/24/2000 SW-RSD-9/4-8	TP-A1-1 03/03/2000 TP-A1-1/10	TP-A4-10 03/15/2000 TP-A4-10/0-4	TP-NP-1 06/06/2000 TP-NP-1/4-8
Transfer   Section   Sec	Analyte	Depth Unit	0 - 4 ft	4 - 8 ft	0 - 4 ft	0 - 4 ft	0 - 4 ft	4 - 8 ft	4 - 8 ft	4 - 8 ft	10 - 10 ft	0 - 4 ft	4 - 8 ft			
Second   1994	BTEX															
Company   Comp	Benzene	mg/kg														
Second   S	Toluene		-			-	-	-			-		-			
Company   Comp	Ethylbenzene															
The second content of the content		mg/kg														
Section   Sect		ma/ka		I	I	I	Τ		I	I	Τ	I	Τ	I	I	
The property of the property o		Hig/kg					<del></del>									
The property of the property o		ma/ka			I										I	
The control of the co	PAHs			l.		l.			l.					l.		
Souther Registry   Souther Reg	Naphthalene	mg/kg	-			_	-	-		-	-	-	-	-		
The property of the property o	TPHs															
Control   Cont																
The Personal Pythology of the Company of the Compan																
Victor   V																
11.1   Engineering		Hig/kg						-								
11.11   Proceedings		ma/ka														
11.12 in experimentation in the property of th																
11-00-to-order   17-00-to-order   17-0	1,1,2,2-Tetrachloroethane															
11-Distropringers																
11-Districtorpopende   Princip	•															
1.5. Telespessere																
1.2 First recoverage																
12.4 Fill infolly following																
12. Filter in the state of th																
12-08-temperaper   mg/sg																
1.2 Collatorequame   1.0 Collatorequame   1.2 Col	1,2-Dibromo-3-chloropropane															
12.00closed and (EOC)	1,2-Dibromoethane (EDB)															
1.5 Circinospegane	1,2-Dichlorobenzene	mg/kg														
1.3.5 From/speciare																
1,500th/prompage																
1.5 Definespropropries																
14. Disclariosebases																
2.2 Chickotopageame																
Chlorotokene							1				1		1			<b>!</b>
## Achienote mg/kg	2-Chlorotoluene															
Strongbergree	4-Chlorotoluene		-			-		-					-	-		
Ristrochoromethane	Acetone															
Ristrodichromethane   mg/kg								-					-			
Bromofem   mg/kg																
Bromomethane																
Carbon Desulfide  mg/kg																
Carbon Fefrachloride																
Chloroberane mg/kg																
Chloroform																
Chloromethane	Chloroethane	mg/kg						-								
Color   Colo																
Class   3.0   Clickhorpropense   mg/kg																
Dibromothane	` '		-			-		-								<del></del>
Dibriormethane   mg/kg																<del></del>
Dishiption   mg/kg																
SopropyBenzene   mg/kg	Dichlorodifluoromethane															
m,p-Xylenes	Isopropylbenzene															
Methyler-butyl ether (MTBE)         mg/kg         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         - <t< td=""><td>m,p-Xylenes</td><td></td><td>-</td><td></td><td></td><td>-</td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td></t<>	m,p-Xylenes		-			-		-						-		
n-Butylbenzene mg/kg	Methyl tert-butyl ether (MTBE)	mg/kg														
n-Propylenzene	Methylene Chloride															
o-Xylene	n-Butylbenzene															
p-Isopropyltoluene mg/kg																
Second by   Seco																
Styrené mg/kg																
tert-Butylbenzene         mg/kg <td>·</td> <td></td>	·															
Tetrachloroethene (PCE)	tert-Butylbenzene															
trans-1,2-Dichloroethene mg/kg	Tetrachloroethene (PCE)															
Trichloroethene (TCE)         mg/kg                                                                                                           -	trans-1,2-Dichloroethene					-										
Trichlorofluoromethane mg/kg	trans-1,3-Dichloropropene															
Vinyl Chloride mg/kg	Trichloroethene (TCE)															
11/1/20	Viriyi Chilonae		Notes							<u> </u>	<u> </u>	<u> </u>				

U - Analyte not detected at or above Reporting Limit (RL) shown.

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

X - Chromatographic pattern does not match fuel standard used for quantitation.

ft = feet, mg/kg = milligrams per kilogram PAH = polycyclic aromatic hydrocarbons SVOC = semivolatile organic compound

#### **APPENDIX E**

**Historical Groundwater Sampling Results** 

		Location Date	3DME-1 09/18/2017	3DME-2 09/18/2017	DP-19 11/02/2009	DP-20 11/02/2009	DP-21 11/02/2009	DP-22 11/02/2009	DP-23 11/03/2009	DP-24 11/03/2009	DP-25 11/03/2009	DP-26 11/03/2009	DP-27 11/03/2009	DP-28 01/10/2012	DP-31 01/11/2012	DP-32 01/10/2012	DP-33 01/10/2012	DP-34 01/10/2012	DP-35 01/11/2012
Analyte F	raction	Sample Unit	3DME-1	3DME-2	DP-19-110209	DP-20-110209	DP-21-110209	DP-22-110209	DP-23-110309	DP-24-110309	DP-25-110309	DP-26-110309	DP-27-110309	DP-28-011012	DP-31-011112	DP-32-011012	DP-33-011012	DP-34-011012	DP-35-011112
BTEX																			
Benzene	T	ug/L			< 1.0 U														
Toluene Ethylbenzene	T	ug/L ug/L			< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U
Total Xylenes	Ť	ug/L			< 2.0 U														
Conventionals		<u> </u>		L									=10 0			= 10 0		=10.0	
Chloride	T	mg/L																	
Dissolved Organic Carbon	D T	mg/L	3000 J	6400 J															
Dissolved Organic Carbon Nitrate as Nitrogen	<u>'</u> T	mg/L mg/L																	
Nitrite as Nitrogen	Ť	mg/L																	
Silica (SiO2)	D	mg/L	1							-	-		-				-	-	-
Sulfate	T	mg/L	1							1	1		-				-	1	-
Total Organic Carbon	T	mg/L																	
Total Suspended Solids Dechlor Bacteria	<u> </u>	mg/L																	
Dehalococcoides (DHC)	T	cells/bead																	
Dissolved Gases																			
Ethane	T	mg/L																	
Ethene		mg/L																	
Methane Field Parameters	T	mg/L																	
Temperature	Т	deg C																	
Specific Conductance	Т	uS/cm	-							-	-		-				-		
Dissolved Oxygen		mg/L	-							-	-		-				-	-	-
pH	T T	pH units	-					-											
Oxidation Reduction Potential Turbidity	<u>'</u> T	mV NTU												<u>-</u>					
Metals		NIO																	_
Arsenic	T	mg/L																	
Cadmium	T	mg/L																	
Chromium Iron	T 	mg/L mg/L																	
Iron	T	mg/L																	
Manganese	D	mg/L																	
Manganese	T	mg/L																	
Selenium	T	mg/L																	
Other SVOCs Hexachlorobutadiene	Т	ug/L		I	< 5.0 U														
PAHs		ug/L			1 0.0 0	10.00	10.00	1 0.0 0	1 0.0 0	10.00	1 0.0 0	1 0.0 0	1 0.0 0	1 0.0 0	10.00	1 0.0 0	10.00	10.00	10.00
Naphthalene	T	ug/L			< 5.0 U														
PLFA	Т	0/ DL EA		I															
Anaerobic metal reducers (BrMonos)  Decreased Permeability	T T	% PLFA ratio trans/cis																	
Eukaryotes (polyenoics)	Ť	% PLFA												-					
Firmicutes (TerBrSats)	T	% PLFA									-								
Normal Saturated (Nsats)	T	% PLFA																	
Proteobacteria (Monos)	T T	% PLFA																	
Slowed Growth SRB/Actinomycetes (MidBrSats)	T	ratio cy/cis % PLFA								-				<u>-</u>					
Total Biomass	Ť	cells/bead																	
TPHs																			
Gasoline Range Organics	T	mg/L																	
VFA Acetic Acid	Т	mg/L					I I								[				
Butyric Acid	Ť	mg/L																-	
Formic Acid	T	mg/L	-														-		
Hexanoic Acid	T	mg/L	-	-														-	
Isocaproic Acid	T T	mg/L																	
Isovaleric Acid Lactic Acid	T T	mg/L mg/L																	
Pentanoic Acid	Ť	mg/L																	
Propionic Acid	T	mg/L	-														-		
Pyruvic Acid	T	mg/L																	

#### **Table E-1. Monitoring Well Completion Summary**

Project No. 090018, New City Cleaners Richland, Washington

		Location	3DME-1	3DME-2	DP-19	DP-20	DP-21	DP-22	DP-23	DP-24	DP-25	DP-26	DP-27	DP-28	DP-31	DP-32	DP-33	DP-34	DP-35
		Date	09/18/2017	09/18/2017	11/02/2009	11/02/2009	11/02/2009	11/02/2009	11/03/2009	11/03/2009	11/03/2009	11/03/2009	11/03/2009	01/10/2012	01/11/2012	01/10/2012	01/10/2012	01/10/2012	01/11/2012
Analysis	I For attack	Sample	3DME-1	3DME-2	DP-19-110209	DP-20-110209	DP-21-110209	DP-22-110209	DP-23-110309	DP-24-110309	DP-25-110309	DP-26-110309	DP-27-110309	DP-28-011012	DP-31-011112	DP-32-011012	DP-33-011012	DP-34-011012	DP-35-011112
Analyte	Fraction	Unit																	
VOCs 1,1,1,2-Tetrachloroethane	ТТ	ug/L			< 1.0 U														
1,1,1-Trichloroethane	+ +	ug/L ug/L			< 1.0 U														
1,1,2,2-Tetrachloroethane	†	ug/L			< 1.0 U														
1.1.2-Trichloroethane	Ť	ug/L			< 1.0 U														
1,1-Dichloroethane	Ť	ug/L			< 1.0 U														
1,1-Dichloroethene	Т	ug/L			< 2.0 U														
1,1-Dichloropropene	Т	ug/L			< 1.0 U														
1,2,3-Trichlorobenzene	T	ug/L			< 5.0 U														
1,2,3-Trichloropropane	Т	ug/L			< 1.0 U														
1,2,4-Trichlorobenzene	T	ug/L			< 2.0 U														
1,2,4-Trimethylbenzene	T	ug/L			< 1.0 U														
1,2-Dibromo-3-chloropropane	T	ug/L			< 1.0 U < 0.010 U														
1,2-Dibromoethane (EDB) 1,2-Dichlorobenzene	<u> </u>	ug/L ug/L			< 1.0 U														
1,2-Dichloroethane (EDC)	+ +	ug/L ug/L			< 1.0 U														
1,2-Dichloropropane	Ť	ug/L			< 1.0 U														
1,3,5-Trimethylbenzene	Ť	ug/L			< 1.0 U														
1,3-Dichlorobenzene	Т	ug/L			< 1.0 U														
1,3-Dichloropropane	Т	ug/L			< 1.0 U														
1,4-Dichlorobenzene	Т	ug/L			< 1.0 U														
2,2-Dichloropropane	T	ug/L			< 2.0 U														
2-Butanone	Т	ug/L		-										-		-			
2-Chlorotoluene	T	ug/L			< 1.0 U														
4-Chlorotoluene	T	ug/L			< 1.0 U														
Acetone	 	ug/L																	
Bromobenzene Bromochloromethane	+ +	ug/L ug/L			< 1.0 U														
Bromodichloromethane	<u>'</u>	ug/L ug/L			< 1.0 U														
Bromoform	†	ug/L	<u>-</u>		< 1.0 U														
Bromomethane	Ť	ug/L			< 2.0 U														
Carbon Disulfide	Т	ug/L														-			
Carbon Tetrachloride	Т	ug/L			< 1.0 U														
Chlorobenzene	T	ug/L			< 1.0 U														
Chloroethane	Т	ug/L		-	< 2.0 U														
Chloroform	T	ug/L			< 1.0 U	2.6	< 1.0 U	< 1.0 U	4.8	7.8	< 1.0 U								
Chloromethane	T	ug/L		-	< 2.0 U														
cis-1,2-Dichloroethene (DCE)	 	ug/L			< 1.0 U	27.8 < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	<b>1.1</b> < 1.0 U	< 1.0 U	< 1.0 U < 1.0 U	4.8 < 1.0 U	<b>5.9</b> < 1.0 U
cis-1,3-Dichloropropene Dibromochloromethane	 	ug/L ug/L			< 1.0 U														
Dibromomethane	+ +	ug/L ug/L			< 1.0 U														
Dichlorodifluoromethane	Ť	ug/L			< 2.0 U														
Isopropylbenzene	Ť	ug/L			< 4.0 U														
m,p-Xylenes	Т	ug/L												-					
Methyl tert-butyl ether (MTBE)	Т	ug/L			< 5.0 U														
Methylene Chloride	T	ug/L			< 4.0 U														
n-Butylbenzene	T	ug/L			< 1.0 U														
n-Propylbenzene	T	ug/L			< 1.0 U														
o-Xylene	T	ug/L																	
p-Isopropyltoluene	T	ug/L			< 1.0 U														
sec-Butylbenzene	T	ug/L			< 1.0 U	< 1.0 U < 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U < 1.0 U	< 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U	< 1.0 U < 1.0 U
Styrene tert-Butylbenzene	† †	ug/L ug/L			< 1.0 U	< 1.0 U	< 1.0 U < 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U < 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U < 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene (PCE)	+ +	ug/L ug/L			< 1.0 U	11.7	< 1.0 U	8.7	6.3	< 1.0 U	9.9	16.3	< 1.0 U	5.9	18.7	< 1.0 U	21.8	275	43.2
trans-1,2-Dichloroethene	+ +	ug/L ug/L			< 1.0 U														
trans-1,3-Dichloropropene	<del>†</del>	ug/L			< 1.0 U														
Trichloroethene (TCE)	Ť	ug/L			< 1.0 U	41.6	< 1.0 U	< 1.0 U	2	< 1.0 U	1.9	2.9	< 1.0 U	< 1.0 U	6.3	< 1.0 U	< 1.0 U	7.2	23.3
Trichlorofluoromethane	Т	ug/L			< 2.0 U														
Vinyl Chloride	Т	ug/L			< 0.20 U														
<u> </u>		J- =					1												

#### Notes

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown
UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation

E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

 $\label{eq:continuous} $ug/L = micrograms \ per \ liter, \ mg/L = milligrams \ per \ liter, \ uS/cm = microsiemens \ per \ centimeter \\ mV = millivolts, \ NTU = nephlometric \ turbidity \ units, \ C = Celsius$ 

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids

SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

VOC = volatile organic compounds

		Location Date Sample	DP-37 01/10/2012 DP-37-011012	DP-40 01/11/2012 DP-40-011112	DP-41 01/11/2012 DP-41-011112	DP-43 01/10/2012 DP-43-011012	DP-44 01/11/2012 DP-44-011112	GP-01 03/12/1997 GPW-1-397-15	GP-02 03/12/1997 GPW-2-397-17	GP-03 03/12/1997 GPW-3-397-19	GP-04 03/12/1997 GPW-4-397-19	GP-05 03/12/1997 GPW-5-397-19	GP-06 03/12/1997 GPW-6-397-15	GP-07 03/12/1997 GPW-7-297-11	GP-08 03/11/1997 GPW-8-397-10	GP-09 03/11/1997 GPW-9-397-15	GP-10 03/12/1997 GPW-10-397-17	IW-02 03/12/2014 IW-2-031214
Analyte	Fraction		DP-37-011012	DP-40-011112	DP-41-011112	DP-43-011012	DP-44-011112	GPW-1-397-15	GPVV-2-397-17	GPVV-3-397-19	GPVV-4-397-19	GPW-5-397-19	GPVV-0-397-15	GPVV-7-297-11	GPVV-0-397-10	GPVV-9-397-15	GPW-10-397-17	144-2-03 12 14
BTEX		1			1			ı		T	T						T	
Benzene	T	ug/L	< 1.0 U	-	-						-			< 0.10 U				
Toluene Ethylbenzene	<del> </del>	ug/L ug/L	< 1.0 U < 1.0 U											< 0.10 U < 0.10 U				
Total Xylenes	Ť	ug/L	< 2.0 U															
Conventionals																		
Chloride	T	mg/L				-							-		-			
Dissolved Organic Carbon	D	mg/L				-		-					-		-	-		-
Dissolved Organic Carbon	T	mg/L													-			-
Nitrate as Nitrogen Nitrite as Nitrogen	T	mg/L mg/L																
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L													-			-
Total Organic Carbon	Т	mg/L				-							-		-	-		
Total Suspended Solids	Т	mg/L						799	176	1040	48	3740	1690	5630	677	278	276	
Dechlor Bacteria		1		ı	1		ı	1		ı	ı	1					ı	
Dehalococcoides (DHC)	Т	cells/bead							<u></u>									
Dissolved Gases Ethane	Т	mg/L																
Ethene	Ť	mg/L	-															_
Methane	T	mg/L																
Field Parameters		·																
Temperature	T	deg C													-			13.7
Specific Conductance	T	uS/cm	-			-		-	-				-	-	-	-		601.3
Dissolved Oxygen	T	mg/L pH units				<u></u>							<u></u>					3.15 7.37
Oxidation Reduction Potential	Ť	mV																107
Turbidity	T	NTU													-			< 2.0 UJ
Metals																		
Arsenic	T	mg/L				-		-					-		-	-		
Cadmium	T	mg/L													-			
Chromium Iron	T D	mg/L mg/L													-			
Iron	T	mg/L	_												_			
Manganese	D	mg/L																
Manganese	T	mg/L																
Selenium		mg/L																
Other SVOCs	Т	1 119/1	< 5.0 U	I			I						I	< 0.20 U				
Hexachlorobutadiene PAHs	<u> </u>	ug/L	₹ 5.0 0	< 5.0 0	< 5.0 0	V 5.0 U	< 5.0 0								-			< 0.20 0
Naphthalene	Т	ug/L	< 5.0 U											< 0.40 U				
PLFA		,																
Anaerobic metal reducers (BrMonos)	T	% PLFA													-			-
Decreased Permeability	T	ratio trans/cis % PLFA							<u></u>						<del>-</del>	<u></u>		<u>-</u>
Eukaryotes (polyenoics) Firmicutes (TerBrSats)	i i	% PLFA % PLFA																
Normal Saturated (Nsats)	Ť	% PLFA							-						-	-		-
Proteobacteria (Monos)	Т	% PLFA													-	-		-
Slowed Growth	T	ratio cy/cis	-			-		-	-				-	-	-	-		-
SRB/Actinomycetes (MidBrSats)	T	% PLFA													-			
Total Biomass TPHs	T	cells/bead													-			
Gasoline Range Organics	Т	mg/L																_
VFA																		
Acetic Acid	Т	mg/L													-			
Butyric Acid	T	mg/L																
Formic Acid Hexanoic Acid	T	mg/L mg/L							<u></u>						-			<del>-</del>
Isocaproic Acid	i i	mg/L				 			 									
Isovaleric Acid	Ť	mg/L													-			
Lactic Acid	Т	mg/L	-			-							-	-	-	-		
Pentanoic Acid	T	mg/L	-						-						-	-		-
Propionic Acid	T	mg/L													-			
Pyruvic Acid	T	mg/L	-	-		-		-	-	-	-		-	-	-	-		

#### **Table E-1. Monitoring Well Completion Summary**

Project No. 090018, New City Cleaners Richland, Washington

Page			Location	DP-37	DP-40	DP-41	DP-43	DP-44	GP-01	GP-02	GP-03	GP-04	GP-05	GP-06	GP-07	GP-08	GP-09	GP-10	IW-02
Margin   Process   Code   Co			Date	01/10/2012	01/11/2012	01/11/2012	01/10/2012	01/11/2012	03/12/1997	03/12/1997	03/12/1997	03/12/1997	03/12/1997	03/12/1997	03/12/1997	03/11/1997	03/11/1997	03/12/1997	03/12/2014
Victor   V	Analyta	Eraction		DP-37-011012	DP-40-011112	DP-41-011112	DP-43-011012	DP-44-011112	GPW-1-397-15	GPW-2-397-17	GPW-3-397-19	GPW-4-397-19	GPW-5-397-19	GPW-6-397-15	GPW-7-297-11	GPW-8-397-10	GPW-9-397-15	GPW-10-397-17	IW-2-031214
1.23   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25   1.25	Analyte	Fraction	UIIIL																
11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.1714.2.   11.	Tetrachloroethane	ТТТ	ua/l	< 1 0 U	<10U	< 1.0 U	< 1 0 U	< 1 0 U	I				I				T		< 0.10 U
1122-Triesthendorum		Ť	Ü						<b>†</b>								1		< 0.10 U
10.2-interpretation   T		T	_																< 0.10 U
1.00trospenses	richloroethane	Т					< 1.0 U												< 0.10 U
15 Delicopropered   T	nloroethane	Т	ug/L	< 1.0 U				-			-	-		-	< 0.10 U				
132-11-11-11-11-11-11-11-11-11-11-11-11-11	nloroethene	T	ug/L	< 2.0 U								-			< 0.10 U				
12-27-Interlogrence		T	ug/L				< 1.0 U	< 1.0 U											< 0.10 U
13.4 Testingherance		Т	_													-			< 0.40 U
12.4 Timer/special processors		T														-			< 0.20 U
13-Denomber   T		T	Ü																< 0.20 U
12-Delinometerate (CPE)		T												400				80	< 0.10 U
15Dehrenbannenee		<u> </u>															1		< 0.40 U
13-Delicopropage	\ /	+ +	0														1		< 0.10 U
13.20 Enterprepare		+ + +							-										< 0.20 U < 0.10 U
13.5 Timeshybarcane	\ /	+ +							+						1		1		< 0.10 U
13-Dehrevorement		+ +	0						†								1		< 0.10 U
13-Dishopopagene		+ +							†								1		< 0.20 U
14 Destroitement		Ť																	< 0.10 U
2.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20   1.20		Т	0														<del> </del>		< 0.20 U
28-transe		Т																	< 0.10 U
## Achienosheme	ione	Т	ug/L													-		-	
Acetone T uglt	otoluene	T	ug/L	< 1.0 U							-	-			< 0.10 U				
Bromochenzeme	otoluene	T	ug/L	< 1.0 U								-			< 0.20 U				
Bromochhoromethane	e	T	ug/L																
Bromother	enzene	Т	ug/L	< 1.0 U								-			< 0.10 U				
Stronform		T	_														1		< 0.10 U
Bromomethane   T		T							<b>†</b>									-	< 0.10 U
Carbon Testudide		<u> </u>																	< 0.10 U
Carbon Tetrachloride		+ +							<b>†</b>								1		< 0.10 U
Chloroberzene		 													-	-			< 0.10 U
Chloroethane		+ +																	< 0.10 U
Chloroferm		† †	_						+								1		< 0.25 U
Chloromethane		Ť																	< 0.10 U
cis-12-Dichloroethene (DCE)         T         ug/L         < 1.0 U         5.4         < 1.0 U		Ť	0						†								<del> </del>		< 0.10 U
Dibromochloromethane		Т							10	100	25	10	620	2300	100	20	100	20	< 0.10 U
Dichrommethane	Dichloropropene	Т	ug/L	< 1.0 U								-			< 0.10 U				
Dichlorodifluoromethane	ochloromethane	Т	ug/L	< 1.0 U			-								< 0.10 U				
Isopropylbenzene		T	ug/L																< 0.10 U
m.p-Xylenes         T         ug/L		Т	0								-					-			< 0.40 U
Methyl tert-butyl ether (MTBE)         T         ug/L         < 5.0 U         < 4.0 U         < 1.0 U </td <td></td> <td>T</td> <td>_</td> <td>&lt; 4.0 U</td> <td></td> <td>&lt; 0.10 U</td>		T	_	< 4.0 U											< 0.10 U				
Methylene Chloride         T         ug/L         < 4.0 U		T													1		1		< 0.20 U
n-Butylbenzene         T         ug/L         < 1.0 U	, , ,	<del>                                     </del>	0														<del> </del>		< 0.10 U
n-Propylbenzene         T         ug/L         < 1.0 U         < 1.0 U <th< td=""><td></td><td>+ +</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>+</td><td></td><td>&lt; 0.50 U</td></th<>		+ +															+		< 0.50 U
o-Xylene         T         ug/L		+ +							<b>†</b>								1		< 0.10 U < 0.10 U
p-Isopropyltoluene T ug/L < 1.0 U		+ +	5												1		1		< 0.10 U
sec-Butylbenzene         T         ug/L         < 1.0 U         < 1.0 U <t< td=""><td></td><td>+ + +</td><td></td><td></td><td></td><td></td><td></td><td></td><td>†</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td>&lt; 0.20 U</td></t<>		+ + +							†								1		< 0.20 U
Styrené         T         ug/L         < 1.0 U	17	+ +							†								1		< 0.10 U
terf-Butylbenzene T ug/L <1.0 U <1.0 U <1.0 U <1.0 U <1.0 U	,	† †							•						1				< 0.10 U
		Т																	< 0.10 U
Tetrachloroethene (PCE) T ug/L < 1.0 U 61.4 < 1.0 U < 1.0 U 5 210 4300 1100 340 900 1000 4300 1000 2200	,	Т	ug/L	< 1.0 U	61.4	< 1.0 U	< 1.0 U	5	210	4300	1100	340	900	1000	4300	1000	2200	59	5.2
trans-1,2-Dichloroethene T ug/L <1.0U <1.0U <1.0U <1.0U <1.0U	2-Dichloroethene	T						< 1.0 U											< 0.10 U
trans-1,3-Dichloropropene T ug/L <1.0 U <1.0 U <1.0 U <1.0 U <1.0 U	3-Dichloropropene	Т	ug/L	< 1.0 U								-			< 0.10 U				
Trichloroethene (TCE) T ug/L <1.0 U 24.2 <1.0 U <1.0 U 1.5 18 100 56 10 160 3500 100 20 100		T	ug/L						18	100	56	10	160	3500	100	20	100	20	0.64
Trichlorofluoromethane T ug/L < 2.0 U		Т																	< 0.10 U
Vinyl Chloride T ug/L < 0.20 U - 0.20 U	nloride	Т	ug/L	< 0.20 U								-			< 0.020 U				

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- J Result value estimated
- X Chromatographic pattern does not match fuel standard used for quantitation
- E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per centimeter

mV = millivolts, NTU = nephlometric turbidity units, C = Celsius

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon VFA = volatile fatty acids

VOC = volatile organic compounds

		Location Date Sample	IW-04 03/12/2014 IW-4-031214	MW-01 05/08/1997 MW-1-0597	MW-01 08/20/1997 MW-1-0897	MW-01 11/13/1997 MW-1-1197	MW-02 05/08/1997 MW-2-0597	MW-02 08/20/1997 MW-2-0897	MW-02 11/13/1997 MW-2-1197	MW-03 05/08/1997 MW-3-0597	MW-03 08/20/1997 MW-3-0897	MW-03 11/13/1997 MW-3-1197	MW-03-LL 06/03/2013 MW-03-LL-01	MW-03-LL 02/13/2014 MW-03-LL-02	MW-03-LL 05/29/2014 MW-03-LL-03	MW-03-LL 08/26/2014 MW-03-LL-04	MW-03-LL 11/25/2014 MW-03-LL-05	MW-03-LL 02/19/2015 MW-03-LL-06
Analyte	Fraction	Unit																
BTEX	T -	/!	0.46								l	l						
Benzene Toluene	T	ug/L ug/L	0.16 0.34															
Ethylbenzene	Ť	ug/L	< 0.10 U							-				-	-		-	
Total Xylenes	Т	ug/L				-		-		-					-			
Conventionals											1	1						
Chloride	T	mg/L				-								-	-			
Dissolved Organic Carbon Dissolved Organic Carbon	D T	mg/L mg/L										 			-			
Nitrate as Nitrogen	T	mg/L																
Nitrite as Nitrogen	Т	mg/L																
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L																
Total Supponded Solida	T	mg/L																
Total Suspended Solids Dechlor Bacteria		mg/L								-								
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases																		
Ethane	T	mg/L	-												-			
Ethene	T	mg/L																
Methane Field Parameters	<u> </u>	mg/L																
Temperature	Т	deg C	15.4															
Specific Conductance	Т	uS/cm	982															
Dissolved Oxygen	Т	mg/L	0.96															
pH	T	pH units	7.35															
Oxidation Reduction Potential	T	mV NTU	96.5 3.7									 						
Turbidity  Metals	<u> </u>	I NIO	ა./							-								
Arsenic	Т	mg/L																
Cadmium	T	mg/L																
Chromium	T	mg/L																
Iron	D T	mg/L																
Iron Manganese	D	mg/L mg/L																
Manganese	T	mg/L																
Selenium	T	mg/L																
Other SVOCs		1		1	1													
Hexachlorobutadiene PAHs	T	ug/L	< 0.20 U															
Naphthalene	Т	ug/L	< 0.40 U	I														
PLFA	<u> </u>	ug/L	10.100															
Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability	T	ratio trans/cis	-							-					-			
Eukaryotes (polyenoics) Firmicutes (TerBrSats)	T	% PLFA % PLFA	-															
Normal Saturated (Nsats)	T	% PLFA % PLFA																
Proteobacteria (Monos)	Ť	% PLFA						-							-			
Slowed Growth	Т	ratio cy/cis	-			-		-		-					-			
SRB/Actinomycetes (MidBrSats)	T	% PLFA	-			-		-		-				-	-		-	
Total Biomass	T	cells/bead																
TPHs Gasoline Range Organics	Т	mg/L																
VFA		ilig/L		·	· · · · · ·						·							
Acetic Acid	Т	mg/L																
Butyric Acid	Т	mg/L													-			
Formic Acid	T	mg/L																
Hexanoic Acid Isocaproic Acid	T	mg/L mg/L				 												
Isovaleric Acid	† † T	mg/L																
Lactic Acid	Ť	mg/L													-			
Pentanoic Acid	Т	mg/L	-							-								
Propionic Acid	T	mg/L												-	-			
Pyruvic Acid	Т	mg/L																

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		Location	IW-04	MW-01	MW-01	MW-01	MW-02	MW-02	MW-02	MW-03	MW-03	MW-03	MW-03-LL	MW-03-LL	MW-03-LL	MW-03-LL	MW-03-LL	MW-03-LL
		Date Sample	03/12/2014 IW-4-031214	05/08/1997 MW-1-0597	08/20/1997 MW-1-0897	11/13/1997 MW-1-1197	05/08/1997 MW-2-0597	08/20/1997 MW-2-0897	11/13/1997 MW-2-1197	05/08/1997 MW-3-0597	08/20/1997 MW-3-0897	11/13/1997 MW-3-1197	06/03/2013 MW-03-LL-01	02/13/2014 MW-03-LL-02	05/29/2014 MW-03-LL-03	08/26/2014 MW-03-LL-04	11/25/2014 MW-03-LL-05	02/19/2015 MW-03-LL-06
Analyte	Fraction	Unit							=									
VOCs																		
1,1,1,2-Tetrachloroethane	T	ug/L	< 0.10 U								-					-		
1,1,1-Trichloroethane	T	ug/L	< 0.10 U															
1,1,2,2-Tetrachloroethane	T	ug/L	< 0.10 U															
1,1,2-Trichloroethane	T	ug/L	< 0.10 U															
1,1-Dichloroethane	T	ug/L	< 0.10 U				-		-		-				-	-	-	-
1,1-Dichloroethene	T	ug/L	0.64				-		-		-				-	-	-	
1,1-Dichloropropene	T	ug/L	< 0.10 U				-		-		-				-	-	-	-
1,2,3-Trichlorobenzene 1,2,3-Trichloropropane	+ +	ug/L	< 0.40 U < 0.20 U															
1,2,4-Trichlorobenzene	+ +	ug/L ug/L	< 0.20 U								-							
1,2,4-Trimethylbenzene	+ +	0	< 0.20 U						 									
1,2-Dibromo-3-chloropropane	<del>                                     </del>	ug/L ug/L	< 0.40 U															
1,2-Dibromoethane (EDB)	<del>'</del> †	ug/L ug/L	< 0.40 U															
1,2-Distribution (EDB)	<u> </u>	ug/L ug/L	< 0.10 U															
1,2-Dichloroethane (EDC)	+ +	ug/L ug/L	< 0.10 U															
1,2-Dichloropropane	† †	ug/L	< 0.10 U															
1,3,5-Trimethylbenzene	† †	ug/L	< 0.10 U															
1,3-Dichlorobenzene	<del>                                     </del>	ug/L	< 0.20 U															
1,3-Dichloropropane	Ť	ug/L	< 0.10 U														-	
1,4-Dichlorobenzene	Ť	ug/L	< 0.20 U													-	_	
2,2-Dichloropropane	T	ug/L	< 0.10 U															
2-Butanone	Ť	ug/L														-	_	
2-Chlorotoluene	Т	ug/L	< 0.10 U												_	-	-	
4-Chlorotoluene	Т	ug/L	< 0.20 U												_		-	
Acetone	Т	ug/L													_		-	
Bromobenzene	Т	ug/L	< 0.10 U								-							
Bromochloromethane	T	ug/L	< 0.10 U													-	-	
Bromodichloromethane	T	ug/L	< 0.10 U															
Bromoform	T	ug/L	< 0.10 U					-										
Bromomethane	T	ug/L	< 0.10 U				-		-		-	-			-	-	•	
Carbon Disulfide	T	ug/L					-		-		-				-	-	•	
Carbon Tetrachloride	T	ug/L	< 0.10 U				-				-					-		
Chlorobenzene	Т	ug/L	< 0.10 U															
Chloroethane	Т	ug/L	< 0.25 U															
Chloroform	Т	ug/L	< 0.10 U	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			-	-	-	
Chloromethane	Т	ug/L	< 0.10 U				-									-	-	
cis-1,2-Dichloroethene (DCE)	T	ug/L	210	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.5						
cis-1,3-Dichloropropene	T	ug/L	< 0.10 U															
Dibromochloromethane	T	ug/L	< 0.10 U				-				-						-	
Dibromomethane	T	ug/L	< 0.10 U															
Dichlorodifluoromethane	T	ug/L	< 0.40 U															
Isopropylbenzene	T	ug/L	< 0.10 U															
m,p-Xylenes Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.20 U < 0.10 U						<u></u>									
Methylene Chloride	+ +	ug/L	< 0.10 U															
,	+ +	ug/L	< 0.50 U															
n-Butylbenzene n-Propylbenzene	† †	ug/L ug/L	< 0.10 U															
o-Xylene	+ +	ug/L ug/L	< 0.10 U															
p-Isopropyltoluene	+ +	ug/L ug/L	< 0.10 U								-							
sec-Butylbenzene	<del>'</del> †	ug/L ug/L	0.13															
Styrene	+ +	ug/L ug/L	< 0.10 U															
tert-Butylbenzene	† †	ug/L	< 0.10 U															
Tetrachloroethene (PCE)	<del>'</del> +	ug/L	88	2.8	31	92	47	58	80	54	65	210	9.25	12.2	10.8	11.2	11.5	8.9
trans-1,2-Dichloroethene	† †	ug/L	1.6															
trans-1,3-Dichloropropene	+ ÷	ug/L	< 0.10 U															
Trichloroethene (TCE)	<del>                                     </del>	ug/L	350	0.5	1	1.8	4.2	5.7	5.9	2.3	5.8	7.9	0.97	< 1.0 U				
Trichlorofluoromethane	<del>                                     </del>	ug/L	< 0.10 U															
Vinyl Chloride	† †	ug/L	0.12															
	' '	ug₁∟	V. 14				-		-				-			-	-	

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate

- X Chromatographic pattern does not match fuel standard used for quantitation
   E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

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D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location	MW-03-LL	MW-03-LL	MW-03-LL	MW-03-LL	MW-03-LL	MW-04	MW-04	MW-04	MW-04-LL	MW-04-LL	MW-04-LL	MW-04-LL	MW-04-LL	MW-04-LL	MW-05D	MW-05D	MW-05D
		Date	07/13/2016	11/14/2016	03/20/2018	09/18/2018	03/19/2019	05/08/1997	08/20/1997	11/13/1997	06/03/2013	02/13/2014	05/29/2014	08/26/2014	11/25/2014	02/19/2015	06/21/2007	11/16/2010	03/28/2011
Analyte	Fraction	Sample Unit	MW 3-071316	MW-3-111416	MW-03-LL-032018	MW-03-LL-091818	MW-03LL-031919	MW-4-0597	MW-4-0897	MW-4-1197	MW-04-LL-01	MW-04-LL-02	MW-04-LL-03	MW-04-LL-04	MW-04-LL-05	MW-04-LL-06	MW5D	MW-5D-111610	MW-5D-032811
BTEX	Traction	Olik																	
Benzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U												< 0.10 U	< 0.10 U
Toluene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		-	-			-	-	-		-		< 0.10 U	< 0.10 U
Ethylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			-									< 0.10 U	< 0.10 U
Total Xylenes	Т	ug/L		-					-										
Conventionals	- 1				T					I					ı	Π		Ī	
Chloride Dissolved Organic Carbon	T D	mg/L		-					-										
Dissolved Organic Carbon  Dissolved Organic Carbon	T	mg/L mg/L										-		-					
Nitrate as Nitrogen	T	mg/L																	
Nitrite as Nitrogen	Ť	mg/L		_					-			-							
Silica (SiO2)	D	mg/L		-					-			-							
Sulfate	T	mg/L	-	-	-	-	-	-	-			-	-	-		-			-
Total Organic Carbon	T	mg/L		-					-			-							
Total Suspended Solids	T	mg/L										-							
Dechlor Bacteria	'				1										1	1			
Dehalococcoides (DHC)	T	cells/bead																	
Dissolved Gases Ethane	ТТ	mg/L								I					I				
Ethene	T	mg/L																	
Methane	T	mg/L																	
Field Parameters																			
Temperature	Т	deg C	18.5	19.2	17	18.7	17.1											15.75	14.4
Specific Conductance	T	uS/cm	820	612	760	775	853	-	-			-		-			-	744	701
Dissolved Oxygen	Т	mg/L	1.67	0.26	1.54	0.52	0.9											0.15	0.64
pH	T	pH units	7.52	7.71	7.63	7.34	7.3											8.26	7.4
Oxidation Reduction Potential	T	mV	60.9	135.7	107.7	62.8	96.9	-	-			-	-	-		-		127.8	41.1
Turbidity	Т	NTU	1.04	1.07	0.39	0.93	0.2											0.87	
Metals Arsenic	Т	mg/L													1				
Cadmium	T	mg/L	_	-								_							
Chromium	T	mg/L																	
Iron	D	mg/L		-				-	-			-		-					
Iron	T	mg/L		-				-	-			-		-			-		
Manganese	D	mg/L																	
Manganese	T	mg/L																	
Selenium	T	mg/L				-						-							
Other SVOCs Hexachlorobutadiene	ΙΤΙ	ua/l	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U				I	1				1	l		< 0.20 U	< 0.20 U
PAHs		ug/L	< 0.50 0	< 0.50 0	< 0.50 0	< 0.50 0												< 0.20 0	< 0.20 0
Naphthalene	Т	ug/L	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U									I			< 0.40 UJ	< 0.40 U
PLFA		-3/-	2.30 0	2.00 0															21.00
Anaerobic metal reducers (BrMonos)	Т	% PLFA																	
Decreased Permeability	T	ratio trans/cis		-															
Eukaryotes (polyenoics)	T	% PLFA		-					-			-		-					
Firmicutes (TerBrSats)	T	% PLFA																	
Normal Saturated (Nsats) Proteobacteria (Monos)	T	% PLFA % PLFA		-															
Slowed Growth	T	% PLFA ratio cy/cis																	
SRB/Actinomycetes (MidBrSats)	T	% PLFA					<del></del>												
Total Biomass	T	cells/bead																	
TPHs															•				
Gasoline Range Organics	Т	mg/L		-		-		-	-			-		-					
VFA							· · · · · · · · · · · · · · · · · · ·	· · · · · ·	-				· · · · · ·				-		
Acetic Acid	Т	mg/L	-	1		-		-	ı			1	-	-			-		
Butyric Acid	T	mg/L																	
Formic Acid	T	mg/L																	
Hexanoic Acid	T	mg/L		-															
Isocaproic Acid	T	mg/L															 	 	
Isovaleric Acid Lactic Acid	T	mg/L mg/L					<del></del>												
Pentanoic Acid	Ť	mg/L																	
Propionic Acid	T	mg/L		-				-	-										
Pyruvic Acid	T	mg/L																	
		5	i										i	i	•	i	i	i	•——

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		Location Date	MW-03-LL 07/13/2016	MW-03-LL 11/14/2016	MW-03-LL 03/20/2018	MW-03-LL 09/18/2018	MW-03-LL 03/19/2019	MW-04 05/08/1997	MW-04 08/20/1997	MW-04 11/13/1997	MW-04-LL 06/03/2013	MW-04-LL 02/13/2014	MW-04-LL 05/29/2014	MW-04-LL 08/26/2014	MW-04-LL 11/25/2014	MW-04-LL 02/19/2015	MW-05D 06/21/2007	MW-05D 11/16/2010	MW-05D 03/28/2011
	1=	Sample	MW 3-071316	MW-3-111416	MW-03-LL-032018	MW-03-LL-091818	MW-03LL-031919	MW-4-0597	MW-4-0897	MW-4-1197	MW-04-LL-01	MW-04-LL-02	MW-04-LL-03	MW-04-LL-04	MW-04-LL-05	MW-04-LL-06	MW5D	MW-5D-111610	MW-5D-032811
Analyte	Fraction	Unit													<u> </u>	<u> </u>			
VOCs 1,1,1,2-Tetrachloroethane	ТТ	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U			1		1	l			I	1	I	< 0.10 U	< 0.10 U
1.1.1-Trichloroethane	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.20 U	< 0.20 U											< 0.10 U	< 0.10 U
1.1.2.2-Tetrachloroethane	<u>'</u>	ug/L	< 0.20 U											< 0.10 U	< 0.10 U				
1,1,2-Trichloroethane	T T	ug/L	< 0.20 U											< 0.10 U	< 0.10 U				
1.1-Dichloroethane	Ť	ug/L	< 0.20 U											< 0.10 U	< 0.10 U				
1.1-Dichloroethene	T	ug/L	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	-										< 0.10 UJ	< 0.10 U
1,1-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U												< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U												< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U												< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		-				-		-		-		< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		-		-		-	-					< 0.10 U	< 0.10 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U				-								< 0.20 U	< 0.20 U
1,2-Dibromoethane (EDB)	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U												< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	T	ug/L	< 0.30 U	-				-				-		< 0.20 U	< 0.20 U				
1,2-Dichloroethane (EDC)	T	ug/L	< 0.20 U											< 0.10 U	< 0.10 U				
1,2-Dichloropropane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U											< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U												< 0.10 U	< 0.10 U
1,3-Dichlorobenzene	T	ug/L	< 0.30 U	-	-	-						-		0.24	< 0.20 U				
1,3-Dichloropropane	!   T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U												< 0.10 U	< 0.10 U
1,4-Dichlorobenzene	<u> </u>	ug/L	< 0.30 U < 0.50 U	< 0.30 U											< 0.20 U < 0.10 U	< 0.20 U < 0.10 U			
2,2-Dichloropropane 2-Butanone	 	ug/L ug/L	< 0.50 0	< 0.50 0	< 0.50 0	< 0.50 U											 < 10 U	< 0.10 0	< 0.10 0
2-Chlorotoluene	<u>'</u>	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U												< 0.10 U	< 0.10 U
4-Chlorotoluene	Ť	ug/L ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U												< 0.20 U	< 0.20 U
Acetone	T T	ug/L															< 25 U		
Bromobenzene	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U												< 0.10 U	< 0.10 U
Bromochloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		-										< 0.10 U	< 0.10 U
Bromodichloromethane	Т	ug/L	< 0.20 U	< 0.20 U	0.97	< 0.20 U	< 0.20 U	-									< 1.0 U	< 0.10 U	< 0.10 U
Bromoform	Т	ug/L	< 0.50 U	-		-								< 0.10 U	< 0.10 U				
Bromomethane	Т	ug/L	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 UJ	< 0.50 U	-				-		-				< 0.10 U	< 0.10 U
Carbon Disulfide	Т	ug/L		-		-		-		-		-	-				< 1.0 U		-
Carbon Tetrachloride	T	ug/L	< 0.20 U											< 0.10 U	< 0.10 U				
Chlorobenzene	Т	ug/L	< 0.20 U	-										< 0.10 U	< 0.10 U				
Chloroethane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U											< 0.25 UJ	< 0.25 U
Chloroform	T	ug/L	< 0.20 U	< 0.20 U	12	0.24	1.2	0.5	0.5	0.5							2.44	< 0.10 U	< 0.10 U
Chloromethane	T	ug/L	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U										< 5.0 U	< 0.10 UJ	< 0.10 U
cis-1,2-Dichloroethene (DCE)		ug/L	< 0.20 U	0.5	0.5	0.5							< 1.0 U	< 0.10 U	< 0.10 U				
cis-1,3-Dichloropropene	T	ug/L	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U											< 0.10 U	< 0.10 U
Dibromochloromethane Dibromomethane	<u> </u>	ug/L ua/L	< 0.20 U < 0.20 U	< 0.20 U											< 0.10 U < 0.10 U	< 0.10 U < 0.10 U			
Dichlorodifluoromethane	† †	ug/L ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U												< 0.40 U	< 0.10 U
Isopropylbenzene	<del>'</del> +	ug/L ug/L	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U												< 0.40 U	< 0.40 U
m,p-Xylenes	T	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U												< 0.20 U	< 0.20 U
Methyl tert-butyl ether (MTBE)	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 UJ		_										< 0.10 U	< 0.10 U
Methylene Chloride	T	ug/L	< 0.50 U	< 0.50 U	< 5.0 U	< 5.0 UJ	< 5.0 U	-										< 0.10 U	< 0.10 U
n-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U												< 0.10 U	< 0.10 U
n-Propylbenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U												< 0.10 U	< 0.10 U
o-Xylene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		-		-		_	-	_		-		< 0.10 U	< 0.10 U
p-Isopropyltoluene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U												< 0.20 U	< 0.20 U
sec-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U												< 0.10 U	< 0.10 U
Styrene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U												< 0.10 U	< 0.10 U
tert-Butylbenzene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		-								-		< 0.10 U	< 0.10 U
Tetrachloroethene (PCE)	T	ug/L	5.5	6.5	3.4	6.5	4.8	2.6	35	0.5	4.12	< 1.0 U	2.1	6.29	< 1.0 U	< 1.0 U	< 1.0 U	0.21 J	0.12 J
trans-1,2-Dichloroethene	T	ug/L	< 0.20 U											< 0.10 U	< 0.10 U				
trans-1,3-Dichloropropene	T	ug/L	< 0.20 U											< 0.10 U	< 0.10 U				
Trichloroethene (TCE)	T	ug/L	0.6	0.91	< 0.20 U	0.51	0.47	1	1.7	0.5	0.64	< 1.0 U	< 1.0 U	< 0.10 U	< 0.10 U				
Trichlorofluoromethane	T	ug/L	< 0.50 U	-								-		< 0.10 UJ	< 0.10 U				
Vinyl Chloride	Т	ug/L	< 0.020 U	-						-		-	< 0.20 U	< 0.020 U	< 0.020 U				

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- J Result value estimated
- X Chromatographic pattern does not match fuel standard used for quantitation
   E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

 $\label{eq:continuous} \begin{tabular}{ll} ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per centimeter mV = millivolts, NTU = nephlometric turbidity units, C = Celsius \\ \end{tabular}$ 

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

VOC = volatile organic compounds

V:\090018 New City Cleaners\Deliverables\RIFS\2019\Final\Appendices\E - Historical Water Results\GW everything

		Location	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05-LL	MW-05-LL	MW-05-LL	MW-05-LL	MW-05-LL	MW-05-LL	MW-05-LL	MW-05-LL	MW-05-LL	MW-05-LL
		Date	06/28/2011	10/12/2011	01/26/2012	05/30/2012	08/16/2012	06/03/2013	02/13/2014	05/29/2014	08/26/2014	11/25/2014	02/19/2015	07/13/2016	11/14/2016	03/20/2018	09/18/2018
			MW-5D-062811	MW-5D-101211	MW-5D-012612	MW-5D-053012	MW-5D-081612	MW-05-LL-01	MW-05-LL-02	MW-05-LL-03	MW-05-LL-04	MW-05-LL-05	MW-05-LL-06	MW 5-071316	MW-5-111416	MW-05-LL-032018	
Analyte	Fraction	Unit															
BTEX																	
Benzene	T	ug/L	< 0.10 U							< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				
Toluene	T	ug/L	< 0.10 U							< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				
Ethylbenzene Total Xylenes	T	ug/L ug/L	< 0.10 U							< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				
Conventionals		ug/L															
Chloride	ТТ	mg/L				l						T				T	I
Dissolved Organic Carbon	D	mg/L															
Dissolved Organic Carbon	Т	mg/L			-												
Nitrate as Nitrogen	T	mg/L															
Nitrite as Nitrogen	T	mg/L															
Silica (SiO2)	D	mg/L															
Sulfate	T	mg/L		-													
Total Organic Carbon Total Suspended Solids	+ +	mg/L mg/L															
Dechlor Bacteria		mg/L															
Dehalococcoides (DHC)	Т	cells/bead															
Dissolved Gases																	
Ethane	Т	mg/L															
Ethene	T	mg/L			-												
Methane	Т	mg/L															
Field Parameters	T = T	da 0	45.0	450	40.0	45.0	45.0	1						40.0	40.1	40.5	40.4
Temperature Specific Conductance	T	deg C uS/cm	15.6 630	15.3 710	13.9 642	15.2 638	15.9 686							18.9 997	19.4 90	16.5 929	19.1 983
Dissolved Oxygen	+ +	mg/L	3.11	0.37	0.17	0.71								0.11	0.36	0.21	0.14
pH	<del>'</del> †	pH units	7.72	7.58	7.55	8.11	8.71							7.65	7.73	7.78	7.45
Oxidation Reduction Potential	Ť	mV	-21.1	-154.6	81.3	-172.1	-220.6			-				72.4	143.4	112.4	65.3
Turbidity	Т	NTU		0.47	0.63	1.02	8.22							3.47	8.4	5.1	5.27
Metals																	
Arsenic	Т	mg/L		-	-												
Cadmium	T	mg/L															
Chromium	T	mg/L		-													
Iron Iron	D T	mg/L mg/L	-														
Manganese	D	mg/L															
Manganese	T	mg/L															
Selenium	Т	mg/L															
Other SVOCs		_															
Hexachlorobutadiene	Т	ug/L	< 0.20 U							< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U				
PAHs						T		1			I	<del>                                     </del>				1	1 1 1
Naphthalene	T	ug/L	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U							< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
PLFA Anaerobic metal reducers (BrMonos	) T	% PLFA									I				I	T	
Decreased Permeability	7 T	70 PLFA															
Eukaryotes (polyenoics)	T T	% PLFA															
Firmicutes (TerBrSats)	T	% PLFA															
Normal Saturated (Nsats)	Т	% PLFA															
Proteobacteria (Monos)	T	% PLFA			-												
Slowed Growth	T	ratio cy/cis															
SRB/Actinomycetes (MidBrSats)	T	% PLFA															
Total Biomass TPHs	T	cells/bead															
Gasoline Range Organics	Т	mg/L				l					I	T			I		I
VFA	'	g/L			-								-	-			
Acetic Acid	T	mg/L															
Butyric Acid	Т	mg/L			-								-				
Formic Acid	Т	mg/L															
Hexanoic Acid	Т	mg/L															
Isocaproic Acid	T	mg/L															
Isovaleric Acid	T	mg/L															
Lactic Acid	T	mg/L	<u></u>							<u></u>							
Pentanoic Acid Propionic Acid	T	mg/L mg/L															
Pyruvic Acid	+ +	mg/L															
i yravio Aoid	1 !	my/L			-		ı				I	1		I	ı ————	1	

Project No. 090018, New City Cleaners Richland, Washington

		Location	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05-LL	MW-05-LL	MW-05-LL	MW-05-LL						
		Date	06/28/2011	10/12/2011	01/26/2012	05/30/2012	08/16/2012	06/03/2013	02/13/2014	05/29/2014	08/26/2014	11/25/2014	02/19/2015	07/13/2016	11/14/2016	03/20/2018	09/18/2018
		Sample	MW-5D-062811	MW-5D-101211	MW-5D-012612	MW-5D-053012	MW-5D-081612	MW-05-LL-01	MW-05-LL-02	MW-05-LL-03	MW-05-LL-04	MW-05-LL-05	MW-05-LL-06	MW 5-071316	MW-5-111416	MW-05-LL-032018	MW-05-LL-091818
Analyte	Fraction	Unit															
VOCs										1			1			1	
1,1,1,2-Tetrachloroethane	T T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-			-	-		< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1,1,1-Trichloroethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				-			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1,2,2-Tetrachloroethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				-			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1,2-Trichloroethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloroethane	T	ug/L	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.20 U	< 0.20 U
1,1-Dichloroethene	T	ug/L	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U								< 0.10 U	< 0.20 U	< 0.20 U
1,1-Dichloropropene 1.2.3-Trichlorobenzene	+ +	ug/L ug/L	< 0.10 U < 0.40 U	< 0.10 U < 0.40 UJ	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U							< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.20 U	< 0.20 U < 0.50 U
1,2,3-Trichloropenzene	T	ug/L ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U							< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1.2.4-Trichlorobenzene	T	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	<u></u>			-			< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U
1,2,4-Trichloroberizerie	+ +	ug/L ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<u></u>			-	<u></u>		< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1,2-Dibromo-3-chloropropane	+ +	ug/L ug/L	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.10 U	< 0.40 U	<u></u>						< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
1,2-Dibromoethane (EDB)	† †	ug/L	< 0.10 U	< 0.40 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dibromoetriarie (EDB)	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.30 U	< 0.10 U	< 0.30 U	< 0.30 U
1,2-Dichloroethane (EDC)	<del>                                     </del>	ug/L ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.10 U							< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2-Dichloropropane	† †	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ
1,3,5-Trimethylbenzene	† †	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				-			< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1.3-Dichlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,3-Dichloropropane	<del>†</del>	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-			_			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,4-Dichlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				_			< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
2,2-Dichloropropane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
2-Butanone	Т	ug/L															
2-Chlorotoluene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				-			< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
4-Chlorotoluene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				-			< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
Acetone	Т	ug/L			-						-						
Bromobenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				-			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Bromochloromethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-		-	-			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Bromodichloromethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-		-	-			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Bromoform	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				-			< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Bromomethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ							< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 UJ
Carbon Disulfide	T	ug/L															
Carbon Tetrachloride	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chlorobenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				-			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chloroethane	Т	ug/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U				-			< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
Chloroform	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				-			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chloromethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1				-			< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U
cis-1,2-Dichloroethene (DCE)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
cis-1,3-Dichloropropene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U
Dibromochloromethane	+ T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Dibromomethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-						< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Dichlorodifluoromethane	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U							< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
m,p-Xylenes	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	-			-			< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Methylene Chloride	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.20 U	< 0.20 U < 0.50 U	< 0.30 U	< 0.30 UJ
Methylene Chloride	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							< 0.50 U	< 0.50 U	< 5.0 U < 0.50 U	< 5.0 UJ < 0.50 U
n-Butylbenzene n-Propylbenzene	+ +	ug/L ua/L	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U							< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	< 0.50 U	< 0.50 U
o-Xylene	T	5	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
,	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<u></u>				<u></u>		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
p-Isopropyltoluene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
sec-Butylbenzene Styrene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
tert-Butylbenzene	<u> </u>	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Tetrachloroethene (PCE)	T	ug/L ug/L	0.39	< 0.10 UJ	0.100	0.10 0	0.10 U	6.94	8.05	6.91	4.25	6.29	5.4	4.8	5.2	4.6	8.2
trans-1,2-Dichloroethene	T	ug/L ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	6.94	8.05	6.91	4.25	6.29	5.4	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
trans-1,2-Dichloroptnene	T	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<del></del>						< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Trichloroethene (TCE)	† †	ug/L ug/L	< 0.10 U	< 0.10 U	0.10	< 0.10 U	< 0.10 U	1.05	< 1.0 U	< 1.0 U	< 1.0 U	1.05	< 1.0 U	0.76	0.87	0.58	0.7
Trichlorofluoromethane	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Vinyl Chloride	+ +	ug/L ug/L	< 0.020 U	< 0.020 U	0.038	< 0.020 U	< 0.020 U	<u></u>						< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
,. ornorido		ug/∟	. 0.020 0	- 0.020 0	0.300	. 0.020 0	. 0.020 0	-			=	-		. 0.020 0	- 0.020 0	. 0.020 0	. 0.020 0

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- J Result value estimated
- X Chromatographic pattern does not match fuel standard used for quantitation
   E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

 $ug/L = micrograms \ per \ liter, \ mg/L = milligrams \ per \ liter, \ uS/cm = microsiemens \ per \ centime \ mV = millivolts, \ NTU = nephlometric turbidity units, \ C = Celsius$ 

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location Date Sample	MW-05-LL 03/19/2019 MW-05LL-031919	MW-05S 06/21/2007 MW5S	MW-05S 11/16/2010 MW-5S-111610	MW-05S 03/28/2011 MW-5S-032811	MW-05S 06/28/2011 MW-5S-062811	MW-05S 10/12/2011 MW-5S-101211	MW-05S 01/26/2012 MW-5S-012612	MW-05S 05/30/2012 MW-5S-053012	MW-05S 08/16/2012 MW-5S-081612	MW-05S 03/12/2014 MW-5S-031214	MW-05S 06/16/2014 MW-5S-061614	MW-05S 09/10/2014 MW-5S-091014	MW-05S 12/16/2014 MW-5S-121614	MW-05S 07/12/2016 MW5S-071216	MW-05S 07/12/2016 MW-5S-071116	MW-05S 11/15/2016 MW-5S-111516
Analyte BTEX	Fraction	Unit																
Benzene	Т	ug/L			< 0.10 U		< 0.20 U	< 0.20 U										
Toluene	T	ug/L	-		< 0.10 U	0.34		< 0.20 U	< 0.20 U									
Ethylbenzene	Т	ug/L			< 0.10 U	-	< 0.20 U	< 0.20 U										
Total Xylenes	Т	ug/L	-	-	-	-	-	-	-	-		-	-	-		-		-
Conventionals																		
Chloride	Т	mg/L											19	11	9		22 J	9.8
Dissolved Organic Carbon	D	mg/L																-
Dissolved Organic Carbon	T	mg/L										2						
Nitrate as Nitrogen	<u> </u>	mg/L											< 0.10 UJ	< 0.90 U	< 0.90 U		< 0.20 U	< 0.20 U
Nitrite as Nitrogen Silica (SiO2)	T D	mg/L mg/L											< 0.10 UJ	3.2	8.1		< 0.40 U 	< 0.40 U
Sulfate	T	mg/L	<u></u>										< 1.0 U	1.3	3.6		21 J	15
Total Organic Carbon	† †	mg/L																
Total Suspended Solids	<del>†</del>	mg/L	-															_
Dechlor Bacteria	<u> </u>	g,									l							
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases																		
Ethane	T	mg/L										< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U		< 0.0050 U	< 0.0050 U
Ethene	T	mg/L										< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U		< 0.0050 U	< 0.0050 U
Methane	T	mg/L										< 0.0050 U	0.024	0.92	3.3		0.79	0.6
Field Parameters	T + T	1. 0			,- aa				4-4		1 46		4-4	4==	100	4= 4		4= 0
Temperature	T	deg C	16.4		17.28	14.19	15.5	16.7	15.3	14.9	16	13.6	15.2	17.7	16.6	17.3		17.8
Specific Conductance	T	uS/cm	939		728 0.61	721 0.66	674 1.36	680 1.4	687 1.08	566.6 2.74	626	435.6	879	501.4	499.8	434.7 0.06		354.7 0.29
Dissolved Oxygen	T	mg/L pH units	1.5 7.6		7.69	7.23	7.64	7.28	7.33	7.81	7.59	2.35 7.5	0.16 6.56	0.08 7.06	0.18 7.1	7.44		7.23
Oxidation Reduction Potential	† †	mV	91		128.9	-6.2	-25	-2.6	25.4	-52.5	-69.7	78	-34.9	-164.3	-127.8	-108.7		-19.4
Turbidity	Ť	NTU	4.5		1.37			0.43	3.81	0.32	3.04	0.45		1.45	3.44	2.35		1.84
Metals																=::::		
Arsenic	Т	mg/L	-	-	-	-	-		-	-		-	-	_		-		-
Cadmium	T	mg/L																
Chromium	Т	mg/L		-	-	-	-			-				-				
Iron	D	mg/L																
Iron	T	mg/L	-	-		-				-			2.3	1.4	2.6		1.1	0.87
Manganese	D T	mg/L																-
Manganese Selenium	+ +	mg/L mg/L																
Other SVOCs		IIIg/L	<del></del>					<del></del>			<u></u>	<del></del>						
Hexachlorobutadiene	Т	ug/L			< 0.20 U		< 0.50 U	< 0.50 U										
PAHs Naphthalene	Т	ug/L		I	< 8.0 UJ	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U		< 0.50 U	< 0.50 U						
PLFA																	I	
Anaerobic metal reducers (BrMonos)	T	% PLFA												-				-
Decreased Permeability	T	ratio trans/cis % PLFA	<u></u>				<u></u>											-
Eukaryotes (polyenoics) Firmicutes (TerBrSats)	T	% PLFA	 															
Normal Saturated (Nsats)	+ +	% PLFA																
Proteobacteria (Monos)	Ť	% PLFA				-												
Slowed Growth	Ť	ratio cy/cis																
SRB/Actinomycetes (MidBrSats)	Т	% PLFA				-				-				-		-		
Total Biomass	Т	cells/bead																
TPHs																		
Gasoline Range Organics VFA	T	mg/L																
Acetic Acid	Т	mg/L														< 0.10 U		< 0.10 U
Butyric Acid	T	mg/L														< 0.10 U		< 0.10 U
Formic Acid	Т	mg/L			-	1	-			-				-		< 0.10 U		< 0.10 U
Hexanoic Acid	Т	mg/L												-		< 0.20 U		< 0.20 U
Isocaproic Acid	Т	mg/L														< 0.20 U		< 0.20 U
Isovaleric Acid	Т	mg/L			-	1	-			-			-	1		< 0.10 U		< 0.10 U
Lactic Acid	T	mg/L														< 0.20 U		< 0.20 U
Pentanoic Acid	T	mg/L		-		-								-		< 0.10 U		< 0.10 U
Propionic Acid	T	mg/L														< 0.10 U		< 0.10 U
Pyruvic Acid	Т	mg/L	-	-	-	-				-	-		-	-		< 0.10 U		< 0.10 U

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		Location	MW-05-LL	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S
		Date	03/19/2019	06/21/2007	11/16/2010	03/28/2011	06/28/2011	10/12/2011	01/26/2012	05/30/2012	08/16/2012	03/12/2014	06/16/2014	09/10/2014	12/16/2014	07/12/2016	07/12/2016	11/15/2016
Analyta	Fraction	Sample	MW-05LL-031919	MW5S	MW-5S-111610	MW-5S-032811	MW-5S-062811	MW-5S-101211	MW-5S-012612	MW-5S-053012	MW-5S-081612	MW-5S-031214	MW-5S-061614	MW-5S-091014	MW-5S-121614	MW5S-071216	MW-5S-071116	MW-5S-111516
VOCs Analyte	Fraction	Unit								<u> </u>								
1,1,1,2-Tetrachloroethane	ТТ	ug/L			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
1.1.1-Trichloroethane	† †	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
1.1.2.2-Tetrachloroethane	Ť	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
1,1,2-Trichloroethane	T	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
1,1-Dichloroethane	T	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
1,1-Dichloroethene	Т	ug/L	< 0.20 U		< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U
1,1-Dichloropropene	Т	ug/L	-		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	Т	ug/L	-		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.50 U	< 0.50 U
1,2,3-Trichloropropane	Т	ug/L	-		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	T	ug/L			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
1,2-Dibromo-3-chloropropane	Т	ug/L	-		< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U		< 2.0 U	< 2.0 U
1,2-Dibromoethane (EDB)	Т	ug/L			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	<u> </u>	ug/L	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U	< 0.30 U
1,2-Dichloroethane (EDC)	1 1	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.20 U	< 0.20 U
1,2-Dichloropropane	   T	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
1,3,5-Trimethylbenzene	+ + +	ug/L	 < 0.30 U		< 0.10 U <b>0.25</b>	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U < 0.30 U	< 0.50 U < 0.30 U
1,3-Dichlorobenzene 1,3-Dichloropropane	+ +	ug/L ug/L	< 0.30 U		<b>0.25</b> < 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U		< 0.30 U < 0.20 U	< 0.30 U < 0.20 U
1.4-Dichlorobenzene	+ +	ug/L ug/L	< 0.30 U		< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U		< 0.30 U	< 0.20 U
2,2-Dichloropropane	+ +	ug/L			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U
2-Butanone	† †	ug/L		< 10 U														
2-Chlorotoluene	T	ug/L	-		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U
4-Chlorotoluene	T	ug/L	-		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	-	< 0.30 U	< 0.30 U
Acetone	Т	ug/L	-	< 25 U														-
Bromobenzene	Т	ug/L	-		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
Bromochloromethane	Т	ug/L			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.20 U	< 0.20 U
Bromodichloromethane	Т	ug/L	< 0.20 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
Bromoform	Т	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U
Bromomethane	Т	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 1.0 U	< 1.0 U
Carbon Disulfide	T	ug/L	-	< 1.0 U														
Carbon Tetrachloride	T	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.20 U	< 0.20 U
Chlorosthana	+ +	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U < 0.50 U
Chloroethane Chloroform	+ +	ug/L ug/L	< 0.50 U < 0.20 U	 < 1.0 U	< 0.25 UJ < 0.10 U	< 0.25 U < 0.10 U	< 0.25 U < 0.10 U	< 0.25 U < 0.10 U	< 0.25 U < 0.10 U	< 0.25 U < 0.10 U	< 0.25 U < 0.10 U	< 0.25 UJ < 0.10 U	< 0.25 U < 0.10 U	< 0.25 U < 0.10 U	< 0.25 U < 0.10 U		< 0.50 U < 0.20 U	< 0.50 U
Chloromethane	+ +	ug/L ug/L	< 0.50 U	< 5.0 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.30 U	< 0.20 U
cis-1,2-Dichloroethene (DCE)	+ +	ug/L ug/L	< 0.20 U	1.51	0.46	0.100	0.48	0.37	0.5	0.21	0.10 0	0.10	22	24	29		19	15
cis-1,3-Dichloropropene	Ť	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U
Dibromochloromethane	Ť	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
Dibromomethane	<del>                                     </del>	ug/L			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ		< 0.20 U	< 0.20 U
Dichlorodifluoromethane	Т	ug/L			< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U
Isopropylbenzene	Т	ug/L	1		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U
m,p-Xylenes	Т	ug/L			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.50 U	< 0.50 U
Methyl tert-butyl ether (MTBE)	T	ug/L			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
Methylene Chloride	T	ug/L	< 5.0 U		< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	0.51	< 0.50 U	< 0.50 U		< 0.50 U	< 0.50 U
n-Butylbenzene	T	ug/L	-		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U
n-Propylbenzene	T	ug/L			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
o-Xylene	T	ug/L	-		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.50 U	< 0.50 U
p-Isopropyltoluene	T	ug/L	-		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U	< 0.30 U
sec-Butylbenzene	+ + +	ug/L	-		< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 UJ	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U		< 0.50 U < 0.50 U	< 0.50 U < 0.50 U
Styrene tert-Butylbenzene	+ +	ug/L ug/L			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U		< 0.50 U	< 0.50 U
Tetrachloroethene (PCE)	+ +	Ū	5.3	138	110 J	88 J	120	< 0.10 03 <b>50 J</b>	87	60	66 J	27	4.9	0.100	0.10 U		< 0.50 U	< 0.50 U
trans-1,2-Dichloroethene	+ +	ug/L ug/L	< 0.20 U	138	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<del></del>	< 0.50 U	< 0.20 U
trans-1,3-Dichloropropene	+ +	ug/L ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U
Trichloroethene (TCE)	+ +	ug/L	0.63	24.7	19	14	15	9.9	14	7.3	11	5.3	2.3	0.53	0.46		2.8	0.7
Trichlorofluoromethane	<del>                                     </del>	ug/L	< 0.50 U		< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U
Vinyl Chloride	Ť	ug/L	< 0.020 U	< 0.20 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	0.078	0.15		0.054	0.062
•																		

### Notes

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation

E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per  $c\epsilon$ mV = millivolts, NTU = nephlometric turbidity units, C = Celsius

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids

SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

VOC = volatile organic compounds

V:\090018 New City Cleaners\Deliverables\RIFS\2019\Final\Appendices\E - Historical Water Results\GW everything

		Location Date Sample	MW-05S 10/03/2017 MW-5S-100317	MW-05S 12/12/2017 MW5S-121217	MW-05S 03/19/2018 MW-5S-031918	MW-05S 06/19/2018 MW-05S-061918	MW-05S 09/19/2018 MW-5S-091918	MW-05S 03/20/2019 MW-5S-032019	MW-06D 06/21/2007 MW6D	MW-06D 11/17/2010 MW-6D-111710	MW-06D 03/28/2011 MW-6D-032811	MW-06D 06/28/2011 MW-6D-062811	MW-06D 10/12/2011 MW-6D-101211	MW-06D 01/25/2012 MW-6D-012512	MW-06D 05/30/2012 MW-6D-053012	MW-06D 08/15/2012 MW-6D-081512	MW-06I 11/17/2010 MW-6I-111710	MW-06I 03/28/2011 MW-6I-032811
Analyte	Fraction	Unit																
BTEX	1 - 1		.0.00.11		.0.00.11	.0.00.11		.0.00.11		.0.40.11	.0.40.11	. 0 40 11	104011	.0.40.11	104011	10.40.11	.0.40.11	104011
Benzene Toluene	T	ug/L ug/L	< 0.20 U < 0.20 U	< 0.20 U <b>0.25</b>	< 0.20 U <b>0.82</b>	< 0.20 U < 0.20 U	< 0.20 UJ < 0.20 UJ	< 0.20 U < 0.20 U		< 0.10 U < 0.10 U								
Ethylbenzene	T T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U								
Total Xylenes	Т	ug/L																
Conventionals																		
Chloride	T	mg/L	28	38	36	39	14	24										
Dissolved Organic Carbon Dissolved Organic Carbon	D	mg/L mg/L	44 	17 J	14	15 		1.6									2.5	
Nitrate as Nitrogen	T	mg/L	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	0.23	< 0.20 U									< 0.90 U	
Nitrite as Nitrogen	T	mg/L	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U									< 0.60 U	
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L	< 1.2 U	< 1.2 U	< 1.2 U	4.2	7.3	9.8		-							43	
Total Organic Carbon	T	mg/L	-				8.6	-		-		-				-		
Total Suspended Solids  Dechlor Bacteria	T	mg/L																
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases	<u> </u>			·									·				·	
Ethane	T	mg/L	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U		-								
Ethene	T	mg/L	< 0.0050 U	0.0052	0.0058	< 0.0050 U	< 0.0050 U	< 0.0050 U										
Methane Field Parameters	T	mg/L	3.1	13	16	12	6.7	1.6										
Temperature	Т	deg C	17.2	16.9	15.5	17.6	17.7	15.6		16.59	16.99	17.4	17.1	15.85	17.3	19.1	16.75	16.36
Specific Conductance	Т	uS/cm	876	1566	1874	1291	548.3	527.8		723	687	666	694	758	747	828	692	628
Dissolved Oxygen	T	mg/L	0.53		0.68	0.32	0.09	0.2		0.41	0.47	0.52	33	0.28	0.19		0.15	0.69
pH	T	pH units	6.62	6.89	6.86	6.64	6.73	6.9		7.17	7.35	7.6	7.53	7.57	7.46	8.09	7.9	7.5
Oxidation Reduction Potential	T	mV NTU	-22 28.1	-115.9 14	-90.9 43.3	27.8 5.5	0.5 3.79	-99.6 2.8		108.2 0.75	78.4	102.4	-139.9 0.24	115 0.71	-497.2 0.9	-216 3.87	86.4 6.73	77.9
Turbidity Metals	<u> </u>	NIO	20.1	14	43.3	5.5	3.79	2.0		0.75			0.24	0.71	0.9	3.01	6.73	
Arsenic	Т	mg/L																
Cadmium	T	mg/L																
Chromium	T	mg/L								-								
Iron	D	mg/L		 18		 14	4.8	3.7									< 0.20 U	
Iron Manganese	D	mg/L mg/L	6.1		21		4.0	3.7									0.11	
Manganese	T	mg/L	_							_								
Selenium	Т	mg/L								-						-		
Other SVOCs	T T			1	1						1		1	1			1	•
Hexachlorobutadiene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U		< 0.20 U								
PAHs Naphthalene	ТТ	ug/L	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U		< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U				
PLFA	' '	ugrL	- 0.00 0	- 0.00 0	- 1.00	- 1.00	- 1.0 00	- 1.00		- 0.70 00	1 - 0.40 0	- 0.40 0	- 0.40 00	- 0.40 0	- 0.40 0	- 0.40 0	- 0.40 0	1 - 0.40 0
Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability	1	ratio trans/cis						-		-						-		
Eukaryotes (polyenoics)	T	% PLFA																
Firmicutes (TerBrSats) Normal Saturated (Nsats)	<u> </u>	% PLFA % PLFA																
Proteobacteria (Monos)	T	% PLFA																
Slowed Growth	Т	ratio cy/cis								-								
SRB/Actinomycetes (MidBrSats)	T	% PLFA								-								
Total Biomass	T	cells/bead																
TPHs Gasoline Range Organics	Т	mg/L		I										I				
VFA	_ '	mg/L																
Acetic Acid	Т	mg/L																
Butyric Acid	Т	mg/L							-									
Formic Acid	T	mg/L						-	-	-						-		
Hexanoic Acid	T	mg/L								-								
Isocaproic Acid Isovaleric Acid	T	mg/L mg/L																
Lactic Acid	T T	mg/L																
Pentanoic Acid	Т	mg/L				-			-	1			-			1	-	<u> </u>
Pentanoic Acid Propionic Acid Pyruvic Acid	T	mg/L mg/L mg/L								-								

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		Location	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-05S	MW-06D	MW-06D	MW-06D	MW-06D	MW-06D	MW-06D	MW-06D	MW-06D	MW-06I	MW-06I
		Date	10/03/2017	12/12/2017	03/19/2018	06/19/2018	09/19/2018	03/20/2019	06/21/2007	11/17/2010	03/28/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/15/2012	11/17/2010	03/28/2011
Analyte	Fraction	Sample Unit	MW-5S-100317	MW5S-121217	MW-5S-031918	MW-05S-061918	MW-5S-091918	MW-5S-032019	MW6D	MW-6D-111710	MW-6D-032811	MW-6D-062811	MW-6D-101211	MW-6D-012512	MW-6D-053012	MW-6D-081512	MW-6I-111710	MW-6I-032811
VOCs	Traction	Onit					<u> </u>		<u> </u>			<u> </u>					<u> </u>	
1,1,1,2-Tetrachloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 UJ	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,1-Trichloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,2,2-Tetrachloroethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,2-Trichloroethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethane		ug/L	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.20 U	< 0.20 UJ < 0.20 UJ	< 0.20 U < 0.20 U		< 0.10 U < 0.10 UJ	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U <b>0.24</b>	< 0.10 U <b>0.18</b>
1,1-Dichloroethene 1,1-Dichloropropene	† †	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.20 U < 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.18 < 0.10 U
1,2,3-Trichlorobenzene	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 UJ	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 UJ	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 UJ	< 2.0 U		< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.20 U	< 0.20 U
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene 1,2-Dichloroethane (EDC)		ug/L	< 0.30 U < 0.20 U	< 0.30 UJ < 0.20 UJ	< 0.30 U < 0.20 U		< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U			
1,2-Dichloropropane	† †	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	<del>                                     </del>	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3-Dichlorobenzene	Ť	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 UJ	< 0.30 U		0.26	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	0.3	0.2
1,3-Dichloropropane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,4-Dichlorobenzene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 UJ	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
2,2-Dichloropropane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
2-Butanone	T	ug/L							< 10 U									
2-Chlorotoluene		ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene Acetone	 	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 UJ	< 0.30 U	 < 25 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Bromobenzene	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromochloromethane	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromodichloromethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromoform	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U
Bromomethane	Т	ug/L	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Carbon Disulfide	T	ug/L							< 1.0 U									
Carbon Tetrachloride	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U
Chlorobenzene Chloroethane	+ +	ug/L ug/L	< 0.20 U < 0.50 U	< 0.20 UJ < 0.50 UJ	< 0.20 U < 0.50 U		< 0.10 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 UJ	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U	< 0.10 U < 0.25 U			
Chloroform	<u> </u>	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 1.0 U	0.21	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloromethane	†	ug/L	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 5.0 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,2-Dichloroethene (DCE)	T	ug/L	19	7.9	3.1	3.2	1.1 J	2.1	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	32	52
cis-1,3-Dichloropropene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromochloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromomethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dichlorodifluoromethane		ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 UJ	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene m,p-Xylenes		ug/L ug/L	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 1.0 U < 0.50 U	< 1.0 U < 0.50 U	< 1.0 UJ < 0.50 UJ	< 1.0 U < 0.50 U		< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 UJ < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U
Methyl tert-butyl ether (MTBE)	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 UJ	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
Methylene Chloride	Ť	ug/L	0.81	< 0.50 U	< 5.0 U	< 5.0 U	< 5.0 UJ	< 5.0 U		< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U
n-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
n-Propylbenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 UJ	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
o-Xylene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
p-Isopropyltoluene	T	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 UJ	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
sec-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Styrene tert-Butvlbenzene	T	ug/L ug/L	< 0.50 U < 0.50 U	< 0.50 UJ < 0.50 UJ	< 0.50 U < 0.50 U		< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 UJ	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U			
Tetrachloroethene (PCE)	+ +	ug/L ug/L	1.1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U	3.41	0.10 J	0.10 J	0.10	0.10 UJ	0.17	0.10	0.10 J	8.5	1.3 J
trans-1,2-Dichloroethene	<del>                                     </del>	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.12	< 0.10 U	3.3	8.2
trans-1,3-Dichloropropene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Trichloroethene (TCE)	Т	ug/L	2.5	< 0.20 U	< 0.20 U	0.34	< 0.20 UJ	0.43	1.93	0.19	0.11	0.17	0.14	< 0.10 U	< 0.10 U	< 0.10 U	60	65
Trichlorofluoromethane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U		< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Vinyl Chloride	Т	ug/L	3.5	4.8	2.9	2.2	0.96 J	1.2	< 0.20 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	0.90 J	1

Notes

entimeter

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per c $\epsilon$  mV = millivolts, NTU = nephlometric turbidity units, C = Celsius

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

VOC = volatile organic compounds

Aspect Consulting

August 2019

		Location Date	MW-06I 06/28/2011	MW-06I 10/12/2011	MW-06I 01/25/2012	MW-06I 05/30/2012	MW-06I 08/15/2012	MW-06I 04/16/2013	MW-06I 03/11/2014	MW-06I 06/16/2014	MW-06I 09/10/2014	MW-06I 12/16/2014	MW-06I 07/13/2016	MW-06I 11/15/2016	MW-06I 10/04/2017	MW-06I 12/12/2017	MW-06I 03/19/2018	MW-06I 06/19/2018
Analyte	Fraction	Sample n Unit	MW-6I-062811	MW-6I-101211	MW-6I-012512	MW-6I-053012	MW-6I-081512	MW-6I-041613	MW-6I-031114	MW-6I-061614	MW-6I-091014	MW-6I-121614	MW6I-071316	MW-6I-111516	MW-6I-100417	MW6I-121217	MW-6I-031918	MW-06I-061918
BTEX	Fraction	i oiii																
Benzene	Т	ug/L	< 0.10 U	< 0.20 U														
Toluene	Т	ug/L	< 0.10 U	< 0.20 U														
Ethylbenzene	T	ug/L	< 0.10 U	< 0.20 U														
Total Xylenes Conventionals	<u> </u>	ug/L																
Chloride	Т	mg/L			I				29	29	29	29	28	26	28	68	50	27
Dissolved Organic Carbon	D	mg/L	-			-		-		-	-				2	1.6 J	2	2
Dissolved Organic Carbon	Т	mg/L	-			-		-		-	-							
Nitrate as Nitrogen	T	mg/L	-					-	< 0.90 UJ	< 0.10 UJ	< 0.90 U	< 0.90 U		< 0.20 U	< 0.20 U	< 0.20 UJ	0.35	< 0.20 U
Nitrite as Nitrogen Silica (SiO2)	T D	mg/L mg/L							3.1 J 	< 0.10 UJ 	3.1	7.6		< 0.40 U				
Sulfate	T	mg/L							30	30	29	28	26	26	25	20	28	25
Total Organic Carbon	Т	mg/L						-										
Total Suspended Solids	Т	mg/L																
Dechlor Bacteria	Т	aalla/baad		1	1		T							1	1		T	
Dehalococcoides (DHC) Dissolved Gases		cells/bead																
Ethane	Т	mg/L													< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Ethene	T	mg/L	-								-				< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Methane	T	mg/L													0.018	0.39	0.66	0.021
Field Parameters Temperature	Т	deg C	17.9	17.7	16.13	18	20.1	14.8	16	16.2	17.7	15.9	18	18.2	18	16.7	16.1	18.4
Specific Conductance	T	uS/cm	616	639	683	637	689	662	659	586.9	627	606	604	610	509	662	640	572
Dissolved Oxygen	Т	mg/L	0.16	0.34	0.21	0.29		0.29	0.15	0.25	0.08	0.15	0.17	0.26	0.15	-	0.3	0.15
рН	Т	pH units	7.75	7.71	7.69	7.58	8.8	7.67	7.47	7.66	7.74	7.78	7.75	7.93	7.78	7.77	7.6	7.35
Oxidation Reduction Potential	T	mV	93.9	-172.3	103.6	-421.4	-138.7	168	116.7	78.9	-17.4	3.9	-15.5	-69.7	-14.8	-45.3	11.4	124.3
Turbidity Metals	<u> </u>	NTU		0.86	2.55	3	1.59	0.96	< 2.0 UJ	< 2.0 UJ	0.91	0.46	0.69	1.2	2.19	0.95	1.03	3.65
Arsenic	Т	mg/L							0.0075	0.0073	0.0072	0.007						
Cadmium	Т	mg/L							< 0.0020 U	< 0.0020 U	< 0.0020 U	< 0.0020 U						
Chromium	T	mg/L						-	< 0.0020 U	< 0.0020 U	< 0.0020 U	< 0.0020 U						
Iron Iron	D T	mg/L mg/L							 < 0.50 U									
Manganese	D	mg/L																
Manganese	Т	mg/L							0.25	0.22	0.18	0.19						
Selenium	T	mg/L	-			-		-	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U						
Other SVOCs Hexachlorobutadiene	Т	ug/L	< 0.20 U	< 0.50 U														
PAHs	<u> </u>	ug/L	< 0.20 0	< 0.20 U	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.50 0	< 0.50 0	< 0.50 0	< 0.50 0	< 0.50 0	< 0.50 0
Naphthalene	Т	ug/L	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U							
PLFA		0/ 5: -:			1							1						
Anaerobic metal reducers (BrMonos)  Decreased Permeability	T	% PLFA ratio trans/cis							<u></u>				<u></u>					
Eukaryotes (polyenoics)	T	% PLFA																
Firmicutes (TerBrSats)	T	% PLFA																
Normal Saturated (Nsats)	Т	% PLFA	-					-										
Proteobacteria (Monos)	T	% PLFA																
Slowed Growth SRB/Actinomycetes (MidBrSats)	T	ratio cy/cis % PLFA																
Total Biomass	T	% PLFA cells/bead							<del></del>				<del></del>					
TPHs																		
Gasoline Range Organics	Т	mg/L																
VFA Acetic Acid	Т	mg/L		1	1													
Butyric Acid	T	mg/L mg/L																
Formic Acid	T	mg/L						-			-							
Hexanoic Acid	Т	mg/L						-										
Isocaproic Acid	T	mg/L	-					-			-							
Isovaleric Acid	T	mg/L									-							
Lactic Acid Pentanoic Acid	T	mg/L mg/L				 												
Propionic Acid	T	mg/L	-					-										
Pyruvic Acid	T	mg/L	-								-							
*	•			•											•			

Project No. 090018, New City Cleaners Richland, Washington

		Location MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I	MW-06I
		Date 06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/15/2012	04/16/2013	03/11/2014	06/16/2014	09/10/2014	12/16/2014	07/13/2016	11/15/2016	10/04/2017	12/12/2017	03/19/2018	06/19/2018
		Sample MW-6I-062811	MW-6I-101211	MW-6I-012512	MW-6I-053012	MW-6I-081512	MW-6I-041613	MW-6I-031114	MW-6I-061614	MW-6I-091014	MW-6I-121614	MW6I-071316	MW-6I-111516	MW-6I-100417	MW6I-121217	MW-6I-031918	MW-06I-061918
Analyte	Fraction	Unit															
VOCs																	
1,1,1,2-Tetrachloroethane	T	ug/L < 0.10 U	< 0.10 UJ	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U							
1,1,1-Trichloroethane	+ +	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U < 0.20 U	< 0.20 U				
1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane	<u> </u>	ug/L < 0.10 U ug/L < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U	< 0.20 U < 0.20 U			
1,1-Dichloroethane	+ +	ug/L < 0.10 U ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U					
1,1-Dichloroethene	†	ug/L 0.28	0.24	0.29	0.27	0.19	0.3	0.31	0.32	0.26	0.3	< 0.10 U	0.34	0.18	0.15	< 0.20 U	0.4
1,1-Dichloropropene	† †	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
1,2,3-Trichlorobenzene	Ť	ug/L < 0.40 U	< 0.40 UJ	< 0.40 U	< 0.50 U												
1,2,3-Trichloropropane	Т	ug/L < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	T	ug/L < 0.20 U	< 0.20 UJ	< 0.20 U	< 0.30 U	< 0.30 U											
1,2,4-Trimethylbenzene	T	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1,2-Dibromo-3-chloropropane	T	ug/L < 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 UJ	< 0.40 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U					
1,2-Dibromoethane (EDB)	T	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	T	ug/L < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U					
1,2-Dichloroethane (EDC)	T	ug/L 0.14	0.11	0.12	0.11	< 0.10 U	< 0.20 U										
1,2-Dichloropropane	T	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.27	< 0.20 U					
1,3,5-Trimethylbenzene	+ +	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U					
1,3-Dichlorobenzene 1,3-Dichloropropane	T	ug/L < 0.20 U ug/L < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.30 U < 0.20 U					
1.4-Dichlorobenzene	+ +	ug/L < 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.30 U	< 0.20 U	< 0.30 U	< 0.20 U	< 0.30 U	< 0.20 U
2,2-Dichloropropane	+ +	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.50 U					
2-Butanone	÷	ug/L															
2-Chlorotoluene	Ť	ug/L < 0.10 U	< 0.10 UJ	< 0.10 U	< 0.50 U												
4-Chlorotoluene	Т	ug/L < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U					
Acetone	T	ug/L															
Bromobenzene	T	ug/L < 0.10 U	< 0.10 UJ	< 0.10 U	< 0.20 U												
Bromochloromethane	T	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U					
Bromodichloromethane	T	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U					
Bromoform	T	ug/L < 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.50 U									
Bromomethane	T	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 U				
Carbon Disulfide		ug/L															
Carbon Tetrachloride Chlorobenzene	 	ug/L < 0.10 U ug/L < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U												
Chloroethane	+ +	ug/L < 0.10 U ug/L < 0.25 U	< 0.25 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.20 U				
Chloroform	+ +	ug/L < 0.10 U	< 0.23 U	< 0.23 U	< 0.10 U	< 0.10 U	< 0.23 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U					
Chloromethane	†	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U
cis-1,2-Dichloroethene (DCE)	Ť	ug/L <b>53</b>	53	57	46	40	61	74	63	67	71	79	110	99	55	48	100
cis-1,3-Dichloropropene	Т	ug/L < 0.10 U	< 0.10 UJ	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U							
Dibromochloromethane	Т	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U					
Dibromomethane	Т	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.20 U					
Dichlorodifluoromethane	T	ug/L < 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ
Isopropylbenzene	Т	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
m,p-Xylenes	T	ug/L < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.50 U					
Methyl tert-butyl ether (MTBE)	<u> </u>	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
Methylene Chloride	1 +	ug/L < 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 5.0 U	< 5.0 U
n-Butylbenzene n-Propylbenzene	1 1	ug/L < 0.10 U ug/L < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.50 U < 0.20 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U			
o-Xylene	<u> </u>	ug/L < 0.10 U ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.50 U	< 0.30 U
p-lsopropyltoluene	+ +	ug/L < 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.30 U					
sec-Butylbenzene	+ +	ug/L < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
Styrene	+ +	ug/L < 0.10 U	< 0.10 UJ	< 0.10 U	< 0.50 U												
tert-Butylbenzene	Ť	ug/L < 0.10 U	< 0.10 UJ	< 0.10 U	< 0.50 U												
Tetrachloroethene (PCE)	T	ug/L 2.3	0.36	1.2	0.6	0.17 J	< 0.10 U	1.4	< 0.10 U	0.11	3.4	< 0.50 U	< 0.50 U	< 0.50 U	< 5.0 U	5.2	< 0.50 U
trans-1,2-Dichloroethene	T	ug/L 7.2	7.3	8.4	6.4	6	8.7	9.6	10	10	13	14	20	18	9.8	8.8	20
trans-1,3-Dichloropropene	Т	ug/L < 0.10 U	< 0.10 UJ	< 0.10 U	< 0.20 U												
Trichloroethene (TCE)	Т	ug/L <b>82</b>	69	72	69	72	57	59	46	48	73	43	58	44	48	71	27
Trichlorofluoromethane	Т	ug/L < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U					
Vinyl Chloride	T	ug/L <b>0.64</b>	0.89	1	0.68	0.96	0.92	0.79	0.8	0.89	0.69	0.84	0.77	0.77	0.35	0.3	0.88
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### Notes

entimeter

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per  $\alpha$  mV = millivolts, NTU = nephlometric turbidity units, C = Celsius

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location Date Sample	MW-06I 09/19/2018 MW-06I-091918	MW-06I 03/20/2019 MW-6I-032019	MW-06S 06/21/2007 MW6S	MW-06S 11/17/2010 MW-6S-111710	MW-06S 03/28/2011 MW-6S-032811	MW-06S 06/28/2011 MW-6S-062811	MW-06S 10/12/2011 MW-6S-101211	MW-06S 01/25/2012 MW-6S-012512	MW-06S 05/30/2012 MW-6S-053012	MW-06S 08/15/2012 MW-6S-081512	MW-06S 04/16/2013 MW-6S-041613	MW-06S 03/11/2014 MW6S-031114	MW-06S 03/11/2014 MW-6S-031114	MW-06S 06/16/2014 MW-6S-061614	MW-06S 09/10/2014 MW-6S-091014	MW-06S 12/16/2014 MW-6S-121614
Analyte	Fraction	Unit																
BTEX Benzene	Т	ug/L	< 0.20 U	< 0.20 U	1	< 0.10 U                              T	< 0.10 U	< 0.10 U	< 0.10 U									
Toluene	T	ug/L ug/L	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U									
Ethylbenzene	Ť	ug/L	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U									
Total Xylenes	Т	ug/L											-			-		
Conventionals	1						1			1							1	
Chloride	T	mg/L	26	25		-						-	-		22	26	25	17
Dissolved Organic Carbon Dissolved Organic Carbon	D T	mg/L mg/L		1.5									-		3			
Nitrate as Nitrogen	i i	mg/L	0.2	< 0.20 U											1.6 J	1.3 J	< 0.90 U	< 0.90 U
Nitrite as Nitrogen	Т	mg/L	< 0.40 U	< 0.40 U											2.7 J	< 0.10 UJ	2.5	6.3
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L	23	24											32	38	28	22
Total Supponded Solida	T	mg/L	2.3															
Total Suspended Solids  Dechlor Bacteria		mg/L																
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases					•													
Ethane	T	mg/L	< 0.0050 U	< 0.0050 U	-	-							-					
Ethene	T	mg/L	< 0.0050 U	< 0.0050 U	-													
Methane Field Parameters	<u> </u>	mg/L	0.017	0.0071	-													
Temperature	Т	deg C	18.4	16.1		18.32	15.93	17.9	19.3	17.13	17.3	20.3	15.1	I	16.1	16.6	18.9	17.7
Specific Conductance	Т	uS/cm	591	546.9		612	538	549.8	518.5	504	488.2	594	616.7		565.7	525.4	665	427.7
Dissolved Oxygen	T	mg/L	0.13	0.4		0.52	2.95	1.08	1.2	0.99	1.48		1.01		1	1.03	0.36	0.37
pH	T	pH units	7.59	7.5		7.44	7.57	7.79	7.82	7.87	7.73	8.18	7.71		7.52	7.61	7.58	7.77
Oxidation Reduction Potential	T	mV NTU	63 1.6	24.6 0.7		106.1 7.63	93.3	79.8	-103.4 0.74	117.4 6.41	-276 6.56	-125 2.39	143.2 4.81		138.6 < 2.0 UJ	<b>95.2</b> < 2.0 UJ	37.9 0.54	0.2 3.5
Turbidity  Metals	<u> </u>	NIO	1.0	0.7		7.03			0.74	0.41	0.50	2.39	4.01		< 2.0 03	< 2.0 03	0.54	3.5
Arsenic	Т	mg/L																
Cadmium	Т	mg/L											-			-		
Chromium	T	mg/L	-	-									-			-		
Iron	D	mg/L				-						-	-					
Iron Manganese	D	mg/L mg/L	< 0.50 U	< 0.50 U									-		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Manganese	T	mg/L																
Selenium	Т	mg/L	-	-		-							-			1		
Other SVOCs																		
Hexachlorobutadiene	T	ug/L	< 0.50 U	< 0.50 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U									
PAHs Naphthalene	ТТ	ug/L	< 10 UJ	< 1.0 U	T	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U					
PLFA	' '	ug/L	- 10 00	- 1.00		- 0.40 00	1 - 0.40 0	- 0.40 0	- 0.40 00	- 0.40 0	1 - 0.40 0	1 - 0.40 0	- 0.40 0	- 0.40 0		- 0.40 0	- 0.40 0	- 0.40 0
Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability		ratio trans/cis			-	-										-		
Eukaryotes (polyenoics)	T	% PLFA			-													
Firmicutes (TerBrSats)  Normal Saturated (Nsats)	+ +	% PLFA % PLFA																
Proteobacteria (Monos)	T	% PLFA																
Slowed Growth		ratio cy/cis											-					
SRB/Actinomycetes (MidBrSats)	T	% PLFA											-					
Total Biomass	T	cells/bead																
TPHs Gasoline Range Organics	Т	mg/L		1	1	1	l .	1	T .	1	T .	1		T .	T .		1	
VFA		IIIg/L											-					
Acetic Acid	Т	mg/L																
Butyric Acid	Т	mg/L		-														
Formic Acid	T	mg/L			-								-			-		
Hexanoic Acid	T	mg/L																
Isocaproic Acid Isovaleric Acid	T	mg/L mg/L																
	<del>+ - +</del>			1	+													
Lactic Acid	T	mg/L																
Lactic Acid Pentanoic Acid	T	mg/L		-									-					
															1			

Project No. 090018, New City Cleaners Richland, Washington

		Location	MW-06I	MW-06I	MW-06S	MW-06S	MW-06S	MW-06S	MW-06S	MW-06S	MW-06S	MW-06S	MW-06S	MW-06S	MW-06S	MW-06S	MW-06S	MW-06S
		Date	09/19/2018	03/20/2019	06/21/2007	11/17/2010	03/28/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/15/2012	04/16/2013	03/11/2014	03/11/2014	06/16/2014	09/10/2014	12/16/2014
	1= 1		MW-06I-091918	MW-6I-032019	MW6S	MW-6S-111710	MW-6S-032811	MW-6S-062811	MW-6S-101211	MW-6S-012512	MW-6S-053012	MW-6S-081512	MW-6S-041613	MW6S-031114	MW-6S-031114	MW-6S-061614	MW-6S-091014	MW-6S-121614
Analyte	Fraction	Unit						<u> </u>		<u> </u>								
VOCs 1,1,1,2-Tetrachloroethane	Т	ug/L	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1.1.1-Trichloroethane	T	ug/L	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1,1,2,2-Tetrachloroethane	Ť	ug/L	< 2.0 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1.1.2-Trichloroethane	Ť	ug/L	< 2.0 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethane	Т	ug/L	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethene	T	ug/L	< 2.0 UJ	0.3		< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloropropene	Т	ug/L	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	T	ug/L	< 0.50 U	< 0.50 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	T	ug/L	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	Т	ug/L	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U	< 2.0 U		< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 UJ	< 0.40 U
1,2-Dibromoethane (EDB)	<u> </u>	ug/L	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene 1,2-Dichloroethane (EDC)	<u> </u>	ug/L	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U		< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U		< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U			
1,2-Dichloropropane	† †	ug/L ug/L	< 2.0 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	+ +	ug/L ug/L	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1.3-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.30 U		< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U		< 0.20 U	< 0.10 U	< 0.20 U
1,3-Dichloropropane	Ť	ug/L	< 2.0 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
1,4-Dichlorobenzene	Т	ug/L	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U
2,2-Dichloropropane	Т	ug/L	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
2-Butanone	Т	ug/L	-	-	< 10 U	-	-			-		-	-	-		_		
2-Chlorotoluene	T	ug/L	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene	T	ug/L	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U
Acetone	T	ug/L			< 25 U													
Bromobenzene	T	ug/L	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Bromochloromethane	+ +	ug/L	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Bromodichloromethane	T	ug/L	< 2.0 UJ	< 0.20 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Bromoform Bromomethane	+ +	ug/L ug/L	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U		< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 UJ	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U		< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U
Carbon Disulfide	T	ug/L ug/L	< 0.50 U	< 0.50 U	< 1.0 U		< 0.10 O		~ 0.10 O	~ 0.10 03		~ 0.10 U	~ 0.10 U	< 0.10 U			~ 0.10 U	~ 0.10 U
Carbon Tetrachloride	† †	ug/L	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Chlorobenzene	Ť	ug/L	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Chloroethane	T	ug/L	< 0.50 U	< 0.50 U		< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U		< 0.25 U	< 0.25 U	< 0.25 U
Chloroform	Т	ug/L	< 0.20 U	< 0.20 U	21.4	0.15	0.13	0.15	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Chloromethane	T	ug/L	< 0.50 U	< 0.50 U	< 5.0 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J		< 0.10 U	< 0.10 U	< 0.10 U
cis-1,2-Dichloroethene (DCE)	T	ug/L	91 J	110	< 1.0 U	1.1	1.4	1.8	0.63	0.58	0.63	0.3	0.48	0.57		0.29	0.25	0.26
cis-1,3-Dichloropropene	T	ug/L	< 2.0 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Dibromochloromethane	T	ug/L	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Dibromomethane	T	ug/L	< 2.0 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 UJ
Dichlorodifluoromethane	T	ug/L	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene	<del>                                     </del>	ug/L	< 1.0 U	< 1.0 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
m,p-Xylenes Methyl tert-butyl ether (MTBE)	T	ug/L ug/L	< 0.50 U < 3.0 UJ	< 0.50 U < 0.30 U		< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U <b>0.1 J</b>		< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U			
Methylene Chloride	+ +	ug/L ug/L	< 50 UJ	< 5.0 U		< 0.10 U	< 0.10 U	< 0.50 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		0.57	< 0.50 U	< 0.10 U
n-Butylbenzene	+ + +	ug/L ug/L	< 5.0 UJ	< 0.50 U		< 0.10 U	< 0.10 U	< 0.50 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.30 U	< 0.50 U		< 0.10 U	< 0.50 U	< 0.30 U
n-Propylbenzene	<del>                                     </del>	ug/L	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
o-Xylene	Ť	ug/L	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
p-Isopropyltoluene	Т	ug/L	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U
sec-Butylbenzene	Т	ug/L	< 1.0 U	< 1.0 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Styrene	Т	ug/L	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
tert-Butylbenzene	Т	ug/L	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Tetrachloroethene (PCE)	T	ug/L	< 0.50 U	< 0.50 U	9.98	10 J	9.7 J	14	7.4 J	8.5	6.4 J	5 J	7.2	3.9		4.3	3.2	3.8
trans-1,2-Dichloroethene	T	ug/L	18	21		0.58	0.67	1	0.41	0.27	0.36	< 0.10 U	0.31	0.39		0.15	0.15	0.12
trans-1,3-Dichloropropene	Т	ug/L	< 2.0 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Trichloroethene (TCE)	T	ug/L	18 J	26	1.33	6.4	7.7	8.7	4.3	3.9	4.1	2.9	4	3.5		2.4	2.3	1.9
Trichlorofluoromethane	T	ug/L	< 0.50 U	< 0.50 U		< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U
Vinyl Chloride	I	ug/L	0.78	0.83	< 0.20 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.020 U	0.03		< 0.020 U	< 0.020 U	< 0.020 U

### Notes

entimeter

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per c $\epsilon$  mV = millivolts, NTU = nephlometric turbidity units, C = Celsius

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location Date Sample	MW-07D 06/21/2007 MW7D	MW-07D 11/17/2010 MW-7D-111710	MW-07D 03/28/2011 MW-7D-032811	MW-07D 06/28/2011 MW-7D-062811	MW-07D 10/12/2011 MW-7D-101211	MW-07D 01/25/2012 MW-7D-012512	MW-07D 05/30/2012 MW-7D-053012	MW-07D 08/15/2012 MW-7D-081512	MW-07I 06/21/2007 MW7I	MW-07I 11/17/2010 MW-7I-111710	MW-07I 03/28/2011 MW-7I-032811	MW-07I 06/28/2011 MW-7I-062811	MW-07I 10/12/2011 MW-7I-101211	MW-07I 01/25/2012 MW-7I-012512	MW-07I 05/30/2012 MW-7I-053012	MW-07I 08/15/2012 MW-7I-081512
Analyte	Fraction	Unit																
BTEX	1 + 1			10.40.11	10.40.11	.04011	.04011	.0.40.11	10.40.11	10.40.11		1 .0.40.11	.0.40.11	10.40.11	.0.40.11	-0.40.11	.0.40.11	.0.40.11
Benzene Toluene	T	ug/L ug/L		< 0.10 U < 0.10 U		< 0.10 U < 0.10 U												
Ethylbenzene	<del>                                     </del>	ug/L		< 0.10 U		< 0.10 U												
Total Xylenes	Т	ug/L																
Conventionals																		
Chloride	T	mg/L																
Dissolved Organic Carbon  Dissolved Organic Carbon	D	mg/L mg/L		1.9							 	2.8						
Nitrate as Nitrogen	+ +	mg/L		< 0.90 U							<u></u>	< 0.90 U						
Nitrite as Nitrogen	Ť	mg/L		< 0.60 U								< 0.60 U	-					
Silica (SiO2)	D	mg/L		38								36						
Sulfate	T	mg/L		52								36						
Total Organic Carbon	T	mg/L							-				-			-	-	
Total Suspended Solids Dechlor Bacteria		mg/L																
Dehalococcoides (DHC)	Т	cells/bead		<u></u>			I											
Dissolved Gases										<u> </u>		<u> </u>						
Ethane	T	mg/L																
Ethene	T	mg/L																
Methane Field Parameters	T	mg/L																
Temperature	ТТ	deg C		16.03	17.15	18	17.3	15.9	17.3	18.6		16.69	16.13	17.8	17.4	16.4	16.9	17.8
Specific Conductance	T	uS/cm		668	709	647	739	760	729	852		635	534	592	546.1	596.2	549.2	583
Dissolved Oxygen	Т	mg/L		0.18	0.14	0.77	1.3	0.49	0.46			0.17	0.31	0.6	1.16	0.38	0.46	
рН	T	pH units		8.13	7.48	7.47	7.49	7.56	8.03	7.55		7.99	7.78	7.77	7.77	7.79	8.03	7.9
Oxidation Reduction Potential	T	mV		-21.3	-110.1	15	-57 0.4	-53.2	-229.8	-182.8		23.7	39.9	-119	-185.9	-102.1	-231.4 1.25	-215.6
Turbidity Metals	<u> </u>	NTU		0.89			0.4	0.84	0.74	0.71		1.23			0.73	1.94	1.25	< 2.0 UJ
Arsenic	Т	mg/L																
Cadmium	Т	mg/L			-				ı				-	-		-	-	
Chromium	Т	mg/L							-									
Iron	D	mg/L		< 0.20 U	-				-			0.55	-			-		
Iron Manganese	D	mg/L mg/L		0.19							 	0.12		 				
Manganese	T	mg/L																
Selenium	T	mg/L																
Other SVOCs																		
Hexachlorobutadiene	Т	ug/L		< 0.20 U		< 0.20 U												
PAHs Naphthalene	ТТ	ug/L		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
PLFA	' '	ug/L		- 0.40 0	- 0.40 0	- 0.40 0	- 0.40 00	- 0.40 0	- 0.40 0	- 0.40 0		- 0.40 0	- 0.40 0	- 0.40 0	- 0.70 00	- 0.40 0	- 0.40 0	- 0.40 0
Anaerobic metal reducers (BrMonos)	Т	% PLFA	-															
Decreased Permeability		ratio trans/cis				-			-									
Eukaryotes (polyenoics)	T	% PLFA	-															
Firmicutes (TerBrSats) Normal Saturated (Nsats)	   T	% PLFA % PLFA									 							
Proteobacteria (Monos)	Ť	% PLFA																
Slowed Growth	T	ratio cy/cis	-															
SRB/Actinomycetes (MidBrSats)	Т	% PLFA	-															
Total Biomass																		
	Т	cells/bead																
TPHs Casolina Panga Organics	<u> </u>						Ī			T		1					T .	
Gasoline Range Organics	T	mg/L	-															
	<u> </u>						Ī											
Gasoline Range Organics VFA	T	mg/L															I	
Gasoline Range Organics VFA Acetic Acid Butyric Acid Formic Acid	T T T T T T	mg/L mg/L mg/L mg/L	  															
Gasoline Range Organics VFA Acetic Acid Butyric Acid Formic Acid Hexanoic Acid	T T T T T	mg/L mg/L mg/L mg/L mg/L					  	  										
Gasoline Range Organics VFA Acetic Acid Butyric Acid Formic Acid Hexanoic Acid Isocaproic Acid	T T T T T T	mg/L mg/L mg/L mg/L mg/L mg/L			  			  					   	   	   			  
Gasoline Range Organics VFA Acetic Acid Butyric Acid Formic Acid Hexanoic Acid Isocaproic Acid Isovaleric Acid	T T T T T T T	mg/L mg/L mg/L mg/L mg/L mg/L mg/L		   			   	  	  		  			   		  		   
Gasoline Range Organics VFA Acetic Acid Butyric Acid Formic Acid Hexanoic Acid Isocaproic Acid	T T T T T	mg/L mg/L mg/L mg/L mg/L mg/L			  			  					   	   	   			  
Gasoline Range Organics VFA Acetic Acid Butyric Acid Formic Acid Hexanoic Acid Isocaproic Acid Isovaleric Acid Lactic Acid	T T T T T T T T T T T T T T T T T T T	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L						   	   				   	   	  	   		   

		Location	MW-07D	MW-07D	MW-07D	MW-07D	MW-07D	MW-07D	MW-07D	MW-07D	MW-07I	MW-07I	MW-07I	MW-07I	MW-07I	MW-07I	MW-07I	MW-07I
		Date	06/21/2007	11/17/2010	03/28/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/15/2012	06/21/2007	11/17/2010	03/28/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/15/2012
Avaluta	Forestern	Sample	MW7D	MW-7D-111710	MW-7D-032811	MW-7D-062811	MW-7D-101211	MW-7D-012512	MW-7D-053012	MW-7D-081512	MW7I	MW-7I-111710	MW-7I-032811	MW-7I-062811	MW-7I-101211	MW-7I-012512	MW-7I-053012	MW-7I-081512
Analyte	Fraction	Unit																
VOCs 1.1.1.2-Tetrachloroethane	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
1.1.1-Trichloroethane	<u> </u>	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1.1.2.2-Tetrachloroethane	Ť	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1.1.2-Trichloroethane	Ť	ug/L	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethane	T	ug/L	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethene	Т	ug/L	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		0.13	< 0.10 U	0.29	0.25	0.18	0.18	0.13
1,1-Dichloropropene	Т	ug/L	1	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	T	ug/L		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	Т	ug/L	-	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	Т	ug/L		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dibromo-3-chloropropane		ug/L	-	< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U		< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
1,2-Dibromoethane (EDB)	I T	ug/L	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene 1,2-Dichloroethane (EDC)		ug/L		< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U		< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U <b>0.25</b>	< 0.20 U < 0.10 U	< 0.20 U <b>0.1</b>	< 0.20 U <b>0.12</b>	< 0.20 U < 0.10 U			
1,2-Dichloropropane	T T	ug/L ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.12 < 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	T	ug/L ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<u></u>	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1.3-Dichlorobenzene	<del>'</del> +	ug/L ug/L		< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.10 U		< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U
1,3-Dichloropropane	<del>†</del>	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,4-Dichlorobenzene	T	ug/L		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
2,2-Dichloropropane	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		0.17	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
2-Butanone	Т	ug/L	< 10 U	-	-						< 10 U						-	
2-Chlorotoluene	Т	ug/L	ı	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene	Т	ug/L	-	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Acetone	T	ug/L	< 25 U		-						< 25 U						-	
Bromobenzene	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Bromochloromethane	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<del></del>	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromodichloromethane	<u> </u>	ug/L	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromoform Bromomothone	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 UJ	< 0.10 U	< 0.10 U		< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U
Bromomethane Carbon Disulfide	<u> </u>	ug/L	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 03	< 0.10 U	< 0.10 UJ	1.74	< 0.10 0	< 0.10 0	< 0.10 U		< 0.10 0	< 0.10 U	< 0.10 U
Carbon Tetrachloride	- <u>'</u>	ug/L ug/L		 < 0.10 U	< 0.10 U	 < 0.10 U	 < 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	 < 0.10 U	 < 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Chlorobenzene	+ +	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloroethane	Ť	ug/L		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
Chloroform	T	ug/L	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloromethane	Т	ug/L	< 5.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 5.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,2-Dichloroethene (DCE)	Т	ug/L	< 1.0 U	0.24	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	15.5	26	58	63	55	41	46	34
cis-1,3-Dichloropropene	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Dibromochloromethane	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromomethane	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dichlorodifluoromethane	T	ug/L		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene	T	ug/L	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
m,p-Xylenes	T	ug/L	-	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Methyl tert-butyl ether (MTBE) Methylene Chloride	T	ug/L ug/L	-	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U		< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U
n-Butylbenzene	T T	ug/L ug/L	-	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Propylbenzene	+ +	ug/L ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
o-Xylene	<del>i</del> i	ug/L	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
p-Isopropyltoluene	Ť	ug/L		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
sec-Butylbenzene	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Styrene	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
tert-Butylbenzene	Т	ug/L	ı	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Tetrachloroethene (PCE)	Т	ug/L	1.81	0.24	0.19 J	0.27	0.32 J	0.28	0.31	0.23 J	190	18	26 J	21	30	21	9.1	23
trans-1,2-Dichloroethene	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		0.76	1.6	3.7	3.2	1.8	3.6	3.2
trans-1,3-Dichloropropene	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Trichloroethene (TCE)	Т	ug/L	1.56	1.1	0.27	0.16	0.1	0.11	0.12	< 0.10 U	88.5	69	95 J	180	240	150	190	230
Trichlorofluoromethane	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Vinyl Chloride	Т	ug/L	< 0.20 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	0.243	0.10 J	0.077	0.41	0.16	0.19	0.19	0.098 J

Notes

entimeter

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation

E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = mV = millivolts, NTU = nephlometric turbidity units, C = Celsius

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location Date Sample	MW-07I 04/16/2013 MW-7I-041613	MW-07I 07/12/2016 MW-7I-071116	MW-07I 11/15/2016 MW-7I-111516	MW-07I 12/11/2017 MW7I-121117	MW-07I 03/19/2018 MW-7I-031918	MW-07I 09/18/2018 MW-7I-091818	MW-07I 03/19/2019 MW-7I-031919	MW-07S 06/21/2007 MW7S	MW-07S 11/17/2010 MW-7S-111710	MW-07S 03/28/2011 MW-7S-032811	MW-07S 06/28/2011 MW-7S-062811	MW-07S 10/12/2011 MW-7S-101211	MW-07S 01/25/2012 MW-7S-012512	MW-07S 05/30/2012 MW-7S-053012	MW-07S 08/15/2012 MW-7S-081512	MW-07S 04/16/2013 MW-7S-041613
Analyte	Fraction	Unit																
BTEX Benzene	ТТ	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			< 0.10 U							
Toluene	T	ug/L ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			< 0.10 U							
Ethylbenzene	Ť	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			< 0.10 U							
Total Xylenes	Т	ug/L						-		-						-		
Conventionals	1			1			1											
Chloride	T	mg/L	-	24 J	25			-		-		-	-			-	-	
Dissolved Organic Carbon  Dissolved Organic Carbon	D T	mg/L mg/L									2.8							
Nitrate as Nitrogen	Ť	mg/L		< 0.20 U	< 0.20 U						< 0.90 U							
Nitrite as Nitrogen	Т	mg/L		< 0.40 U	< 0.40 U					-	< 0.60 U							
Silica (SiO2)	D	mg/L						-		-	51					-		
Sulfate	T	mg/L		19 J	17						34							
Total Organic Carbon	T	mg/L																
Total Suspended Solids Dechlor Bacteria		mg/L								-								
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases	•																	
Ethane	T	mg/L						-	-	-			-					
Ethene	T	mg/L																
Methane Field Parameters	T	mg/L																
Temperature	Т	deg C	15.6	17.1	17.3	16.7	16	17.6	16.2		18.38	15.62	17.6	19.7	16.8	16.8	20	15.3
Specific Conductance	Т	uS/cm	648	460.1	458.6	498.9	689	492	463.5		787	756	690	565	719	651	784	797
Dissolved Oxygen	Т	mg/L	0.56	0.11	0.25		0.36	0.11	0.3	-	1.04	1.7	0.72	1.92	0.9	1.34		1.37
pH	T	pH units	7.77	7.75	8.06	7.67	7.46	7.46	7.8		7.78	7.52	7.65	7.56	7.72	7.96	7.59	7.68
Oxidation Reduction Potential Turbidity	T	mV NTU	110.8 1.96	-80.2 1.24	-97.6 1.28	-135.4 0.73	11.9 14.4	71.6 30.5	95.7 3.2		66.3 2.51	63.1	12.1	-65.8 1.6	-48.3 16.3	-62 1.93	-91.2 8.48	7.26 1.47
Metals	' '	NIO	1.30	1.24	1.20	0.73	14.4	30.3	3.2	-	2.51			1.0	16.3	1.53	0.40	1.47
Arsenic	Т	mg/L																
Cadmium	T	mg/L																
Chromium	T	mg/L																
Iron Iron	D	mg/L mg/L		 < 0.50 U	 < 0.50 U			-			< 0.20 U							
Manganese	D	mg/L		~ 0.30 U	~ 0.50 O				<u>-</u>		0.23							
Manganese	T	mg/L											-					
Selenium	T	mg/L																
Other SVOCs				T								1						
Hexachlorobutadiene	T	ug/L	< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.20 U							
PAHs Naphthalene	Т	ug/L	< 0.40 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U			< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
PLFA	· · ·	ug/∟	- 0. 10 0	. 5.55 6	- 0.50 0	- 0.50 0	1 1.00	- 1.0 0	_				- 0.40 0	- 0. 70 00	. 0.40 0	- 5.70 0	. 5.70 6	- 570 5
Anaerobic metal reducers (BrMonos)	T	% PLFA																
Decreased Permeability		ratio trans/cis						-	-	-			-					
Eukaryotes (polyenoics)	T	% PLFA																
Firmicutes (TerBrSats) Normal Saturated (Nsats)	 	% PLFA % PLFA																
Proteobacteria (Monos)	T	% PLFA						_					_					
Slowed Growth	T	ratio cy/cis														-		
SRB/Actinomycetes (MidBrSats)	T	% PLFA						-										
Total Biomass	Т	cells/bead																
TPHs Gasoline Range Organics	ТТ	mg/L		I	1									I				
VFA	<u> </u>	IIIg/L								-								
Acetic Acid	Т	mg/L								-								
Butyric Acid	T	mg/L								-								
Formic Acid	T	mg/L											-					
Hexanoic Acid Isocaproic Acid	T	mg/L	<u></u>			<u></u>		<u></u>	<u></u>				<u>-</u>			<u></u>		
Isocaproic Acid	T	mg/L mg/L						-										
Lactic Acid	T	mg/L						-	-				-					
Pentanoic Acid	T	mg/L						-					-			-		
Propionic Acid	Т	mg/L						-		-						-		
Pyruvic Acid	Т	mg/L																

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		Location MW-0	MW-07I	MW-07I	MW-07I	MW-07I	MW-07I	MW-07I	MW-07S	MW-07S	MW-07S	MW-07S	MW-07S	MW-07S	MW-07S	MW-07S	MW-07S
		Date 04/16/20			12/11/2017	03/19/2018	09/18/2018	03/19/2019	06/21/2007	11/17/2010	03/28/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/15/2012	04/16/2013
		Sample MW-7I-04	613 MW-7I-0711	16 MW-7I-111516	MW7I-121117	MW-7I-031918	MW-7I-091818	MW-7I-031919	MW7S	MW-7S-111710	MW-7S-032811	MW-7S-062811	MW-7S-101211	MW-7S-012512	MW-7S-053012	MW-7S-081512	MW-7S-041613
Analyte	Fraction	Unit															
VOCs																	
1,1,1,2-Tetrachloroethane	T	ug/L < 0.10		< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,1-Trichloroethane	<u> </u>	ug/L < 0.10		< 0.20 U	< 0.20 U	< 0.20 U < 0.20 U	< 0.20 U	< 0.20 U < 0.20 U		< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane	+ +	ug/L < 0.10 ug/L < 0.10		< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U	< 0.20 U < 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U
1.1-Dichloroethane	+ +	ug/L < 0.10		< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
1.1-Dichloroethene	Ť	ug/L 0.10	0.12	0.17	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloropropene	Ť	ug/L < 0.10		< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	Ť	ug/L < 0.40		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	T	ug/L < 0.20	J < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	T	ug/L < 0.20	J < 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L < 0.10	J < 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dibromo-3-chloropropane	T	ug/L < 0.40	J < 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U			< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
1,2-Dibromoethane (EDB)	T	ug/L < 0.10		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	Ţ	ug/L < 0.20		< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				
1,2-Dichloroethane (EDC)	1 7	ug/L < 0.10		< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
1,2-Dichloropropane	T	ug/L < 0.10		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	+ +	ug/L < 0.10		< 0.50 U	< 0.50 U < 0.30 U	< 0.50 U	< 0.50 U	 < 0.30 U		< 0.10 U <b>0.35</b>	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.20 U	< 0.10 U
1,3-Dichlorobenzene 1,3-Dichloropropane	T	ug/L < 0.20 ug/L < 0.10		< 0.30 U < 0.20 U	< 0.30 U	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U	< 0.30 0		< 0.10 U	<b>0.22</b> < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.10 U
1.4-Dichlorobenzene	T T	ug/L < 0.10		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
2,2-Dichloropropane	<del>'</del> +	ug/L < 0.20		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
2-Butanone	Ť	ug/L							< 10 U								
2-Chlorotoluene	T	ug/L < 0.10	J < 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene	Т	ug/L < 0.20		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Acetone	T	ug/L							< 25 U								
Bromobenzene	T	ug/L < 0.10	J < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromochloromethane	T	ug/L < 0.10		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromodichloromethane	T	ug/L < 0.10		< 0.20 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
Bromoform	T	ug/L < 0.10		< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
Bromomethane	T	ug/L < 0.10		< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 UJ	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 UJ	< 0.10 U
Carbon Disulfide	T	ug/L							< 1.0 U								
Carbon Tetrachloride Chlorobenzene	I	ug/L < 0.10 ug/L < 0.10		< 0.20 U < 0.20 U		< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U				
Chloroethane	T T	ug/L < 0.10 ug/L < 0.25		< 0.50 U	< 0.20 U	< 0.20 U	< 0.50 UJ	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloroform	<u>'</u>	ug/L < 0.23		< 0.20 U	8.57	< 0.23 U	< 0.23 U	< 0.23 U	< 0.10 U	< 0.23 03 < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
Chloromethane	Ť	ug/L < 0.10		< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U	< 5.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1.2-Dichloroethene (DCE)	Ť	ug/L 50	30	33	12	9.2	36	34	2.1	15	9.8	11	9.2	7	5.6	4.1	4.5
cis-1,3-Dichloropropene	T	ug/L < 0.10	J < 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromochloromethane	T	ug/L < 0.10	J < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromomethane	Т	ug/L < 0.10	J < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dichlorodifluoromethane	T	ug/L < 0.40		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U			< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene	Т	ug/L < 0.10		< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
m,p-Xylenes	T	ug/L < 0.20		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Methyl tert-butyl ether (MTBE)	T	ug/L < 0.10		< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 UJ			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Methylene Chloride	1 1	ug/L < 0.50		< 0.50 U	< 0.50 U	< 5.0 U	< 5.0 UJ	< 5.0 U		< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Butylbenzene n-Propylbenzene	+ + +	ug/L < 0.10 ug/L < 0.10		< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U			< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U
1,7	T	5															
o-Xylene p-lsopropyltoluene	T	ug/L < 0.10 ug/L < 0.20		< 0.50 U < 0.30 U			< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 UJ	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U			
sec-Butylbenzene	+ +	ug/L < 0.20		< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U		-	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
Styrene	+ +	ug/L < 0.10		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
tert-Butylbenzene	Ť	ug/L < 0.10		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Tetrachloroethene (PCE)	T T	ug/L 7.6	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	0.87	< 0.50 U	8.72	2.4	1.6 J	3.7	2.7 J	4.4	4.9	3.1 J	4.1
trans-1,2-Dichloroethene	Ť	ug/L 2.7	1.8	1.9	0.44	0.26	4.1	1.8		4.5	0.76	0.95	0.74	0.68	0.52	0.38	0.34
trans-1,3-Dichloropropene	T	ug/L < 0.10		< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
Trichloroethene (TCE)	T	ug/L 110	79	72	20	12	53	36	3.2	6	4.7	6.8	5	6.9	7.1	6.2	7.5
Trichlorofluoromethane	Т	ug/L < 0.10	J < 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Vinyl Chloride	T	ug/L <b>0.27</b>	0.12	0.14	0.03	0.04	0.037	0.075	< 0.20 U	0.062 J	< 0.020 U	< 0.020 U	0.026	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.020 U

Bold - Analyte Detected : microsiemens per centimeter

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

Notes

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = mV = millivolts, NTU = nephlometric turbidity units, C = Celsius

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location	MW-08D	MW-08D	MW-08D	MW-08D	MW-08D	MW-08D	MW-08D	MW-08D	MW-08S	MW-08S	MW-08S	MW-08S	MW-08S	MW-08S	MW-08S	MW-08S
		Date	06/21/2007	11/15/2010	03/28/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/16/2012	06/21/2007	11/15/2010	03/29/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/16/2012
Analyte	Fraction	Sample Unit	MW8D	MW-8D-111510	MW-8D-032811	MW-8D-062811	MW-8D-101211	MW-8D-012512	MW-8D-053012	MW-8D-081612	MW8S	MW-8S-111510	MW-8S-032911	MW-8S-062811	MW-8S-101211	MW-8S-012512	MW-8S-053012	MW-8S-081612
BTEX	1	¥				<u> </u>						<u> </u>		L		l .		
Benzene	T	ug/L	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Toluene	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Ethylbenzene	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Total Xylenes Conventionals	Т	ug/L																
Chloride	ТТ	mg/L					I									l		
Dissolved Organic Carbon	D	mg/L																
Dissolved Organic Carbon	Т	mg/L	-						-	-		-	-	-			-	
Nitrate as Nitrogen	Т	mg/L							-	-								
Nitrite as Nitrogen	T	mg/L																
Silica (SiO2) Sulfate	D	mg/L mg/L	-															
Total Organic Carbon	+ +	mg/L																
Total Suspended Solids	T	mg/L																
Dechlor Bacteria		<u> </u>																
Dehalococcoides (DHC)	T	cells/bead																
Dissolved Gases	1 -			1	1	ı	ı	1		1		1	1	ı	T	ı	1	ı
Ethane	T	mg/L																
Ethene Methane	T	mg/L mg/L																
Field Parameters		mg/L				·	·				-							·
Temperature	T	deg C		15.68	13.86	17.2	16.2	14.8	16.9	17		17.51	13.39	17.03	18.9	15.3	15.8	18
Specific Conductance	T	uS/cm		769	258	727	773	786	763	776		879	921	765	783	779	705	726
Dissolved Oxygen	Т	mg/L		0.15	3.34	0.26	1.06	0.54	0.26			1.46	2.45	2.67	3.48	1.4	1.58	
pH Ovidation Reduction Retardial	T	pH units		8.55 177.1	7.42 80.7	7.64 105.5	7.49 -19.9	7.46 21.5	7.45	7.81 -166.4		7.68 80.5	6.73	7.39 106.5	7.24 -32.8	7.3 36.7	7.27 -275.6	7.55 -30.4
Oxidation Reduction Potential Turbidity	T	mV NTU		3.72		105.5	2.12	5.05	-506.8 12.4	3.48		7.26	14.6	106.5	0.72	4.54	3.27	-30.4 21.9
Metals	<u> </u>	NIO		0.72			2.12	0.00	12.7	0.40		7.20			U.72	7.07	0.27	21.3
Arsenic	T	mg/L								-								
Cadmium	T	mg/L	-						-	-								
Chromium	T	mg/L																
Iron Iron	D T	mg/L mg/L																
Manganese	D	mg/L																
Manganese	T	mg/L																
Selenium	T	mg/L																
Other SVOCs	1					1	1			1		1				1		1
Hexachlorobutadiene PAHs	T	ug/L		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Naphthalene	T	ug/L		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
PLFA																		
Anaerobic metal reducers (BrMonos)	T	% PLFA																
Decreased Permeability Eukaryotes (polyenoics)	T	ratio trans/cis % PLFA																
Firmicutes (TerBrSats)	Ť	% PLFA									-							
Normal Saturated (Nsats)	Ť	% PLFA																
Proteobacteria (Monos)	Т	% PLFA									-							
Slowed Growth	T	ratio cy/cis	-						-	-	-							
SRB/Actinomycetes (MidBrSats) Total Biomass	T	% PLFA																
TPHs		cells/bead																
Gasoline Range Organics	Т	mg/L																
VFA		<u> </u>																
Acetic Acid	Т	mg/L	-						-									
Butyric Acid	T	mg/L																
Formic Acid Hexanoic Acid	T	mg/L																
Isocaproic Acid	T	mg/L mg/L																
Isovaleric Acid	T	mg/L																
Lactic Acid	T	mg/L																
Pentanoic Acid	T	mg/L	-						-									
Propionic Acid	T	mg/L																
Pyruvic Acid	T	mg/L																

		Location	MW-08D	MW-08D	MW-08D	MW-08D	MW-08D	MW-08D	MW-08D	MW-08D	MW-08S	MW-08S	MW-08S	MW-08S	MW-08S	MW-08S	MW-08S	MW-08S
		Date	06/21/2007	11/15/2010	03/28/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/16/2012	06/21/2007	11/15/2010	03/29/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/16/2012
Analida	Frantina.	Sample	MW8D	MW-8D-111510	MW-8D-032811	MW-8D-062811	MW-8D-101211	MW-8D-012512	MW-8D-053012	MW-8D-081612	MW8S	MW-8S-111510	MW-8S-032911	MW-8S-062811	MW-8S-101211	MW-8S-012512	MW-8S-053012	MW-8S-081612
Analyte	Fraction	Unit																
VOCs 1,1,1,2-Tetrachloroethane	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
1,1,1-Trichloroethane	Ť	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,2,2-Tetrachloroethane	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,2-Trichloroethane	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethane	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethene	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloropropene	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	<u> </u>	ug/L		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ < 0.20 U	< 0.40 U < 0.20 U	< 0.40 U	< 0.40 U		< 0.40 U < 0.20 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane 1,2,4-Trichlorobenzene	T T	ug/L ug/L		< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U		< 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 UJ	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U
1,2,4-Tricriloroberizerie	<u>'</u>	ug/L ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U
1,2-Dibromo-3-chloropropane	<del>'</del>	ug/L		< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U		< 0.20 U	< 0.10 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
1,2-Dibromoethane (EDB)	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	Т	ug/L		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2-Dichloroethane (EDC)	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichloropropane	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3-Dichlorobenzene	T	ug/L		0.29	0.23	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		1.2	0.23	0.23	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,3-Dichloropropane 1,4-Dichlorobenzene	1 7	ug/L ug/L		< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U		< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U			
2,2-Dichloropropane	T T	ug/L ug/L		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
2-Butanone	+ +	ug/L ug/L	< 10 U								24.6	~ 0.10 U						~ 0.10 0
2-Chlorotoluene	Ť	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene	Т	ug/L		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Acetone	Т	ug/L	< 25 U								122							
Bromobenzene	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Bromochloromethane	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromodichloromethane	T	ug/L	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromoform	+ +	ug/L		< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 UJ		< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U
Bromomethane Carbon Disulfide	T T	ug/L ug/L	 < 1.0 U	< 0.10 U	< 0.10 0	< 0.10 U	< 0.10 0	< 0.10 U	< 0.10 U	< 0.10 03	1.68	< 0.10 U	< 0.10 0	< 0.10 0	< 0.10 0	< 0.10 0	< 0.10 U	< 0.10 UJ
Carbon Tetrachloride	<u>'</u>	ug/L ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	1.00	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Chlorobenzene	÷	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloroethane	Т	ug/L		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
Chloroform	Т	ug/L	1.1	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloromethane	T	ug/L	< 5.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 5.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,2-Dichloroethene (DCE)	Т	ug/L	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	1.33	72 J	18	11	8.9	18	18	60
cis-1,3-Dichloropropene	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Dibromochloromethane	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	-	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromomethane Dichlorodifluoromethane	T	ug/L ug/L		< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U		< 0.10 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U
Isopropylbenzene	<u>'</u>	ug/L ug/L		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
m,p-Xylenes	Ť	ug/L		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U
Methyl tert-butyl ether (MTBE)	Ť	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Methylene Chloride	Т	ug/L		< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Butylbenzene	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
n-Propylbenzene	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
o-Xylene	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
p-Isopropyltoluene	T	ug/L		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
sec-Butylbenzene Styrene	T	ug/L ug/L		< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U		< 0.10 U <b>0.1</b>	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 UJ	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U			
tert-Butylbenzene	+ +	ug/L ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Tetrachloroethene (PCE)	<del>'</del> †	ug/L ug/L	< 1.0 U	< 0.10 U	0.14 J	0.38	< 0.10 UJ	0.15	0.11	0.43 J	10	35	43 J	140	110 J	140	100	67 J
trans-1,2-Dichloroethene	Ť	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		0.12	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
trans-1,3-Dichloropropene	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Trichloroethene (TCE)	Т	ug/L	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	3.62	7	21	12	9.6	12	12	19
Trichlorofluoromethane	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Vinyl Chloride	Т	ug/L	< 0.20 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.20 U	0.25 J	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	0.055

: microsiemens per centimeter

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation

E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligramV = millivolts, NTU = nephlometric turbid

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location Date Sample	MW-08S 04/16/2013 MW-8S-041613	MW-08S 07/13/2016 MW 8S-071316	MW-08S 11/16/2016 MW-8S-111616	MW-08S 04/11/2018 MW8S-041118	MW-08S 09/18/2018 MW-8S-091818	MW-08S 03/19/2019 MW-8S-031919	MW-09D 06/21/2007 MW9D	MW-09D 11/15/2010 MW-9D-111510	MW-09D 03/28/2011 MW-9D-032811	MW-09D 06/28/2011 MW-9D-062811	MW-09D 10/12/2011 MW-9D-101211	MW-09D 01/25/2012 MW-9D-012512	MW-09D 05/30/2012 MW-9D-053012	MW-09D 08/16/2012 MW-9D-081612	MW-09S 06/21/2007 MW9S	MW-09S 11/15/2010 MW-9S-111510
Analyte	Fraction	Unit																
BTEX Benzene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			< 0.10 U	l	< 0.10 U						
Toluene	Ť	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			< 0.10 U		< 0.10 U						
Ethylbenzene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	-		< 0.10 U		< 0.10 U						
Total Xylenes	Т	ug/L																
Conventionals		, ,		1	T		T			T			T	1	T	T	T	
Chloride Dissolved Organic Carbon	T D	mg/L mg/L																
Dissolved Organic Carbon	T	mg/L									-							
Nitrate as Nitrogen	Ť	mg/L																
Nitrite as Nitrogen	Т	mg/L																
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L	-															
Total Organic Carbon Total Suspended Solids	T	mg/L mg/L																
Dechlor Bacteria		mg/L																
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases							_			_								
Ethane	T	mg/L	-								-							
Ethene	T	mg/L									-							
Methane Field Parameters	<u> </u>	mg/L																
Temperature	Т	deg C	13.6	19.3	19.3	15.2	19.9	15		14.05	14.17	15.8	14.2	13.32	15.3	16.1		14.91
Specific Conductance	Т	uS/cm	735	607	735	887	798	771		787	703	695	751	781	734	1479		391
Dissolved Oxygen	T	mg/L	3.79	1.63	1.23	3.89	1.42	5.2		0.22	0.35	0.88	0.34	0.15	1.16	0.84		0.21
pH	T	pH units	7.2	7.17	7	7.12	7.08	7.1		8.56	7.41	7.58	7.59	7.57	8.17	7.44		8.18
Oxidation Reduction Potential Turbidity	T	mV NTU	86.7 2.41	77.7	134.6 12.2	156.6 0.9	29	106.1 1.4		145.5 0.53	-18.6 	-23.8	-153.7 0.18	50.9 1.01	-119.4 2.71	-27.1 0.88		22.1 2.5
Metals	<u> </u>	NIO	2.41		12.2	0.5	2.00	1.4		0.55			0.10	1.01	2.71	0.00		2.5
Arsenic	T	mg/L																
Cadmium	T	mg/L																
Chromium	T	mg/L																
Iron	D	mg/L																
Iron Manganese	D	mg/L mg/L				 												
Manganese	T	mg/L																
Selenium	Т	mg/L																
Other SVOCs				1						<u> </u>				1				
Hexachlorobutadiene	T	ug/L	< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.20 U		< 0.20 U						
PAHs Naphthalene	Т	ug/L	< 0.40 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U			< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	l	< 0.40 U
PLFA		ug/L	- 0.40 0	- 0.00 0	- 0.00 0	- 1.0 0	- 1.00			- 0.40 0	- 0.40 0	- 0.40 0	- 0.40 00	- 0.40 0	- 0.40 0	- 0.40 0		- 0.40 0
Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability		ratio trans/cis																
Eukaryotes (polyenoics)	T	% PLFA																
Firmicutes (TerBrSats) Normal Saturated (Nsats)	I   T	% PLFA % PLFA																
Proteobacteria (Monos)	T	% PLFA % PLFA							<u></u>									<del></del>
Slowed Growth	T	ratio cy/cis									_				-			
SRB/Actinomycetes (MidBrSats)	Т	% PLFA																
Total Biomass	Т	cells/bead						<u>-</u>			-		<b>-</b> -		<u></u>	<u></u>		
TPHs		, ,		1	T		T			T			T	1	T	T	T	
Gasoline Range Organics VFA	T	mg/L																
Acetic Acid	ТТ	mg/L		l	1					I				l	I	I	l	
Butyric Acid	T	mg/L																
Formic Acid	Т	mg/L									-							
Hexanoic Acid	T	mg/L									-	-						
Isocaproic Acid	T	mg/L																
Isovaleric Acid Lactic Acid	T	mg/L	<u></u>			<u></u>			<u></u>	-	-	-						
Pentanoic Acid	T	mg/L mg/L				 												
Propionic Acid	T	mg/L																
Pyruvic Acid	Т	mg/L																
					L													

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Part			Location	MW-08S	MW-08S	MW-08S	MW-08S	MW-08S	MW-08S	MW-09D	MW-09D	MW-09D	MW-09D	MW-09D	MW-09D	MW-09D	MW-09D	MW-09S	MW-09S
August																			11/15/2010
Column			Sample	MW-8S-041613	MW 8S-071316	MW-8S-111616	MW8S-041118	MW-8S-091818	MW-8S-031919	MW9D	MW-9D-111510	MW-9D-032811	MW-9D-062811	MW-9D-101211	MW-9D-012512	MW-9D-053012	MW-9D-081612	MW9S	MW-9S-111510
1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12   1.12		Fraction	Unit																<u></u>
1.																		1	
1		T	0																< 0.10 U
1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2	, ,	T																	< 0.10 U
Fig.   Continue	, , ,	<u> </u>	0																< 0.10 U
15.00mcalabas   7	, ,																		< 0.10 U
Department	· /	+ +																	< 0.10 U
1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2   1.2	· /	+ +	J.																< 0.10 U
1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52   1.52		+ +																	< 0.10 U < 0.40 U
1.4 Tempersperse	, ,-	+ +							+										< 0.40 U
1.4 Personal		+ +							+										< 0.20 U
12 Decomparises   1		+ +	0							<u></u>									< 0.10 U
12 Determinant (150)	· · · · · · · · · · · · · · · · · · ·	+ +	0																< 0.20 U
12-00tendengeme		<del>'</del> +	J.																< 0.10 U
12-Debendersmane (FIC)	, , ,	<del>                                     </del>	0																< 0.20 U
15Definementation	,	<del>                                     </del>	0																< 0.10 U
13.5 Timesylversenee	, , ,	T	0																< 0.10 U
13 Delichostomere		T	0																< 0.10 U
1.50-throsposeme	, ,	T																	0.49
ED-Content processor	,-	T																	< 0.10 U
28therenoises	1,4-Dichlorobenzene	T	ug/L	< 0.20 U	< 0.30 U	< 0.30 UJ	< 0.30 U	< 0.30 U	< 0.30 U		< 0.20 U		< 0.20 U						
2200montheture	2,2-Dichloropropane	T	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U		< 0.10 U
Achiene	2-Butanone	Т	ug/L							< 10 U		-						< 10 U	
Antering   T   ugh	2-Chlorotoluene	T	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.10 U		< 0.10 U						
Bomenhammer	4-Chlorotoluene	T	ug/L	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U			< 0.20 U		< 0.20 U						
Bonnechtaromethane	Acetone	T	ug/L							< 25 U								< 25 U	
Bromochimomethane	Bromobenzene	T	ug/L																< 0.10 U
Bromordom	Bromochloromethane	T	ug/L																< 0.10 U
Sementehane		Т	0							< 1.0 U								< 1.0 U	< 0.10 U
Carbon Desirible																			< 0.10 U
Carbon Friendhoide		<u> </u>																	< 0.10 U
Chlorotherane																			
Chicrosthane		1 <u>1</u>	0																< 0.10 U
Chloromethane		+ +																	< 0.10 U
Chicomethane		+ +																	< 0.25 U < 0.10 U
Cast_12_Dichlorethene   DCE    T   ug/L   13   6.4   4.1   1.1   0.38   0.32   < 1.0 U   < 0.10 U		+ +	0																< 0.10 U
Cis-13-Dichloropropene		+ +	0																0.49
Dibromochloromethane	, , , ,	+ +	J.																< 0.10 U
Dibromethane		†	0																< 0.10 U
Dichrodifiluromethane		<del>                                     </del>	0																< 0.10 U
Sepropylbenzene		T	0																< 0.40 U
Methylene   T   ug/L		Т	0																< 0.10 U
Methyler Chloride		T	0																< 0.20 U
n-Butylbenzene T ug/L <0.10 U <0.50 U	-1 7	T																	< 0.10 U
n-Propylbenzene T ug/L <0.10 U <0.20 U <0.20 U <0.30 U <0.30 U <0.10 U <0.00 U <0.10 U <0.00 U <0.10 U <0	Methylene Chloride	Т	0						< 5.0 U										< 0.10 U
o-Xylene         T         ug/L         < 0.10 U         < 0.50 U         < 0.30 U         < 0.20 U         < 0.10	n-Butylbenzene	Т	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U			< 0.10 U		< 0.10 U						
P-isopropyltoluene	n-Propylbenzene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U			< 0.10 U		< 0.10 U						
Sec-Butylbenzene   T   ug/L   < 0.10 U   < 0.50 U   < 0.10 U   <	o-Xylene	T	ug/L																< 0.10 U
Styrene		T	ug/L																< 0.20 U
tert-Butylbenzene         T         ug/L         < 0.10 U         < 0.50 U         < 0.10 U         <		T																	< 0.10 U
Tetrachloroethene (PCE)         T         ug/L         140         61         71         37         36         24         < 1.0 U         < 0.10 U         <	Styrene	T	ug/L																< 0.10 U
	,	Т																	< 0.10 U
trans-1,3-Dichloropropene         T         ug/L         < 0.10 U         < 0.20 U         < 0.10 U	\ /	Т								< 1.0 U									0.29
Trichloroethene (TCE)         T         ug/L         12         4         3.8         1         1         0.68         < 1.0 U         < 0.10 U         < 0.	,	-																	< 0.10 U
Trichlorofluoromethane T ug/L < 0.10 U < 0.50 U		T																	< 0.10 U
	\ /	T																	0.19
Vinvi   Plant		T																	< 0.10 U
	Vinyl Chloride	T	ug/L	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.20 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.20 U	< 0.020 U

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = r mV = millivolts, NTU = nephlometric D = dissolved, T = total PLFA = phospholipid-derived fatty ac SVOC = semivolatile organic compc TPH = total petroleum hydrocarbon VFA = volatile fatty acids VOC = volatile organic compounds

		Location Date Sample	MW-09S 03/28/2011 MW-9S-032811	MW-09S 06/28/2011 MW-9S-062811	MW-09S 10/12/2011 MW-9S-101211	MW-09S 01/25/2012 MW-9S-012512	MW-09S 05/30/2012 MW-9S-053012	MW-09S 08/16/2012 MW-9S-081612	MW-10D 11/16/2010 MW-10D-111610	MW-10D 03/29/2011 MW-10D-032911	MW-10D 06/28/2011 MW-10D-062811	MW-10D 10/11/2011 MW-10D-101111	MW-10D 01/25/2012 MW-10D-012512	MW-10D 05/30/2012 MW-10D-053012	MW-10D 08/15/2012 MW-10D-081512	MW-10I 11/16/2010 MW-10I-111610	MW-10I 03/29/2011 MW-10I-032911	MW-10I 06/27/2011 MW-10I-062711
	Fraction	Unit																
BTEX Benzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
Toluene	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
Ethylbenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
Total Xylenes	Т	ug/L																
Conventionals	Т	ma/l		I							I	T	T	T		T	I	
Chloride Dissolved Organic Carbon	D	mg/L mg/L							<del></del>									
Dissolved Organic Carbon	T	mg/L																
Nitrate as Nitrogen	T	mg/L																
Nitrite as Nitrogen	T	mg/L																
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L						-	-	-					-			-
Total Organic Carbon Total Suspended Solids	T	mg/L mg/L							<u></u>									
Dechlor Bacteria		IIIg/L				<del></del>												
Dehalococcoides (DHC)	Т	cells/bead													_			
Dissolved Gases														·			•	
Ethane	Т	mg/L																
Ethene	T	mg/L																
Methane	T	mg/L							<u></u>									
Field Parameters Temperature	Т	deg C	13.57	16	14.7	14.09	14.8	15.5	16.52	15.25	16.9	16.9	15.57	16.4	18.2	17.39	15.35	17.3
Specific Conductance	Ť	uS/cm	408	414.4	341.4	362	464.7	758	791	703	685	739	752	735	1474	685	673	667
Dissolved Oxygen	T	mg/L	0.23	0.76	0.39	0.27	0.68	0.97	0.2	0.23	1.31	0.46	0.17	0.29	0.98	0.18	0.71	0.15
pH	T	pH units	7.32	7.39	7.36	7.19	7.72	6.95	8.35	7.51	7.65	7.5	7.58	7.44	7.44	8.35	7.51	7.64
Oxidation Reduction Potential	T	mV	-67.7	-86	-168.3	-6.9	-99.8	-27	187.4	29.4	93.4	17.6	61.1	-623.5	-219.5	39.6	-51	-53.3
Turbidity	<u> </u>	NTU			1.66	13.1	9.08	3.8	1.61			0.61	0.5	0.61	0.99	0.69		
Metals Arsenic	Т	mg/L		I							I			T	I	I	l	
Cadmium	Ť	mg/L																
Chromium	Ť	mg/L																
Iron	D	mg/L																
Iron	T	mg/L						-	-	-					-			-
Manganese	D	mg/L																
Manganese Selenium	T	mg/L mg/L							<del></del>									
Other SVOCs	_ '	IIIg/L																
Hexachlorobutadiene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
PAHs	•											•			•	•		
Naphthalene	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U					
PLFA Anaerobic metal reducers (BrMonos)	Т	% PLFA									I				I		I	
Decreased Permeability	Ť	ratio trans/cis																
Eukaryotes (polyenoics)	Т	% PLFA																
Firmicutes (TerBrSats)	T	% PLFA						-	-	-					-			-
Normal Saturated (Nsats)	T	% PLFA																
Proteobacteria (Monos) Slowed Growth	T	% PLFA ratio cy/cis																
SRB/Actinomycetes (MidBrSats)	T	% PLFA							 						-			
Total Biomass	Ť	cells/bead													-			
TPHs												<u> </u>						
Gasoline Range Organics	Т	mg/L							< 0.050 U							0.13		
VFA	_	m = //		ı			ı	1			1			1			1	
Acetic Acid Butyric Acid	T	mg/L mg/L							 									
Formic Acid	†	mg/L																
Hexanoic Acid	Ť	mg/L							-									
Isocaproic Acid	Т	mg/L								-								
Isovaleric Acid	T	mg/L																
Lactic Acid	T	mg/L							-	-					-			
Pentanoic Acid	T	mg/L																
Propionic Acid	T	mg/L																
Pyruvic Acid	Т	mg/L																

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		Location Date Sample	MW-09S 03/28/2011 MW-9S-032811	MW-09S 06/28/2011 MW-9S-062811	MW-09S 10/12/2011 MW-9S-101211	MW-09S 01/25/2012 MW-9S-012512	MW-09S 05/30/2012 MW-9S-053012	MW-09S 08/16/2012 MW-9S-081612	MW-10D 11/16/2010 MW-10D-111610	MW-10D 03/29/2011 MW-10D-032911	MW-10D 06/28/2011 MW-10D-062811	MW-10D 10/11/2011 MW-10D-101111	MW-10D 01/25/2012 MW-10D-012512	MW-10D 05/30/2012 MW-10D-053012	MW-10D 08/15/2012 MW-10D-081512	MW-10I 11/16/2010 MW-10I-111610	MW-10I 03/29/2011 MW-10I-032911	MW-10I 06/27/2011 MW-10I-062711
Analyte	Fraction	Unit	WW-93-032011	WW-93-002011	WW-93-101211	WWV-93-012312	WW-93-033012	WW-93-081612	WWV-10D-111610	WW-10D-032911	WW-10D-002811	WWV-10D-101111	WW-10D-012512	WW-10D-033012	. IWW-10D-081312	WW-101-111010	WW-101-032911	WWV-101-062711
VOCs	<del></del>			1 .0.40.11	1 .0.40.11	0.4011			0.40.11		1 .0.40.11	1 .0.40.111	10.4011	1 .0.40.11	10.4011		10.40.11	
1,1,1,2-Tetrachloroethane	T	ug/L	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	T	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	
1.1.2-Trichloroethane	+ +	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
1,1-Dichloroethane	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
1,1-Dichloroethene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.3	0.28							
1,1-Dichloropropene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
1,2,3-Trichlorobenzene	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U					
1,2,3-Trichloropropane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
1,2,4-Trichlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	-										
1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane	+ +	ug/L	< 0.10 U < 0.20 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 UJ	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 UJ	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	
1,2-Dibromoethane (EDB)	+ +	ug/L ug/L	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.20 U	< 0.20 U	< 0.40 U	< 0.20 U	< 0.20 U					
1,2-Dischlorobenzene	<del>'</del> +	ug/L	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U						
1,2-Dichloroethane (EDC)	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
1,2-Dichloropropane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
1,3,5-Trimethylbenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
1,3-Dichlorobenzene	Т	ug/L	0.33	0.29	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	0.31	< 0.20 U	0.25	< 0.20 U						
1,3-Dichloropropane	<u> </u>	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
1,4-Dichlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	-						
2,2-Dichloropropane 2-Butanone	T	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	
2-Chlorotoluene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U											
4-Chlorotoluene	† †	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Acetone	Ť	ug/L																
Bromobenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U											
Bromochloromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
Bromodichloromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
Bromoform	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U							
Bromomethane	T	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-				
Carbon Disulfide Carbon Tetrachloride	<u> </u>	ug/L ug/L	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 UJ	 < 0.10 U											
Chlorobenzene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
Chloroethane	Ť	ug/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	
Chloroform	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.18	< 0.10 U							
Chloromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
cis-1,2-Dichloroethene (DCE)	T	ug/L	0.42	0.54	0.29	0.19	0.28	0.29	0.27	0.29	0.17	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	55	84	
cis-1,3-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U											
Dibromochloromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
Dibromomethane Dichlorodifluoromethane	T	ug/L ug/L	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U							
Isopropylbenzene	+ +	ug/L ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U							
m,p-Xylenes	T	ug/L	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U								
Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
Methylene Chloride	T	ug/L	< 0.10 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.10 U	< 0.10 U									
n-Butylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
n-Propylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
o-Xylene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
p-Isopropyltoluene	T	ug/L	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 UJ < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	
sec-Butylbenzene Styrene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	
tert-Butylbenzene	T	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U											
Tetrachloroethene (PCE)	Ť	ug/L	< 0.10 UJ	0.28	< 0.10 UJ	0.22	0.14	0.2 J	0.44	0.84 J	0.83	1	1.1	1.4	0.8 J	270 J	200 J	
trans-1,2-Dichloroethene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.89	1.6							
trans-1,3-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	-										
Trichloroethene (TCE)	T	ug/L	0.16	0.16	0.11	< 0.10 U	0.13	0.1	0.6	0.7	0.45	0.31	0.36	0.24	0.18	210 J	330	
Trichlorofluoromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-						
Vinyl Chloride	Т	ug/L	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.020 U	0.02	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	0.10 J	0.17	

nilligrams per liter, uS/cm = microsiemens per centimeter turbidity units, C = Celsius

sids

und

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon

VFA = volatile fatty acids VOC = volatile organic compounds

		Location Date	MW-10I 06/28/2011	MW-10I 10/11/2011	MW-10I 01/25/2012	MW-10I 05/30/2012	MW-10I 08/15/2012	MW-10I 04/16/2013	MW-10I 03/12/2014	MW-10I 06/17/2014	MW-10I 09/10/2014	MW-10I 12/16/2014	MW-10I 07/13/2016	MW-10I 11/15/2016	MW-10I 10/04/2017	MW-10I 12/12/2017	MW-10I 03/19/2018	MW-10I 06/19/2018
	1	Sample	MW-10I-062811	MW-10I-101111	MW-10I-012512	MW-10I-053012	MW-10I-081512	MW-10I-041613	MW-10I-031214	MW-10I-061714	MW-10I-091014	MW-10I-121614	MW10I-071316	MW-10I-111516	MW-10I-100417	MW10I-121217	MW-10I-031918	MW-10I-061918
Analyte	Fraction	Unit																
BTEX Benzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U												
Toluene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U												
Ethylbenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U												
Total Xylenes	<u> </u>	ug/L																
Conventionals Chloride	Ιт	mg/L			1				24	27	30	15	20	15	24	40	20	20
Dissolved Organic Carbon	D	mg/L	-												1.5	1.5 J	2.1	1.6
Dissolved Organic Carbon	Т	mg/L						-		-	-				-	-		-
Nitrate as Nitrogen	Т	mg/L						-	< 0.90 UJ	< 0.10 UJ	< 0.90 U	< 0.90 U		< 0.20 U	< 0.20 U	< 0.20 UJ	0.41	< 0.20 U
Nitrite as Nitrogen	T	mg/L							3.1 J	< 0.10 UJ	< 0.60 U	7.3		< 0.40 U				
Silica (SiO2) Sulfate	D T	mg/L mg/L				<u></u>			 27	 29	20	 12	 17	 15	20	23	 29	 25
Total Organic Carbon	Ť	mg/L																
Total Suspended Solids	Т	mg/L													-			
Dechlor Bacteria	_																	
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases Ethane	Т	mg/L						I							< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Ethene	T	mg/L	-								-				< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Methane	T	mg/L									-				0.28	0.17	0.077	0.16
Field Parameters				1	1		1	1							1		1	
Temperature Specific Conductance	T	deg C		17.4	16.13	17.3 665	18.8	15.9 702	15.4 539.3	16 614	17.8 804	15.4	18.2	17.8	16.5	16.2 498.5	16.3 483.6	17.8 491.6
Dissolved Oxygen	T	uS/cm mg/L		748 0.65	704 0.15	0.3	1585 0.98	0.75	0.09	0.26	0.27	508 0.16	547.6 0.12	483.1 0.23	428.4 0.48	498.5	0.3	0.15
pH	† †	pH units		7.53	7.6	7.44	7.41	7.58	7.7	7.64	7.48	7.67	7.59	7.9	7.7	7.82	7.64	7.26
Oxidation Reduction Potential	Т	mV		-133.3	9.2	489.6	-180.1	-50.1	-72	-63.3	42.2	-78.8	-72.1	-106	-28.8	-104.9	-12	81.4
Turbidity	T	NTU		0.38	0.73	0.15	2.14	2	0.39	0.34	0.79	1.63	1.19	1.32	1.66	1.46	2.31	3.68
Metals Arsenic	Т	mg/L		I			I		0.0052	0.0059	< 0.0050 U	< 0.0050 U						
Cadmium	† †	mg/L							< 0.0032	< 0.0039 < 0.0020 U	< 0.0030 U	< 0.0030 U						
Chromium	Ť	mg/L							< 0.0020 U	< 0.0020 U	< 0.0020 U	< 0.0020 U						
Iron	D	mg/L																
Iron	T	mg/L							< 0.50 U	< 0.50 U	0.61	0.63	< 0.50 U					
Manganese	D T	mg/L							0.074	0.084	0.091	0.079						
Manganese Selenium	<del> </del>	mg/L mg/L							< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U						
Other SVOCs		1g, = 1							0.0000	0.0000	0.0000	0.0000						
Hexachlorobutadiene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.50 U												
PAHs	Т т	/	< 0.40 H	< 0.40 UJ	- 0 40 II	< 0.40 U	< 0.40 U	< 0.40 U	* 0 F0 II	< 0.50 U	* O FO I I	* 0 F0 II	< 1.0 U	< 1.0 U				
Naphthalene PLFA	Т	ug/L	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 0	< 0.40 0	< 0.40 0	< 0.40 0	< 0.40 0	< 0.40 0	< 0.40 0	< 0.50 U	V 0.50 U	< 0.50 U	< 0.50 U	× 1.0 U	< 1.0 0
Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability	Т	ratio trans/cis																
Eukaryotes (polyenoics)	T	% PLFA																
Firmicutes (TerBrSats)  Normal Saturated (Nsats)	T	% PLFA % PLFA														<u></u>		
Proteobacteria (Monos)	† †	% PLFA	 															
Slowed Growth	T	ratio cy/cis									-							
SRB/Actinomycetes (MidBrSats)	Т	% PLFA									-							
Total Biomass	Т	cells/bead																
TPHs Gasoline Range Organics	Т	mg/L		T .			T .							T .			T .	
VFA	<u>' '</u>	ilig/L																
Acetic Acid	Т	mg/L																
Butyric Acid	T	mg/L																
Formic Acid	T	mg/L																
Hexanoic Acid Isocaproic Acid	T	mg/L	<u></u>			<u></u>			<u></u>	<u></u>		<u></u>				<u></u>		
Isocaproic Acid	T	mg/L mg/L				<del></del>												
Lactic Acid	T	mg/L	-								-							
Pentanoic Acid	Ť	mg/L									-							
Propionic Acid	Т	mg/L																
Pyruvic Acid	Т	mg/L																

Project No. 090018, New City Cleaners Richland, Washington

		Location Date Sample	MW-10I 06/28/2011 MW-10I-062811	MW-10I 10/11/2011 MW-10I-101111	MW-10I 01/25/2012 MW-10I-012512	MW-10I 05/30/2012 MW-10I-053012	MW-10I 08/15/2012 MW-10I-081512	MW-10I 04/16/2013 MW-10I-041613	MW-10I 03/12/2014 MW-10I-031214	MW-10I 06/17/2014 MW-10I-061714	MW-10I 09/10/2014 MW-10I-091014	MW-10I 12/16/2014 MW-10I-121614	MW-10I 07/13/2016 MW10I-071316	MW-10I 11/15/2016 MW-10I-111516	MW-10I 10/04/2017 MW-10I-100417	MW-10I 12/12/2017 MW10I-121217	MW-10I 03/19/2018 MW-10I-031918	MW-10I 06/19/2018 MW-10I-061918
Analyte	Fraction	Unit		<u> </u>							<u> </u>			<u> </u>			<u> </u>	
VOCs 1,1,1,2-Tetrachloroethane	ТТ	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U							
1,1,1-Trichloroethane	Ť	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U									
1,1,2,2-Tetrachloroethane	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U									
1,1,2-Trichloroethane	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U									
1,1-Dichloroethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U 0.25	< 0.10 U	< 0.10 U	< 0.10 U 0.33	< 0.10 U <b>0.49</b>	< 0.10 U	< 0.10 U	< 0.20 U <b>0.26</b>	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloroethene 1,1-Dichloropropene	† †	ug/L ug/L	<b>0.36</b> < 0.10 U	<b>0.38</b> < 0.10 U	<b>0.2 J</b> < 0.10 U	< 0.10 U	<b>0.33</b> < 0.10 U	<b>0.31</b> < 0.10 U	< 0.10 U	< 0.10 U	<b>0.32</b> < 0.10 U	<b>0.19</b> < 0.10 U	< 0.10 U	<b>0.18</b> < 0.10 U	<b>0.11</b> < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U
1.2.3-Trichlorobenzene	† †	ug/L	< 0.40 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U									
1,2,3-Trichloropropane	Т	ug/L	< 0.20 U                               < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U											
1,2,4-Trichlorobenzene	T	ug/L	< 0.20 U	< 0.20 UJ	< 0.20 U                               < 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U									
1,2,4-Trimethylbenzene	T	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U							
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB)	T	ug/L	< 0.40 U < 0.10 U	< 0.40 UJ < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 UJ < 0.10 U	< 0.40 U < 0.10 U	< 2.0 U < 0.10 U	< 2.0 U < 0.10 U	< 2.0 U < 0.10 U	< 2.0 U < 0.10 U	< 2.0 U < 0.10 U	< 2.0 U < 0.10 U
1,2-Distribution (EDB)	† †	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.30 U	< 0.10 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,2-Dichloroethane (EDC)	Ť	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U									
1,2-Dichloropropane	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U									
1,3,5-Trimethylbenzene	Т	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U									
1,3-Dichlorobenzene	T	ug/L	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U									
1,3-Dichloropropane	T	ug/L	< 0.10 U < 0.20 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U									
1,4-Dichlorobenzene 2,2-Dichloropropane	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U				
2-Butanone	Ť	ug/L																
2-Chlorotoluene	Т	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U									
4-Chlorotoluene	T	ug/L	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U									
Acetone	Ţ	ug/L																
Bromobenzene Bromochloromethane	T	ug/L ug/L	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U
Bromodichloromethane	+ +	ug/L ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U									
Bromoform	Ť	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U				
Bromomethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 U				
Carbon Disulfide	Т	ug/L	-	-			-				-			-				
Carbon Tetrachloride	T	ug/L	< 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chlorobenzene Chloroethane	T	ug/L ug/L	< 0.10 U < 0.25 U	< 0.10 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U
Chloroform	† †	ug/L	< 0.10 U	0.42	0.12	0.12	0.29	0.12	0.12	0.11	0.75	0.24	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chloromethane	T	ug/L	< 0.10 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U									
cis-1,2-Dichloroethene (DCE)	Т	ug/L	94	120	84	70	140	76	76	120	330	150	260	120	110	78	56	130
cis-1,3-Dichloropropene	T	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U							
Dibromochloromethane	T	ug/L	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 UJ	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U			
Dibromomethane Dichlorodifluoromethane	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.40 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ < 0.40 U	< 0.20 U	< 0.20 U	< 0.40 U	< 0.20 U	< 0.20 U	< 0.40 UJ
Isopropylbenzene	Ť	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U							
m,p-Xylenes	Т	ug/L	< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U									
Methyl tert-butyl ether (MTBE)	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U									
Methylene Chloride	T	ug/L	< 0.50 U                               < 0.50 U	< 0.50 U	< 0.50 U	< 5.0 U	< 5.0 U											
n-Butylbenzene n-Propylbenzene	T	ug/L ug/L	< 0.10 U < 0.10 U	< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U									
o-Xylene	Ť	ug/L ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U									
p-lsopropyltoluene	Т	ug/L	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U							
sec-Butylbenzene	Т	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U									
Styrene	Ţ	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
tert-Butylbenzene	T	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
Tetrachloroethene (PCE) trans-1.2-Dichloroethene	T	ug/L ug/L	300 1.8	630 J 1.6	440 1.5	400 1.3	580 J 2.3	350 1.7	200 1.3	280 2.1	320 1.7	250 0.71	90 1.6	120 0.84	80 1.1	46 0.77	33 0.96	29 2.2
trans-1,3-Dichloropropene	Ť	ug/L ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Trichloroethene (TCE)	T	ug/L	340	310	300	270	400	330	320	420	230	200	98	120	100	76	90	130
Trichlorofluoromethane	Т	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U									
Vinyl Chloride	Т	ug/L	0.16	0.16	0.081 J	0.082	0.2	0.057	0.095	0.11	< 0.020 U	0.047	0.11	0.06	< 0.020 U	0.052	0.049	< 0.020 U

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected
U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids VOC = volatile organic compounds

		Location	MW 401	MW 401	MW 44D	MW 44D	MW 42D	MW 42D	M/A/ 421	M/A/ 421	M/M/ 421	M/A/ 421	MM 421	MW 43D	MW 42D	MW 42D	MW 42D	MM 42D
		Location Date	MW-10I 09/19/2018	MW-10I 03/20/2019	MW-11D 11/17/2010	MW-11D 01/25/2012	MW-12D 11/15/2010	MW-12D 01/25/2012	MW-12I 11/15/2010	MW-12I 01/25/2012	MW-12I 04/16/2013	MW-12I 03/11/2014	MW-12I 12/16/2014	MW-13D 11/17/2010	MW-13D 03/29/2011	MW-13D 06/27/2011	MW-13D 10/11/2011	MW-13D 01/25/2012
		Sample	MW-10I-091918	MW-10I-032019				MW-12D-012512			MW-12I-041613	MW-12I-031114	MW-12I-121614		MW-13D-032911			MW-13D-012512
Analyte	Fraction	Unit																
BTEX				T							T			T		T	T	
Benzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Toluene	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Ethylbenzene Total Xylenes	T	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Conventionals	_ ' _ 1	ug/L			<del></del>											<del></del>		
Chloride	Т	mg/L	25	26														
Dissolved Organic Carbon	D	mg/L		2.3														
Dissolved Organic Carbon	T	mg/L	-	-		-	-	-	-	-	-		-	1.2	-			-
Nitrate as Nitrogen	Т	mg/L	< 0.20 U	< 0.20 U					-				-	< 0.90 U				
Nitrite as Nitrogen	T	mg/L	< 0.40 U	< 0.40 U										< 0.60 U				
Silica (SiO2)	D =	mg/L				-	-		-	-					-			-
Sulfate	T	mg/L	22	20										73				
Total Organic Carbon Total Suspended Solids	T	mg/L mg/L																
Dechlor Bacteria	' '	mg/L			_ <del></del>													
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases																		
Ethane	Т	mg/L	< 0.0050 U	< 0.0050 U														
Ethene	Т	mg/L	0.0067	< 0.0050 U			-		-	-			-					-
Methane	T	mg/L	1.1	1.1														
Field Parameters Temperature	Т	deg C	17.2	16.3	15.04	14.2	17.03	16.05	17.76	16.16	16.8		17.4	17.16	16.4	17.7	18.1	16.88
Specific Conductance	T	uS/cm	545.1	577.8	833	890	787	801	811	825	883		874	785	741	673	732	798
Dissolved Oxygen	†	mg/L	0.13	0.2	0.18	0.26	0.18	0.33	0.26	0.52	0.79		0.17	0.2	0.11	0.7	0.28	0.22
pH	Ť	pH units	7.42	7.5	7.56	7.41	8.46	7.49	8.2	7.49	7.48		7.32	7.93	7.55	7.54	7.56	7.6
Oxidation Reduction Potential	Т	mV	35.6	-60.1	103.4	157.2	246.9	134.2	248.6	132.3	9.9		-25.4	153.8	59	89.1	22.9	116.2
Turbidity	T	NTU	2.4	2.1	1.22	1.27	1.09	1.12	0.46	1.31	0.34		0.43	3.23			0.6	0.79
Metals														T		1		
Arsenic	T	mg/L					-		-	-				-	-			-
Cadmium Chromium	T	mg/L mg/L																
Iron	D	mg/L												< 0.20 U				
Iron	T	mg/L	< 0.50 U	< 0.50 U														
Manganese	D	mg/L												0.14				
Manganese	T	mg/L							-	-			-		-			
Selenium	Т	mg/L																
Other SVOCs														1	1	1		
Hexachlorobutadiene	T	ug/L	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
PAHs Naphthalene	ТТ	ug/L	< 10 UJ	< 1.0 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U
PLFA		ug/L	· 10 00	1.00	> 0.40 03	~ U.+U U	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	~ 0.40 U	~ U.+U U	\ U. <del>+</del> U U	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	\ U. <del>+</del> U U	~ 0.40 U	, v.40 U	~ 0.40 U	, v.40 U	\ \ \.+\(\) \(\)	\ U. <del>4</del> U U
Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability	Т	ratio trans/cis							-									
Eukaryotes (polyenoics)	T	% PLFA																
Firmicutes (TerBrSats)	T	% PLFA							-	-			-					
Normal Saturated (Nsats)	T	% PLFA						-										
Proteobacteria (Monos) Slowed Growth	T	% PLFA ratio cy/cis												-	-			<del></del>
SRB/Actinomycetes (MidBrSats)	<u> </u>	% PLFA																
Total Biomass	†	cells/bead																
TPHs								1										
Gasoline Range Organics	Т	mg/L																
VFA																		
Acetic Acid	T	mg/L																
Butyric Acid	T	mg/L																
Formic Acid	T	mg/L																
Hexanoic Acid Isocaproic Acid	T	mg/L mg/L				<u></u>												
Isovaleric Acid	Ť	mg/L				<del></del>												
Lactic Acid	Ť	mg/L						-										
Pentanoic Acid	Ť	mg/L																
Propionic Acid	Т	mg/L							-	-			-					
Pyruvic Acid	Т	mg/L																
<del></del>						_	<u> </u>						_		<u> </u>			

Project No. 090018, New City Cleaners Richland, Washington

		Location	MW-10I	MW-10I	MW-11D	MW-11D	MW-12D	MW-12D	MW-12I	MW-12I	MW-12I	MW-12I	MW-12I	MW-13D	MW-13D	MW-13D	MW-13D	MW-13D
		Date	09/19/2018	03/20/2019	11/17/2010	01/25/2012	11/15/2010	01/25/2012	11/15/2010	01/25/2012	04/16/2013	03/11/2014	12/16/2014	11/17/2010	03/29/2011	06/27/2011	10/11/2011	01/25/2012
	1	Sample	MW-10I-091918	MW-10I-032019	MW-11D-111710	MW-11D-012512	MW-12D-111510	MW-12D-012512	MW-12I-111510	MW-12I-012512	MW-12I-041613	MW-12I-031114	MW-12I-121614	MW-13D-111710	MW-13D-032911	MW-13D-062711	MW-13D-101111	MW-13D-012512
Analyte	Fraction	Unit																
VOCs 1.1.1.2-Tetrachloroethane	ТТ	ug/L	< 0.30 U	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U
1.1.1-Trichloroethane	<del>                                     </del>	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,2,2-Tetrachloroethane	<del>i</del>	ug/L	< 2.0 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1.1.2-Trichloroethane	Ť	ug/L	< 2.0 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethene	Т	ug/L	0.2	< 0.20 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloropropene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U	< 2.0 U	< 0.20 U	< 0.40 U	< 0.20 U	< 0.40 U	< 0.20 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene 1,2-Dichloroethane (EDC)	T	ug/L ug/L	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U
1,2-Dichloropropane	+ +	ug/L ug/L	< 2.0 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	† † †	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3-Dichlorobenzene	†	ug/L	< 0.30 U	< 0.30 U	0.31	< 0.20 U	0.4	< 0.20 U	0.45	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U
1,3-Dichloropropane	Ť	ug/L	< 2.0 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,4-Dichlorobenzene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
2,2-Dichloropropane	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
2-Butanone	T	ug/L																
2-Chlorotoluene	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Acetone	T	ug/L																
Bromobenzene	+ +	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U
Bromochloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromodichloromethane	T	ug/L	< 2.0 UJ < 0.50 U	< 0.20 U < 0.50 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 UJ	< 0.10 U < 0.10 U
Bromoform Bromomethane	T	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 UJ	< 0.10 U               < 0.10 U	< 0.10 UJ	< 0.10 UJ					
Carbon Disulfide	†	ug/L																
Carbon Tetrachloride	<del>i</del>	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U
Chlorobenzene	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloroethane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.25 UJ	< 0.25 UJ	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 UJ	< 0.25 U               < 0.25 U	< 0.25 U	< 0.25 UJ					
Chloroform	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloromethane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,2-Dichloroethene (DCE)	T	ug/L	170 J	240	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,3-Dichloropropene	Т	ug/L	< 2.0 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U
Dibromochloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromomethane	+ +	ug/L	< 2.0 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dichlorodifluoromethane	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene	T	ug/L	< 1.0 U < 0.50 U	< 1.0 U < 0.50 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 UJ < 0.20 U	< 0.10 U < 0.20 U
m,p-Xylenes Methyl tert-butyl ether (MTBE)	† † †	ug/L ug/L	< 3.0 UJ	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Methylene Chloride	+ +	ug/L	< 50 UJ	< 5.0 U	< 0.10 U	< 0.50 U	< 0.10 U	< 0.50 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Butylbenzene	<del>i</del>	ug/L	< 5.0 UJ	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
n-Propylbenzene	Ť	ug/L	< 0.30 U	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
o-Xylene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
p-Isopropyltoluene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U
sec-Butylbenzene	Т	ug/L	< 1.0 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Styrene	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U
tert-Butylbenzene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U
Tetrachloroethene (PCE)	Т	ug/L	36	27	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	0.15	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.38 J	0.33	0.35	0.35 J	0.33
trans-1,2-Dichloroethene	T	ug/L	1.4	2.5	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
trans-1,3-Dichloropropene	T	ug/L	< 2.0 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U
Trichloroethene (TCE)	T	ug/L	55 J	69	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.12	< 0.10 U	0.1	< 0.10 U	< 0.10 U
Trichlorofluoromethane Vinyl Chloride	T	ug/L ug/L	< 0.50 U < 0.020 U	< 0.50 U <b>0.36</b>	< 0.10 UJ < 0.020 U	< 0.10 U < 0.020 UJ	< 0.10 U < 0.020 U	< 0.10 U < 0.020 UJ	< 0.10 U < 0.020 U	< 0.10 U < 0.020 UJ	< 0.10 U < 0.020 U	< 0.10 U 0.066	< 0.10 U < 0.020 U	< 0.10 U < 0.020 U	< 0.10 U < 0.020 UJ			
Virryi Criloride	1 1	ug/L	\ U.UZU U	0.30	<u> </u>	~ U.UZU UJ	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	\ U.UZU UJ	\ 0.020 U	<u> </u>	\ 0.020 U	\ \ 0.020 U	<u> </u>	\ 0.020 U	0.000	\ 0.020 U	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	~ U.UZU UJ

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date	MW-13D 05/30/2012	MW-13D 08/15/2012	MW-13I 11/17/2010	MW-13I 03/29/2011	MW-13I 06/27/2011	MW-13I 10/11/2011	MW-13I 01/25/2012	MW-13I 05/30/2012	MW-13I 08/15/2012	MW-13I 04/11/2018	MW-13I 09/18/2018	MW-13I 03/19/2019	MW-14D 11/16/2010	MW-14D 03/29/2011	MW-14D 06/27/2011	MW-14D 10/11/2011
Analyte	Fraction	Sample Unit	MW-13D-053012	MW-13D-081512	MW-13I-111710	MW-13I-032911	MW-13I-062711	MW-13I-101111	MW-13I-012512	MW-13I-053012	MW-13I-081512	MW13I-041118	MW-13I-091818	MW-13I-031919	MW-14D-111610	MW-14D-032911	MW-14D-062711	MW-14D-101111
BTEX	Traction	1 0																
Benzene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
Toluene	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
Ethylbenzene	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
Total Xylenes	T	ug/L																
Conventionals Chloride	Т	mg/L			1										T			
Dissolved Organic Carbon	D	mg/L	-							-	-						-	_
Dissolved Organic Carbon	Т	mg/L			2.2													
Nitrate as Nitrogen	T	mg/L			5.1													
Nitrite as Nitrogen	T	mg/L			< 0.60 U													
Silica (SiO2) Sulfate	D T	mg/L			32	 									-			
Total Organic Carbon	T	mg/L mg/L																
Total Suspended Solids	T	mg/L																
Dechlor Bacteria		·																
Dehalococcoides (DHC)	T	cells/bead																
Dissolved Gases	l <del>-</del>						1	1							_			
Ethane Ethene	T	mg/L mg/L	<del></del>			<u></u>			<del></del>	<u></u>							<u></u>	-
Methane	T	mg/L																
Field Parameters	<u>'</u>	g/L		-		-		-		_						_		
Temperature	Т	deg C	17	19.3	18.45	14.62	17.9	20.3	16.7	16.3	20.3	16.4	20.5	16	18.61	16.45	18	19.1
Specific Conductance	T	uS/cm	720	834	930	1064	992	825	843	739	911	1351	1122	1112	762	799	700	701
Dissolved Oxygen	T	mg/L	0.35		2.46	1.58	3.55	2.62	1.45	4.49		3.98	2.51	4.9	0.27	0.16	3.31	0.6
рн Oxidation Reduction Potential	T	pH units mV	7.51 -122.2	7.91 -170.6	7.37 153.4	7.87 83.6	7.1 92.3	7.15 77.5	7.14 39.2	7.14 38.7	7.26 11.1	7.03 144.9	7.02 10.8	7.2 104.9	7.97 128.1	7.95 47.1	7.69 122	7.57 -132.4
Turbidity	Ť	NTU	0.37	0.78	0.89			0.35	1.07	1.2	0.37	75.4	0.94	0.6	1.27			1.39
Metals	•	1	<u> </u>	<u> </u>	<u> </u>			0.00			<u> </u>		0.0					
Arsenic	T	mg/L																
Cadmium	T	mg/L																
Chromium	T	mg/L	-								-						-	
Iron Iron	D T	mg/L mg/L			< 0.20 U	 												
Manganese	D	mg/L			< 0.020 U													
Manganese	T	mg/L																
Selenium	T	mg/L																
Other SVOCs				1			1	1							1			2.22.11
Hexachlorobutadiene PAHs	T	ug/L	< 0.20 U	< 0.50 U	< 0.50 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U								
Naphthalene	Т	ug/L	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 1.0 U	< 1.0 U		< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 UJ				
PLFA	<u> </u>	~g/L	3.10 0	3.100	3.100	3.10 0	3.100	3.70 00	3.10 0	3.10 0	3.10 0				3.10.00	3.10 0	3.10 0	30 00
Anaerobic metal reducers (BrMonos)	Т	% PLFA									-							
Decreased Permeability	T	ratio trans/cis	-								-							
Eukaryotes (polyenoics)	T	% PLFA									-							
Firmicutes (TerBrSats) Normal Saturated (Nsats)	T	% PLFA % PLFA																
Proteobacteria (Monos)	T	% PLFA																
Slowed Growth	Ť	ratio cy/cis																
SRB/Actinomycetes (MidBrSats)	Т	% PLFA									-							
Total Biomass	Т	cells/bead																
TPHs	-	m=//						1				I		1	T			
Gasoline Range Organics VFA	T	mg/L																
Acetic Acid	Т	mg/L													_			-
Butyric Acid	T	mg/L	-								-							
Formic Acid	Т	mg/L									-							-
Hexanoic Acid	T	mg/L	-								-							
Isocaproic Acid	T	mg/L									-							
Isovaleric Acid Lactic Acid	T	mg/L mg/L				 												
Pentanoic Acid	T	mg/L									-						<del></del>	-
Propionic Acid	T	mg/L									-							-
Pyruvic Acid	T	mg/L									-							
	•							•						•	•			

Project No. 090018, New City Cleaners Richland, Washington

		Location Date Sample	MW-13D 05/30/2012 MW-13D-053012	MW-13D 08/15/2012 MW-13D-081512	MW-13I 11/17/2010 MW-13I-111710	MW-13I 03/29/2011 MW-13I-032911	MW-13I 06/27/2011 MW-13I-062711	MW-13I 10/11/2011 MW-13I-101111	MW-13I 01/25/2012 MW-13I-012512	MW-13I 05/30/2012 MW-13I-053012	MW-13I 08/15/2012 MW-13I-081512	MW-13I 04/11/2018 MW13I-041118	MW-13I 09/18/2018 MW-13I-091818	MW-13I 03/19/2019 MW-13I-031919	MW-14D 11/16/2010 MW-14D-111610	MW-14D 03/29/2011 MW-14D-032911	MW-14D 06/27/2011 MW-14D-062711	MW-14D 10/11/2011 MW-14D-101111
Analyte	Fraction	Unit			<u> </u>							<u> </u>		<u> </u>				
VOCs 1,1,1,2-Tetrachloroethane	ТТ	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ				
1.1.1-Trichloroethane	Ť	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
1,1,2,2-Tetrachloroethane	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
1,1,2-Trichloroethane	Т	ug/L	< 0.10 U	0.53	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U					
1,1-Dichloroethane	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
1,1-Dichloroethene	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U								
1,1-Dichloropropene 1,2,3-Trichlorobenzene	I	ug/L ug/L	< 0.10 U < 0.40 U	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U		< 0.10 U < 0.40 U											
1.2.3-Trichloropropane	<del>'</del> +	ug/L ug/L	< 0.40 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.40 U	< 0.20 U	< 0.20 U	< 0.40 U							
1,2,4-Trichlorobenzene	Ť	ug/L	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ				
1,2,4-Trimethylbenzene	Т	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ				
1,2-Dibromo-3-chloropropane	T	ug/L	< 0.40 U	< 0.40 U	< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 2.0 U	< 2.0 U		< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ
1,2-Dibromoethane (EDB)	Т	ug/L	< 0.10 U                               < 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U										
1,2-Dichlorobenzene	Ţ	ug/L	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U								
1,2-Dichloroethane (EDC)	1 1	ug/L	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 UJ	< 0.20 U < 0.20 U	< 0.10 U < 0.10 U											
1,2-Dichloropropane 1,3,5-Trimethylbenzene	+ +	ug/L ug/L	< 0.10 U	< 0.20 U	< 0.20 UJ < 0.50 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
1.3-Dichlorobenzene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	0.10 0	< 0.10 U	< 0.30 U	< 0.30 U	< 0.30 U	0.47	< 0.10 U	< 0.10 U	< 0.10 U					
1,3-Dichloropropane	Ť	ug/L	< 0.10 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
1,4-Dichlorobenzene	Т	ug/L	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U								
2,2-Dichloropropane	T	ug/L	< 0.10 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
2-Butanone	T	ug/L																
2-Chlorotoluene	T	ug/L	< 0.10 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
4-Chlorotoluene Acetone	T T	ug/L	< 0.20 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U								
Bromobenzene	<del>'</del> +	ug/L ug/L	 < 0.10 U	< 0.10 U	< 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 UJ	 < 0.10 U	 < 0.10 U	 < 0.10 U	< 0.20 U	 < 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	 < 0.10 UJ
Bromochloromethane	Ť	ug/L	< 0.10 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
Bromodichloromethane	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
Bromoform	Т	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ
Bromomethane	Т	ug/L	< 0.10 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
Carbon Disulfide	T	ug/L																
Carbon Tetrachloride Chlorobenzene	I	ug/L ug/L	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U				
Chloroethane	T T	ug/L ug/L	< 0.10 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
Chloroform	Ť	ug/L	< 0.10 U	0.76	0.13	< 0.10 U	< 0.10 U	0.2	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
Chloromethane	T	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U								
cis-1,2-Dichloroethene (DCE)	Т	ug/L	< 0.10 U	< 0.10 U	0.22	0.2	0.11	1.9	0.86	0.23	0.12	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,3-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ				
Dibromochloromethane	<u> </u>	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
Dibromomethane Dichlorodifluoromethane	1 1	ug/L	< 0.10 U < 0.40 U	< 0.20 U < 0.40 U	< 0.20 U < 0.40 U		< 0.10 U < 0.40 U											
Isopropylbenzene	+ +	ug/L ug/L	< 0.40 U	< 0.40 U < 0.10 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U < 0.10 UJ				
m,p-Xylenes	+ +	ug/L ug/L	< 0.10 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U								
Methyl tert-butyl ether (MTBE)	Ť	ug/L	< 0.10 U	< 0.30 U	< 0.30 UJ		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
Methylene Chloride	Т	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.50 U	< 5.0 U	< 5.0 UJ	< 5.0 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U				
n-Butylbenzene	T	ug/L	< 0.10 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
n-Propylbenzene	T	ug/L	< 0.10 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
o-Xylene	T	ug/L	< 0.10 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
p-Isopropyltoluene	1 1	ug/L	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 UJ < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.30 U < 1.0 U	< 0.30 U < 1.0 U		< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 UJ < 0.10 U
sec-Butylbenzene Styrene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 1.0 U	< 1.0 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 UJ
tert-Butylbenzene	† †	ug/L ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ				
Tetrachloroethene (PCE)	Ť	ug/L	0.25	0.16 J	39 J	13	18	16 J	47	30	9 J	7.7	12	7.5	0.28 J	0.38	0.35	0.33 J
trans-1,2-Dichloroethene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U								
trans-1,3-Dichloropropene	T	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ				
Trichloroethene (TCE)	Т	ug/L	< 0.10 U	< 0.10 U	2	3	1.9	1.7	2.4	1	0.66	0.42	0.24	0.28	0.16	0.18	0.15	0.14
Trichlorofluoromethane	<u> </u>	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U								
Vinyl Chloride	T	ug/L	< 0.020 U	0.028	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U				

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date	MW-14D 01/25/2012	MW-14D 05/30/2012	MW-14D 08/15/2012	MW-14I 11/16/2010	MW-14I 03/29/2011	MW-14I 06/27/2011	MW-14I 10/11/2011	MW-14I 01/25/2012	MW-14I 05/30/2012	MW-14I 08/15/2012	MW-14I 04/16/2013	MW-14I 10/31/2013	MW-14I 03/11/2014	MW-14I 09/09/2014	MW-14I 07/12/2016	MW-14I 11/15/2016
	l = .:	Sample	MW-14D-012512	MW-14D-053012	MW-14D-081512	MW-14I-111610	MW-14I-032911	MW-14I-062711	MW-14I-101111	MW-14I-012512	MW-14I-053012	MW-14I-081512	MW-14I-041613	MW-14I-103113	MW-14I-031114	MW-14I-090914	MW-14I-071116	MW-14I-111516
	Fraction	Unit																
BTEX Benzene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U													
Toluene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U													
Ethylbenzene	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U													
Total Xylenes	Т	ug/L																
Conventionals Chloride	Т	mg/L		I	I I									I			110 J	67
Dissolved Organic Carbon	D	mg/L									-							
Dissolved Organic Carbon	T	mg/L									-							
Nitrate as Nitrogen	T	mg/L															5.5 J	3.7
Nitrite as Nitrogen Silica (SiO2)	T D	mg/L mg/L															< 0.40 U	< 0.40 U
Sulfate	T	mg/L															36 J	31
Total Organic Carbon	Т	mg/L																
Total Suspended Solids	Т	mg/L																
Dechlor Bacteria	-	T		T	T			1		-				T	1			
Dehalococcoides (DHC) Dissolved Gases	T	cells/bead																
Ethane	Т	mg/L									-							
Ethene	Т	mg/L									-					-		
Methane	Т	mg/L																
Field Parameters	Т	dea C	16.7	17.1	19.1	19.67	15.57	17.5	20.3	17.17	15.9	18.9	16.1	20.4		20.4	18.4	20.5
Temperature Specific Conductance	T	deg C uS/cm	758	744	1393	981	990	1082	913	17.17	912	834	1256	901		894	964	848
Dissolved Oxygen	Ť	mg/L	0.45	0.12	0.67	2.23	3.25	5.65	1.97	1.08	4.27		3.25	5.12		2.1	3.81	1.77
рН	T	pH units	7.54	7.49	7.54	7.37	7.11	7.2	7.16	7.26	7.11	7.24	7.13	7.14		7.13	7.18	7.43
Oxidation Reduction Potential	T	mV	7.3	-482.7	-41.9	129.4	76.6	134.9	-1.1	64	-66.6	63.3	53.6	211.1		138.4	146.9	-43.7
Turbidity Metals	T	NTU	1.19	0.6	2.01	26.5			0.82	3.24	2.98	1.63	0.62	1.01		0.22	1.46	1.3
Arsenic	Т	mg/L																
Cadmium	Т	mg/L					-	-		-	-				-	-		
Chromium	T	mg/L									-							
Iron Iron	D T	mg/L mg/L									-		 			 	 < 0.50 U	 < 0.50 U
Manganese	D	mg/L																
Manganese	Т	mg/L														-		
Selenium	Т	mg/L																
Other SVOCs	Т	ua/l	< 0.20 U	< 0.2011	< 0.20 U	< 0.20 U	< 0.50.11	< 0.50 U										
Hexachlorobutadiene PAHs	<u> </u>	ug/L	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 0	< 0.20 U	< 0.20 0	< 0.20 0	< 0.50 U	< 0.50 0
Naphthalene	Т	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.50 U	< 0.50 U						
PLFA		1 0/ =: :		1	1									ı				
Anaerobic metal reducers (BrMonos)	T T	% PLFA																
Decreased Permeability Eukaryotes (polyenoics)	T	ratio trans/cis % PLFA																
Firmicutes (TerBrSats)	T	% PLFA									-							
Normal Saturated (Nsats)	T	% PLFA																
Proteobacteria (Monos)	T	% PLFA									-							
Slowed Growth	T	ratio cy/cis % PLFA						-										
SRB/Actinomycetes (MidBrSats) Total Biomass	T	% PLFA cells/bead											<del></del>			<u></u>		
TPHs																		
Gasoline Range Organics	Т	mg/L				< 0.050 U												
VFA	T +							1				1		<u> </u>	1			
Acetic Acid Butyric Acid	T	mg/L mg/L											<u></u>					
Formic Acid	T	mg/L									-							
Hexanoic Acid	Ť	mg/L								-	-							
Isocaproic Acid	T	mg/L														-		
Isovaleric Acid	T	mg/L																
Lactic Acid Pentanoic Acid	T T	mg/L mg/L				<u></u>			<u></u>		-							
Propionic Acid	†	mg/L											<del></del>					
Pyruvic Acid	T	mg/L									-							
		. J					i							1			i .	

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		Location	MW-14D	MW-14D	MW-14D	MW-14I	MW-14I	MW-14I	MW-14I	MW-14I	MW-14I	MW-14I	MW-14I	MW-14I	MW-14I	MW-14I	MW-14I	MW-14I
		Date	01/25/2012	05/30/2012	08/15/2012	11/16/2010	03/29/2011	06/27/2011	10/11/2011	01/25/2012	05/30/2012	08/15/2012	04/16/2013	10/31/2013	03/11/2014	09/09/2014	07/12/2016	11/15/2016
Analyte	Fraction	Sample Unit	MW-14D-012512	MW-14D-053012	MW-14D-081512	MW-14I-111610	MW-14I-032911	MW-14I-062711	MW-14I-101111	MW-14I-012512	MW-14I-053012	MW-14I-081512	MW-14I-041613	MW-14I-103113	MW-14I-031114	MW-14I-090914	MW-14I-071116	MW-14I-111516
VOCs	Fraction	UIIIL																
1,1,1,2-Tetrachloroethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
1,1,1-Trichloroethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
1,1,2,2-Tetrachloroethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
1,1,2-Trichloroethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
1,1-Dichloroethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.20 U	< 0.20 U
1,1-Dichloroethene	T	ug/L	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U
1,1-Dichloropropene 1,2,3-Trichlorobenzene	+ +	ug/L ug/L	< 0.10 U	< 0.40 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.40 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.50 U
1,2,3-Trichloropropane	<del>†</del>	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 2.0 U	< 2.0 U
1,2-Dibromoethane (EDB)	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1,2-Dichloroethane (EDC) 1,2-Dichloropropane	T	ug/L ug/L	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 UJ	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U
1,3,5-Trimethylbenzene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
1,3-Dichlorobenzene	†	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	0.39	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1,3-Dichloropropane	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
1,4-Dichlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
2,2-Dichloropropane	T	ug/L	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U
2-Butanone	Т	ug/L																
2-Chlorotoluene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U
4-Chlorotoluene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
Acetone Bromobenzene	+ +	ug/L ug/L	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 UJ	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.20 U	 < 0.20 U
Bromochloromethane	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
Bromodichloromethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
Bromoform	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U
Bromomethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 1.0 U	< 1.0 U
Carbon Disulfide	T	ug/L																
Carbon Tetrachloride	T	ug/L	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U
Chlorobenzene Chloroethane	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.25 UJ	< 0.10 U	< 0.10 U	< 0.25 U	< 0.25 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U
Chloroform	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.17	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.21	< 0.20 U
Chloromethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J	< 0.10 U	< 0.30 U	< 0.30 U
cis-1,2-Dichloroethene (DCE)	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	0.5	3.3	1.1	0.25	0.29	0.11	< 0.10 U	0.12	< 0.10 U	< 0.10 U	< 0.10 U	1.9	0.23
cis-1,3-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U
Dibromochloromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
Dibromomethane Dichlorodifluoromethane	T	ug/L ug/L	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.20 U < 0.40 U	< 0.20 U < 0.40 U
Isopropylbenzene	+ +	ug/L ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
m,p-Xylenes	<del>'</del>	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.50 U	< 0.50 U
Methyl tert-butyl ether (MTBE)	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J	< 0.10 U	< 0.20 U	< 0.20 U
Methylene Chloride	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Butylbenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U
n-Propylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
o-Xylene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U
p-Isopropyltoluene sec-Butylbenzene	<del>                                     </del>	ug/L ug/L	< 0.20 UJ < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 UJ < 0.10 U	< 0.20 UJ < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.30 U < 0.50 U	< 0.30 U < 0.50 U
Styrene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U
tert-Butylbenzene	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U
Tetrachloroethene (PCE)	T	ug/L	0.27	0.27	0.33 J	15 J	24	23	27 J	26	12	26 J	17	34	6.6	8.2	15	14
trans-1,2-Dichloroethene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
trans-1,3-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
Trichloroethene (TCE)	T	ug/L	0.13	0.11	0.13	3.7	5.8	3.8	2.3	3	1.6	1.3	1.7	1.3	0.98	1	1.3	0.93
Trichlorofluoromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U
Vinyl Chloride	T	ug/L	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date Sample	MW-14I 12/12/2017 MW-14I-121217	MW-14I 03/19/2018 MW-14I-031918	MW-14I 09/18/2018 MW-14I-091818	MW-14I 03/19/2019 MW-14I-031919	MW-15I 11/16/2010 MW-15I-111610	MW-15I 03/29/2011 MW-15I-032911	MW-15I 06/28/2011 MW-15I-062811	MW-15I 10/12/2011 MW-15I-101211	MW-15I 01/25/2012 MW-15I-012512	MW-15I 05/30/2012 MW-15I-053012	MW-15I 08/15/2012 MW-15I-081512	MW-15I 04/16/2013 MW-15I-041613	MW-15I 07/13/2016 MW 15I-071316	MW-15I 11/15/2016 MW-15I-111516	MW-15I 12/11/2017 MW15I-121117	MW-15I 03/19/2018 MW-15I-031918
	Fraction	Unit																
BTEX Benzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Toluene	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Ethylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Total Xylenes	Т	ug/L																
Conventionals	Г -				ı		I				1					I		
Chloride Dissolved Organic Carbon	T D	mg/L mg/L				 												
Dissolved Organic Carbon	T	mg/L																
Nitrate as Nitrogen	Ť	mg/L													-		-	
Nitrite as Nitrogen	Т	mg/L	-					-		-			-				•	
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L																-
Total Organic Carbon	T	mg/L	-					-	-	-			-	-	-		-	-
Total Suspended Solids Dechlor Bacteria		mg/L																
Dehalococcoides (DHC)	Т	cells/bead		I							l							
Dissolved Gases	<u> </u>	555, 5544																
Ethane	Т	mg/L													-			-
Ethene	Т	mg/L	-							-			-				-	
Methane	T	mg/L																
Field Parameters	Т	l doc C	19.6	16.7	20.9	16.2	16.73	15.93	16.6	16.8	16	16.5	17.2	15.9	17.7	17.5	17.1	16.5
Temperature Specific Conductance	Ť	deg C uS/cm	438.2	1107	1156	986	910	943	778	826	853	769	1646	810	693	741	727	810
Dissolved Oxygen	Ť	mg/L	1.81	5.4	1.6	5.7	0.17	0.24	0.91	1.45	0.61	0.49	1.22	0.1	0.23	0.11		0.29
pH	T	pH units	7.3	7.23	7.08	7.1	7.25	7.67	7.44	7.51	7.48	7.7	7.45	7.59	7.53	7.53	7.55	7.57
Oxidation Reduction Potential	T	mV	95.4	35.8	91.8	109.7	137.3	84.3	71.6	-71	65.7	-155	-281.7	136.5	88.2	-14.3	123.7	5.2
Turbidity	T	NTU	0.5	1.19	5.6	0.3	4.29	-		0.32	1.67	1.41	0.9	0.61	0.46	11.1	6.56	2.82
Metals	Т	mg/L		T	1		I	ı			I	I				I		
Arsenic Cadmium	†	mg/L																
Chromium	Ť	mg/L																
Iron	D	mg/L	-					-		-			-				-	
Iron	Т	mg/L																
Manganese	D	mg/L																
Manganese Selenium	T T	mg/L mg/L							<del></del>									
Other SVOCs	<u> </u>	IIIg/L																
Hexachlorobutadiene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U		< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
PAHs Naphthalene	Т	ug/L	< 0.50 U	< 1.0 U	< 1.0 U		< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U
PLFA					ı		1	ı			ı	ı						
Anaerobic metal reducers (BrMonos)  Decreased Permeability	T	% PLFA ratio trans/cis				 												
Eukaryotes (polyenoics)	Ť	% PLFA																-
Firmicutes (TerBrSats)	Ť	% PLFA		-							-							
Normal Saturated (Nsats)	Ť	% PLFA	-							-							-	
Proteobacteria (Monos)	T	% PLFA																
Slowed Growth	T	ratio cy/cis													-			
SRB/Actinomycetes (MidBrSats)	T	% PLFA							-						-		-	
Total Biomass TPHs	Т	cells/bead													-			
Gasoline Range Organics	Т	mg/L					< 0.050 U								_			
VFA Acetic Acid	Т	mg/L		1			I	1			I	1						
Butyric Acid	T	mg/L mg/L				<u></u>			 				 					
Formic Acid	†	mg/L																
Hexanoic Acid	Ť	mg/L							-						-		-	
Isocaproic Acid	Т	mg/L	-							-			-		-		-	
Isovaleric Acid	T	mg/L																
Lactic Acid	T	mg/L	-						-	-			-		-		-	
Pentanoic Acid	T	mg/L	-							-								
Propionic Acid Pyruvic Acid	T	mg/L mg/L				 			<del></del>				 					
F yruvic Aciu		mg/L	-					-		-	ı				-			

Project No. 090018, New City Cleaners Richland, Washington

		Location Date Sample	MW-14I 12/12/2017 MW-14I-121217	MW-14I 03/19/2018 MW-14I-031918	MW-14I 09/18/2018 MW-14I-091818	MW-14I 03/19/2019 MW-14I-031919	MW-15I 11/16/2010 MW-15I-111610	MW-15I 03/29/2011 MW-15I-032911	MW-15I 06/28/2011 MW-15I-062811	MW-15I 10/12/2011 MW-15I-101211	MW-15I 01/25/2012 MW-15I-012512	MW-15I 05/30/2012 MW-15I-053012	MW-15I 08/15/2012 MW-15I-081512	MW-15I 04/16/2013 MW-15I-041613	MW-15I 07/13/2016 MW 15I-071316	MW-15I 11/15/2016 MW-15I-111516	MW-15I 12/11/2017 MW15I-121117	MW-15I 03/19/2018 MW-15I-031918
Analyte	Fraction	Unit																
VOCs 1,1,1,2-Tetrachloroethane	ТТ	ug/L	< 0.20 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U
1.1.1-Trichloroethane	† † †	ug/L ug/L	< 0.20 U	< 0.30 U	< 0.20 U	 < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1.1.2.2-Tetrachloroethane	<del>                                     </del>	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
1,1,2-Trichloroethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
1,1-Dichloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
1,1-Dichloroethene	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	0.10 J	< 0.10 U	< 0.10 U	0.12	0.11	0.14	0.26	0.11	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
1,1-Dichloropropene	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U		< 0.10 U                               < 0.20 U											
1,2,3-Trichlorobenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U		< 0.40 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
1,2,3-Trichloropropane 1,2,4-Trichlorobenzene	T	ug/L ug/L	< 0.20 U < 0.20 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U		< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 UJ	< 0.20 U < 0.20 U                   < 0.20 U < 0.30 U							
1,2,4-Trimethylbenzene	+ +	ug/L ug/L	< 0.20 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.10 U	< 0.10 U	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U
1,2-Dibromo-3-chloropropane	<del>'</del>	ug/L	< 2.0 U	< 2.0 U	< 2.0 U		< 0.20 U	< 0.10 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U                               < 0.10 U											
1,2-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U							
1,2-Dichloroethane (EDC)	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
1,2-Dichloropropane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
1,3,5-Trimethylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
1,3-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	0.37	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U						
1,3-Dichloropropane	T	ug/L	< 0.20 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U	< 0.30 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.20 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 UJ	< 0.20 U < 0.30 U	< 0.20 U
1,4-Dichlorobenzene 2,2-Dichloropropane	<u> </u>	ug/L ug/L	< 0.30 U < 0.50 U	< 0.50 U	< 0.50 U	< 0.30 0	< 0.20 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.30 U < 0.50 U
2-Butanone	+ +	ug/L ug/L																
2-Chlorotoluene	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
4-Chlorotoluene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U							
Acetone	T	ug/L						-	-									
Bromobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Bromochloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Bromodichloromethane	T	ug/L	2.4	0.56	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Bromoform Bromomothono	<u> </u>	ug/L	< 0.50 U < 1.0 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 UJ	< 0.50 U < 0.50 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.50 U < 1.0 U	< 0.50 U < 1.0 U	< 0.50 U < 1.0 U	< 0.50 U < 0.50 U
Bromomethane Carbon Disulfide	+ +	ug/L ug/L	< 1.0 0	< 0.50 0	< 0.50 03	< 0.50 0	< 0.10 U	< 0.10 0	< 0.10 0	< 0.10 0	< 0.10 0	< 0.10 0	< 0.10 0	< 0.10 0	< 1.0 0	< 1.0 0	< 1.0 0	< 0.50 0
Carbon Tetrachloride	† †	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chlorobenzene	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Chloroethane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.25 UJ	< 0.25 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U						
Chloroform	Т	ug/L	46	11	0.96	1.4	0.13	0.13	< 0.10 U	0.1	< 0.10 U	0.13	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chloromethane	T	ug/L	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 UJ	< 0.10 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.50 U						
cis-1,2-Dichloroethene (DCE)	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	36	20	33	65	39	49	75	46	20	25	12	9.9
cis-1,3-Dichloropropene	T	ug/L	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U
Dibromochloromethane Dibromomethane	T	ug/L ug/L	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U
Dichlorodifluoromethane	<del>'</del>	ug/L ug/L	< 0.40 UJ	< 0.40 U	< 0.40 U		< 0.40 U                               < 0.40 U											
Isopropylbenzene	<del>+ +</del>	ug/L	< 0.50 U	< 1.0 U	< 1.0 U		< 0.40 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U
m,p-Xylenes	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.50 U		< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.20 U	< 0.30 U	< 0.30 UJ		< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U							
Methylene Chloride	T	ug/L	< 0.50 U	< 5.0 U	< 5.0 UJ	< 5.0 U	< 0.10 U	< 0.10 U	< 0.50 U	< 5.0 U								
n-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
n-Propylbenzene	T	ug/L	< 0.20 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U							
o-Xylene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
p-Isopropyltoluene sec-Butylbenzene	<u> </u>	ug/L ug/L	< 0.30 U < 0.50 U	< 0.30 U < 1.0 U	< 0.30 U < 1.0 U	 	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 UJ < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.30 U < 0.50 U	< 0.30 U < 0.50 U	< 0.30 U < 0.50 U	< 0.30 U < 1.0 U
Styrene	+ +	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
tert-Butylbenzene	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Tetrachloroethene (PCE)	Ť	ug/L	2.6	3.1	8.4	4.9	10 J	10 J	22	39 J	32	69	130	86	78	75	45	41
trans-1,2-Dichloroethene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	1.8	1.1	1.5	2.2	1.7	1.7	1.8	1.3	0.54	0.89	0.4	0.35
trans-1,3-Dichloropropene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Trichloroethene (TCE)	T	ug/L	< 0.20 U	0.24	0.46	0.25	51	35	43	83	62	81	190	130	34	39	20	16
Trichlorofluoromethane	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 UJ	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U						
Vinyl Chloride	Т	ug/L	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	0.088 J	0.027	0.057	0.081	0.069 J	0.067	0.13	0.093	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids VOC = volatile organic compounds

		Location Date	MW-15I 09/18/2018	MW-15I 03/19/2019	MW-15S 11/16/2010	MW-15S 03/29/2011	MW-15S 06/28/2011	MW-15S 10/12/2011	MW-15S 01/25/2012	MW-15S 05/30/2012	MW-15S 08/15/2012	MW-16I 11/16/2010	MW-16I 03/29/2011	MW-16I 06/28/2011	MW-16I 10/12/2011	MW-16I 01/26/2012	MW-16I 05/30/2012	MW-16I 08/15/2012
Analyte	Fraction	Sample Unit	MW-15I-091818	MW-15I-031919	MW-15S-111610	MW-15S-032911	MW-15S-062811	MW-15S-101211	MW-15S-012512	MW-15S-053012	MW-15S-081512	MW-16I-111610	MW-16I-032911	MW-16I-062811	MW-16I-101211	MW-16I-012612	MW-16I-053012	MW-16I-081512
BTEX	Fraction	Onit																L
Benzene	Т	ug/L	< 0.20 U		< 0.10 U	0.17	< 0.10 U											
Toluene	Т	ug/L	< 0.20 U		< 0.10 U	0.27	< 0.10 U											
Ethylbenzene	T	ug/L	< 0.20 U		< 0.10 U													
Total Xylenes Conventionals	T	ug/L																
Chloride	Т	mg/L						I	<u></u>									
Dissolved Organic Carbon	D	mg/L				-				-		-	-				-	
Dissolved Organic Carbon	Т	mg/L				1	-					-	-	-				
Nitrate as Nitrogen	T T	mg/L																
Nitrite as Nitrogen Silica (SiO2)	T D	mg/L mg/L																
Sulfate	T	mg/L																
Total Organic Carbon	T	mg/L																
Total Suspended Solids	Т	mg/L																
Dechlor Bacteria	T -				1			_										1
Dehalococcoides (DHC) Dissolved Gases	<u> </u>	cells/bead																
Ethane	Т	mg/L		I	I I			I	I									
Ethene	Ť	mg/L																
Methane	Т	mg/L																
Field Parameters			40 :	1 4-	1 4= -:	4=	40.0	1 45.5	10.1	10-	1 40 -	40.55	4===	1 4= -		4===		10 -
Temperature Specific Conductance	T	deg C uS/cm	18.4 782	16 835	17.21 1217	15.68 1036	16.9 879	17.8 925	16.4 932	16.5 859	18.5 1705	18.49 1107	15.76 867	17.5 806	18 829	15.79 842	17.1 788	19.5 1689
Dissolved Oxygen	† †	mg/L	0.15	0.3	0.84	0.44	1.05	1.43	0.72	1.04	1.11	0.16	1.16	0.63	0.35	0.35	0.95	0.97
pH	Ť	pH units	7.45	7.5	7.54	7.54	7.49	7.56	7.52	8.07	7.49	8.51	7.75	7.7	7.77	7.83	7.86	7.74
Oxidation Reduction Potential	Т	mV	21.3	101.6	132	57	54.4	-82.1	61	-64.3	-266.6	73.5	78	41.2	-81.8	79.6	-66.2	-146
Turbidity	Т	NTU	4.05	5.9	2.13			0.32	0.72	0.73	0.81	10.2			0.53	1.41	0.33	2.12
Metals Arsenic	Т	mg/L		I	1		T	T	I					T	T	I		I
Cadmium	† †	mg/L																
Chromium	Ť	mg/L																
Iron	D	mg/L				-												
Iron	T	mg/L																
Manganese	D	mg/L					-											
Manganese Selenium	T	mg/L mg/L																
Other SVOCs	<u> </u>	g/L																
Hexachlorobutadiene	Т	ug/L	< 0.50 U		< 0.20 U													
PAHs	T -	1 a 1		T		. 0. 40.11		1	1 .0.40.11	. 0. 40.11		. 0. 40.11	. 0.40.11		1 .0.40.111			
Naphthalene PLFA	T	ug/L	< 1.0 U		< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U					
Anaerobic metal reducers (BrMonos)	Т	% PLFA		I	<b></b>				I							<b></b>		
Decreased Permeability	Ť	ratio trans/cis																
Eukaryotes (polyenoics)	T	% PLFA				-											-	
Firmicutes (TerBrSats)	T	% PLFA																
Normal Saturated (Nsats) Proteobacteria (Monos)	T	% PLFA % PLFA																
Slowed Growth	T	ratio cy/cis																
SRB/Actinomycetes (MidBrSats)	Ť	% PLFA																
Total Biomass	Т	cells/bead																
TPHs	T =			I	.0.050.11			1	I			0.070				I		1
Gasoline Range Organics VFA	T	mg/L			< 0.050 U							0.073						
Acetic Acid	Т	mg/L						-		-					_			
Butyric Acid	T	mg/L				-												
Formic Acid	T	mg/L																
Hexanoic Acid	T	mg/L																
Isocaproic Acid Isovaleric Acid	T	mg/L mg/L																
Lactic Acid	T	mg/L																
Pentanoic Acid			-															
r entanoic Acid	T	mg/L																
Propionic Acid	T	mg/L mg/L								-								

Project No. 090018, New City Cleaners Richland, Washington

		Location	MW-15I	MW-15I	MW-15S	MW-15S	MW-15S	MW-15S	MW-15S	MW-15S	MW-15S	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I
		Date	09/18/2018	03/19/2019	11/16/2010	03/29/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/15/2012	11/16/2010	03/29/2011	06/28/2011	10/12/2011	01/26/2012	05/30/2012	08/15/2012
Analyte	Fraction	Sample Unit	MW-15I-091818	MW-15I-031919	MW-15S-111610	MW-15S-032911	MW-15S-062811	MW-15S-101211	MW-15S-012512	MW-15S-053012	MW-15S-081512	MW-16I-111610	MW-16I-032911	MW-16I-062811	MW-16I-101211	MW-16I-012612	MW-16I-053012	MW-16I-081512
VOCs	Fraction	Unit					<u> </u>							<u> </u>			<u> </u>	
1,1,1,2-Tetrachloroethane	ТТ	ug/L	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
1.1.1-Trichloroethane	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,2,2-Tetrachloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,2-Trichloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethene	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.26	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloropropene	Т	ug/L	< 0.20 U	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	T	ug/L	< 0.50 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	T	ug/L	< 0.20 U	-	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	T	ug/L	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L	< 0.30 U < 2.0 U		< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.40 U	< 0.10 UJ < 0.40 UJ	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 UJ	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB)	T	ug/L ug/L	< 0.10 U		< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
1,2-Diblomoetriane (EDB)	<del>'</del> +	ug/L ug/L	< 0.30 U	< 0.30 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U
1,2-Dichloroethane (EDC)	<del>                                     </del>	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
1,2-Dichloropropane	Ť	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	T	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.30 U	0.43	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	0.27	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,3-Dichloropropane	Т	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,4-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
2,2-Dichloropropane	T	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
2-Butanone	T	ug/L																
2-Chlorotoluene	T	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene	T	ug/L	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Acetone	T	ug/L	 < 0.20 U		 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 UJ	< 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 UJ	 < 0.10 U	 < 0.10 U	 < 0.10 U
Bromobenzene Bromochloromethane	+ +	ug/L ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromodichloromethane	† †	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromoform	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 UJ
Bromomethane	Ť	ug/L	< 0.50 UJ	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Carbon Disulfide	T	ug/L																
Carbon Tetrachloride	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Chlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloroethane	Т	ug/L	< 0.50 UJ	< 0.50 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
Chloroform	T	ug/L	< 0.20 U	< 0.20 U	0.47	0.14	0.17	0.12	0.12	0.12	< 0.10 U	0.32	< 0.10 U	0.17	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloromethane	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,2-Dichloroethene (DCE)	T	ug/L	26	19	15	10	7.7	6.7	6.4	4.8	6.9	20	<b>22</b> < 0.10 U	7.1	1.7	2.9	1.5	1.9
cis-1,3-Dichloropropene  Dibromochloromethane	T	ug/L ug/L	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U
Dibromomethane	+ +	ug/L ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dichlorodifluoromethane	Ť	ug/L	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene	Ť	ug/L	< 1.0 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
m,p-Xylenes	Т	ug/L	< 0.50 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Methyl tert-butyl ether (MTBE)	Т	ug/L	< 0.30 UJ	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Methylene Chloride	Т	ug/L	< 5.0 UJ	< 5.0 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Butylbenzene	T	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
n-Propylbenzene	Т	ug/L	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
o-Xylene	T	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
p-Isopropyltoluene	T	ug/L	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
sec-Butylbenzene	T	ug/L	< 1.0 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Styrene tort Butulbonzono	1 1	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ < 0.10 UJ	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U
tert-Butylbenzene Tetrachloroethene (PCE)	T	ug/L	< 0.50 U <b>54 J</b>	33	< 0.10 U 4.6 J	< 0.10 U 4.8 J	< 0.10 U <b>8.4</b>	< 0.10 UJ 7.3 J	< 0.10 U 8.8	< 0.10 U	< 0.10 U	< 0.10 U <b>84 J</b>	< 0.10 U	< 0.10 U	< 0.10 UJ <b>11</b>	< 0.10 U	< 0.10 U	< 0.10 U 3.3 J
trans-1,2-Dichloroethene	† † T	ug/L ug/L	0.92	0.57	0.33	0.21	0.22	0.21	0.17	0.14	0.2	0.21	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
trans-1,3-Dichloropropene	† †	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Trichloroethene (TCE)	† †	ug/L ug/L	28	23	20	18	15	15	14	13	13	57	11	5	1.4	3	1.8	1.3
Trichlorofluoromethane	† †	ug/L	< 0.50 U	< 0.50 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Vinyl Chloride	Ť	ug/L	< 0.020 U	< 0.020 U	0.036	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	0.35 J	0.032	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
Tarif. Canonido	<u> </u>	ug/L	. 0.020 0	- 0.020 0	0.000	. 0.020 0	. 0.020 0	. 0.020 0	. 0.020 00	. 0.020 0	- 0.020 0	0.000	0.002	. 0.020 0	. 0.020 0	- 0.020 0	. 0.020 0	. 0.020 0

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected
U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date	MW-16I 04/16/2013	MW-16I 07/23/2013	MW-16I 10/31/2013	MW-16I 12/19/2013	MW-16I 03/11/2014	MW-16I 06/17/2014	MW-16I 09/10/2014	MW-16I 12/17/2014	MW-16I 07/13/2016	MW-16I 11/15/2016	MW-16I 10/04/2017	MW-16I 12/12/2017	MW-16I 03/19/2018	MW-16I 06/19/2018	MW-16I 09/19/2018	MW-16I 03/20/2019
		Sample	MW-16I-041613	MW-16I-072313	MW-16I-103113	MW-16I-121913	MW-16I-031114	MW-16I-061714	MW-16I-091014	MW-16I-121714	MW 16I-071316	MW-16I-111516	MW-16I-100417	MW16I-121217	MW-16I-031918	MW-16I-061918	MW-16I-091918	MW-16I-032019
Analyte	Fraction	Unit																
BTEX Benzene	Т	ug/L	< 0.10 U	< 0.20 U														
Toluene	Ť	ug/L	< 0.10 U	< 0.20 U														
Ethylbenzene	Т	ug/L	< 0.10 U	< 0.20 U														
Total Xylenes	Т	ug/L																
Conventionals Chloride	Т	mg/L			1					1			69	33	23	35	71	36
Dissolved Organic Carbon	D	mg/L											1.8	1.6 J	1.5	1.5		1.1
Dissolved Organic Carbon	Т	mg/L																
Nitrate as Nitrogen	T	mg/L											< 0.20 U	< 0.20 UJ	0.31	< 0.20 U	< 0.20 U	< 0.20 U
Nitrite as Nitrogen	T	mg/L											< 0.40 U					
Silica (SiO2) Sulfate	D T	mg/L mg/L				<u></u>							39	29	28	33	 38	31
Total Organic Carbon	†	mg/L															1.9	
Total Suspended Solids	Ť	mg/L																
Dechlor Bacteria																		
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases Ethane	Т	mg/L			1		I	I I		1			< 0.0050 U					
Ethene	<u> </u>	mg/L											< 0.0050 U					
Methane	Ť	mg/L											0.019	0.081	0.0076	< 0.0050 U	0.021	0.22
Field Parameters																		
Temperature	T	deg C	16.5	18.4	18.7	17		16.8	18.3	16.8	18.7	17.9	17.5	17	15.8	17.7	17.9	16.1
Specific Conductance	T	uS/cm	896	998	933	1039		925 0.74	1097 0.3	913	884	939	908	695	609	717	949 0.25	726 2.1
Dissolved Oxygen	T T	mg/L pH units	1.01 7.91	0.79 7.7	3.51 7.8	3.2 8.38		7.8	7.64	0.08 8.07	0.39 7.8	0.1 7.85	0.12 7.9	8.07	2.63 7.98	0.93 7.49	7.49	7.8
Oxidation Reduction Potential	Ť	mV	133.9	204.5	184.1	135		100	167.5	111.9	87.1	-53.6	92.7	154.8	19.8	75.5	108.7	3.2
Turbidity	Т	NTU	0.29	0.81	1.27	0.28		0.27	0.44	0.24	0.14	3.99	0.6	0.42	0.47	1.05	0.54	0.2
Metals	T =				T T		T	1		<u> </u>		T			1			
Arsenic Cadmium	T	mg/L mg/L																
Chromium	†	mg/L																
Iron	D	mg/L																
Iron	Т	mg/L											< 0.50 U					
Manganese	D	mg/L																
Manganese Selenium	T	mg/L mg/L											<del></del>					
Other SVOCs	'	IIIg/L		<del></del>					<del></del>									
Hexachlorobutadiene	Т	ug/L	< 0.20 U	< 0.50 U														
PAHs								I I			2 - 2 - 1 - 1						46.111	
Naphthalene PLFA	Т	ug/L	< 0.40 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U	< 10 UJ	< 1.0 U							
Anaerobic metal reducers (BrMonos)	Т	% PLFA					I			1		1		<u></u>		<b></b>		
Decreased Permeability	T	ratio trans/cis									-							
Eukaryotes (polyenoics)	T	% PLFA		-							-						-	-
Firmicutes (TerBrSats) Normal Saturated (Nsats)	T	% PLFA																
Proteobacteria (Monos)	T	% PLFA % PLFA											 					
Slowed Growth	T	ratio cy/cis									-							
SRB/Actinomycetes (MidBrSats)	Т	% PLFA									-							
Total Biomass	Т	cells/bead																
TPHs		/I			T I			1										
Gasoline Range Organics VFA	<u> </u>	mg/L																
Acetic Acid	Т	mg/L																
Butyric Acid	Т	mg/L									-							_
Formic Acid	T	mg/L																
Hexanoic Acid	T	mg/L																
Isocaproic Acid Isovaleric Acid	T	mg/L mg/L				<del></del>												
Lactic Acid	Ť	mg/L																
Pentanoic Acid	Ť	mg/L																
Propionic Acid	Т	mg/L																
Pyruvic Acid	T	mg/L									-							

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		Location	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I	MW-16I
		Date	04/16/2013	07/23/2013	10/31/2013	12/19/2013	03/11/2014	06/17/2014	09/10/2014	12/17/2014	07/13/2016	11/15/2016	10/04/2017	12/12/2017	03/19/2018	06/19/2018	09/19/2018	03/20/2019
• 14	1=	Sample	MW-16I-041613	MW-16I-072313	MW-16I-103113	MW-16I-121913	MW-16I-031114	MW-16I-061714	MW-16I-091014	MW-16I-121714	MW 16I-071316	MW-16I-111516	MW-16I-100417	MW16I-121217	MW-16I-031918	MW-16I-061918	MW-16I-091918	MW-16I-032019
Analyte	Fraction	Unit																
VOCs 1.1.1.2-Tetrachloroethane	T T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U				
1.1.1-Trichloroethane	+ +	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U											
1,1,2,2-Tetrachloroethane	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 2.0 UJ	< 0.20 U									
1.1.2-Trichloroethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 2.0 UJ	< 0.20 U									
1,1-Dichloroethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U											
1,1-Dichloroethene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	0.17	0.18	< 0.10 U	< 0.10 U	0.26	0.15	0.34	< 0.10 U	0.17	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				
1,2,3-Trichlorobenzene	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.50 U											
1,2,3-Trichloropropane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				
1,2,4-Trichlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U				
1,2,4-Trimethylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U				
1,2-Dibromo-3-chloropropane	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U				
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
1,2-Dichlorobenzene 1,2-Dichloroethane (EDC)	T	ug/L ug/L	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.30 U < 0.20 U											
1,2-Dichloropropane	T	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 UJ	< 0.20 U										
1,3,5-Trimethylbenzene	T	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U				
1,3-Dichlorobenzene	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U							
1,3-Dichloropropane	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 2.0 UJ	< 0.20 U									
1,4-Dichlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 UJ	< 0.30 U									
2,2-Dichloropropane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U											
2-Butanone	T	ug/L		-				-		-			-		-	-	-	-
2-Chlorotoluene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U											
4-Chlorotoluene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U											
Acetone	T	ug/L		-														-
Bromobenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U											
Bromochloromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U											
Bromodichloromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 2.0 UJ	< 0.20 U									
Bromoform Bromomothone	T	ug/L ug/L	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.50 U < 1.0 U	< 0.50 U < 1.0 U	< 0.50 U < 1.0 U	< 0.50 U < 1.0 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U				
Bromomethane Carbon Disulfide	T	ug/L ug/L	< 0.10 O	< 0.10 U				< 0.10 U		< 0.10 U			< 1.0 U	< 1.0 U			< 0.50 U	< 0.50 U
Carbon Tetrachloride	† †	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U											
Chlorobenzene	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U											
Chloroethane	T	ug/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.50 U											
Chloroform	Т	ug/L	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U							
Chloromethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J	< 0.10 U	< 0.10 U	< 0.10 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
cis-1,2-Dichloroethene (DCE)	T	ug/L	5.2	4.1	6.4	13	17	4	7	28	44	68	78	110	70	52	40	130
cis-1,3-Dichloropropene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 2.0 UJ	< 0.20 U				
Dibromochloromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U											
Dibromomethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 2.0 UJ	< 0.20 U									
Dichlorodifluoromethane	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U				
Isopropylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U				
m,p-Xylenes Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.20 U < 0.10 U	< 0.20 U <b>0.1 J</b>	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.50 U < 0.20 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U	< 0.50 U < 3.0 UJ	< 0.50 U < 0.30 U						
Methylene Chloride	T T	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	0.56	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 5.0 U	< 5.0 U	< 50 UJ	< 5.0 U
n-Butylbenzene	+ +	ug/L ug/L	< 0.10 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 5.0 UJ	< 0.50 U
n-Propylbenzene	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U				
o-Xylene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U											
p-Isopropyltoluene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U											
sec-Butylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U				
Styrene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U											
tert-Butylbenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U											
Tetrachloroethene (PCE)	Т	ug/L	15	3.2	5.2	39	34	11	6.1	27	39	30	22	52	49	32	25	21
trans-1,2-Dichloroethene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	0.24	0.41	< 0.10 U	0.13	0.84	0.79	1.2	1	1.3	0.83	0.63	0.65	1.2
trans-1,3-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 2.0 UJ	< 0.20 U									
Trichloroethene (TCE)	Т	ug/L	15	3.5	8.6	46	67 J	19	12	100	170	200 J	130	190	190	150	78 J	140
Trichlorofluoromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U											
Vinyl Chloride	1	ug/L	< 0.020 U	0.026	< 0.020 U	< 0.020 U	0.11	< 0.020 U	0.027	0.22	< 0.020 U	0.091	< 0.020 U	0.095	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date	MW-17I 11/18/2010	MW-17I 03/29/2011	MW-17I 06/27/2011	MW-17I 10/11/2011	MW-17I 01/26/2012	MW-17I 05/29/2012	MW-17I 08/14/2012	MW-17I 04/16/2013	MW-17I 07/23/2013	MW-17I 10/30/2013	MW-17I 12/19/2013	MW-17I 03/11/2014	MW-17I 06/17/2014	MW-17I 09/09/2014	MW-17I 12/16/2014	MW-17I 07/13/2016
Analyte	Fraction	Sample Unit	MW-17I-111810	MW-17I-032911	MW-17I-062711	MW-17I-101111	MW-17I-012612	MW-17I-052912	MW-17I-081412	MW-17I-041613	MW-17I-072313	MW-17I-103013	MW-17I-121913	MW-17I-031114	MW-17I-061714	MW-17I-090914	MW-17I-121614	MW 17I-071316
BTEX	1 radiidii	O.I.I.													<u> </u>			
Benzene	Т	ug/L	< 0.10 U	< 0.20 U														
Toluene	T	ug/L	< 0.10 U	< 0.20 U														
Ethylbenzene	T	ug/L	< 0.10 U	< 0.20 U														
Total Xylenes	T	ug/L		-														
Conventionals Chloride	Ιт	mg/L															I	
Dissolved Organic Carbon	D	mg/L																
Dissolved Organic Carbon	T	mg/L		-														
Nitrate as Nitrogen	Т	mg/L																
Nitrite as Nitrogen	T	mg/L																
Silica (SiO2)	D	mg/L		-							-							-
Sulfate	T	mg/L																
Total Supponded Solida	T	mg/L																
Total Suspended Solids Dechlor Bacteria		mg/L												<del></del>				
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases																		
Ethane	T	mg/L																
Ethene	T	mg/L																
Methane	Т	mg/L																
Field Parameters Temperature	Т	deg C	16.98		16.7	19.4	16.1	16.3	18.9	16.4	18.6	19.2	17.8		17.2	19.9	18.4	18.5
Specific Conductance	T T	uS/cm	1083		1106	842	1042	858	1707	948	754	720	1011		1019	1040	10.4	1052
Dissolved Oxygen	Ť	mg/L	0.15	_	3.45	1.99	2.07	5.11	3.75	2.69	1.99	3.79	3.87		2.9	3.33	3.34	4.29
pH	Т	pH units	7.72	-	7.4	7.33	7.3	7.5	7.28	7.34	7.22	7.3	7.81		7.36	7.22	7.43	7.41
Oxidation Reduction Potential	Т	mV	126.5		118.9	58.5	40.1	-9.8	-74.7	36.8	201.1	105.6	78.1		71.5	212.8	-4.1	94.5
Turbidity	Т	NTU	1.99			0.4	3.59	1.43	< 2.0 UJ	3.91	2.43	< 2.0 UJ	1.74		11	0.87	1.87	0.89
Metals Arsenic	Ιт	mg/L			<b></b>												I	
Cadmium	Ť	mg/L																
Chromium	Ť	mg/L		-														
Iron	D	mg/L		-							-							
Iron	T	mg/L		-				-		-	-							-
Manganese	D	mg/L		-											-			
Manganese Selenium	T	mg/L mg/L																
Other SVOCs	<u> </u>	IIIg/L																
Hexachlorobutadiene	Т	ug/L	< 0.20 U	< 0.50 U														
PAHs																		
Naphthalene	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.50 U										
PLFA Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability	T	ratio trans/cis																
Eukaryotes (polyenoics)	T	% PLFA																
Firmicutes (TerBrSats)	Т	% PLFA		-														
Normal Saturated (Nsats)	T	% PLFA		-				-		-								
Proteobacteria (Monos)	T	% PLFA																
Slowed Growth SRB/Actinomycetes (MidBrSats)	T	ratio cy/cis % PLFA				<u></u>			<u></u>	<u></u>		<u></u>	<u></u>			<u></u>		
Total Biomass	i i	% PLFA cells/bead	 			<u></u>							<u></u>			 		
TPHs	<u>'</u>	555, 55dd					·											
Gasoline Range Organics	Т	mg/L		-														
VFA																		
Acetic Acid	T	mg/L																
Butyric Acid	T	mg/L																
Formic Acid Hexanoic Acid	T	mg/L mg/L				 							 					
Isocaproic Acid	T T	mg/L																
Isovaleric Acid	T	mg/L									-							
Lactic Acid	T	mg/L		-														
Pentanoic Acid	T	mg/L																
Propionic Acid	T	mg/L		-							-							
Pyruvic Acid	Т	mg/L																

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		Location	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I
		Date	11/18/2010	03/29/2011	06/27/2011	10/11/2011	01/26/2012	05/29/2012	08/14/2012	04/16/2013	07/23/2013	10/30/2013	12/19/2013	03/11/2014	06/17/2014	09/09/2014	12/16/2014	07/13/2016
		Sample	MW-17I-111810	MW-17I-032911	MW-17I-062711	MW-17I-101111	MW-17I-012612	MW-17I-052912	MW-17I-081412	MW-17I-041613	MW-17I-072313	MW-17I-103013	MW-17I-121913	MW-17I-031114	MW-17I-061714	MW-17I-090914	MW-17I-121614	MW 17I-071316
Analyte	Fraction	Unit																
VOCs 1,1,1,2-Tetrachloroethane	ТтТ	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
1.1.1-Trichloroethane	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
1.1.2.2-Tetrachloroethane	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
1.1.2-Trichloroethane	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
1,1-Dichloroethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.20 U
1,1-Dichloroethene	Т	ug/L	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloropropene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.50 U
1,2,3-Trichloropropane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
1,2-Dibromo-3-chloropropane	<u> </u>	ug/L	< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 2.0 U
1,2-Dibromoethane (EDB)	<u> </u>	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.30 U
1,2-Dichlorobenzene 1,2-Dichloroethane (EDC)	+ +	ug/L ug/L	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.30 U			
1,2-Dichloropropane	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
1,3,5-Trimethylbenzene	T T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U
1.3-Dichlorobenzene	Ť	ug/L	0.23	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U
1,3-Dichloropropane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
1,4-Dichlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U
2,2-Dichloropropane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U
2-Butanone	Т	ug/L		-		-		-		-			-		-		-	-
2-Chlorotoluene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U
4-Chlorotoluene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U
Acetone	<u> </u>	ug/L																
Bromobenzene Bromochloromethane	<u> </u>	ug/L	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U
Bromodichloromethane	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.34	0.56	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
Bromoform	<del>'</del> +	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.50 U
Bromomethane	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 1.0 U
Carbon Disulfide	Т	ug/L						-		-	-		-		_		-	
Carbon Tetrachloride	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
Chlorobenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
Chloroethane	T	ug/L	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.50 U
Chloroform	T	ug/L	0.19	< 0.10 U	< 0.10 U	0.35	4.4	5.6	0.38	0.22	0.13	0.2	0.45	0.23	0.39	0.65	0.29	3.1
Chloromethane	T	ug/L	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J	< 0.10 U	< 0.10 U	< 0.10 U	< 0.30 U
cis-1,2-Dichloroethene (DCE)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
cis-1,3-Dichloropropene	<u> </u>	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U
Dibromochloromethane Dibromomethane	+ +	ug/L ug/L	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U			
Dichlorodifluoromethane	+ +	ug/L ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene	<del>                                     </del>	ug/L ug/L	< 0.40 U	< 0.10 U	< 0.40 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.40 U	< 0.10 U	< 0.50 U
m,p-Xylenes	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.50 U
Methyl tert-butyl ether (MTBE)	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	0.82	< 0.10 U	< 0.10 U	0.18	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
Methylene Chloride	Т	ug/L	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Butylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U
n-Propylbenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
o-Xylene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U
p-Isopropyltoluene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	0.20 J	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U
sec-Butylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U
Styrene	+ +	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U
tert-Butylbenzene Tetrachloroethene (PCE)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ <b>7 J</b>	< 0.10 U <b>6.5 J</b>	< 0.10 U	< 0.10 U 2.7 J	< 0.10 U <b>4.5</b>	< 0.10 U 2.6	< 0.10 U	< 0.10 U	< 0.10 U <b>2.9</b>	< 0.10 U <b>6.7</b>	< 0.10 U	< 0.10 U 9.8	< 0.50 U
trans-1.2-Dichloroethene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<b>6.5 J</b> < 0.10 U	< 0.10 U	< 0.10 U	<b>4.5</b> < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	2.9 < 0.10 U	<b>6.7</b> < 0.10 U	3.1 < 0.10 U	<b>9.8</b> < 0.10 U	< 0.20 U
trans-1,2-Dichloroptopene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U
Trichloroethene (TCE)	+ +	ug/L ug/L	0.6	0.51	0.27	0.31	0.17	< 0.10 U	0.26	0.24	0.26	0.100	0.12	< 0.10 U	0.12	< 0.10 U	< 0.10 U	< 0.20 U
Trichlorofluoromethane	+ +	ug/L	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U
Vinyl Chloride	Ť	ug/L	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
,		g- <del>-</del>				2.3200					1.5200				2.3200			

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location Date	MW-17I 11/16/2016	MW-17I 12/12/2017	MW-17I 03/20/2018	MW-17I 09/18/2018	MW-17I 03/19/2019	MW-18I 11/17/2010	MW-18I 03/29/2011	MW-18I 06/27/2011	MW-18I 10/11/2011	MW-18I 01/25/2012	MW-18I 05/29/2012	MW-18I 08/15/2012	MW-18I 04/16/2013	MW-18I 10/31/2013	MW-18I 03/11/2014	MW-18I 09/09/2014
	1 =	Sample	MW-17I-111616	MW-17I-121217	MW-17I-032018	MW-17I-091818	MW-17I-031919	MW-18I-111710	MW-18I-032911	MW-18I-062711	MW-18I-101111	MW-18I-012512	MW-18I-052912	MW-18I-081512	MW-18I-041613	MW-18I-103113	MW18I031114	MW-18I-090914
Analyte	Fraction	Unit																
BTEX Benzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U										
Toluene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U										
Ethylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U										
Total Xylenes	Т	ug/L									-							
Conventionals Chloride	Т	mg/L					I											
Dissolved Organic Carbon	D	mg/L																
Dissolved Organic Carbon	T	mg/L						1.7										
Nitrate as Nitrogen	T	mg/L						< 0.90 U										
Nitrite as Nitrogen Silica (SiO2)	T D	mg/L mg/L						< 0.60 U	<del></del>									
Sulfate	T	mg/L						45										
Total Organic Carbon	Т	mg/L						-	-	-	1						-	
Total Suspended Solids	Т	mg/L																
Dechlor Bacteria Dehalococcoides (DHC)	Т	cells/bead						I							T			
Dissolved Gases	<u> </u>	cella/beau																
Ethane	Т	mg/L																
Ethene	T	mg/L							-		-						-	
Methane Field Parameters	<u> </u>	mg/L																
Field Parameters Temperature	Т	deg C	18.8	18.7	15.8	20.2	16.4	18.26	15.89	17.6	19.7	17.24	17.4	19.4	16	19.6		20.2
Specific Conductance	Т	uS/cm	1006	883	1024	1037	1123	1019	1071	1298	1109	1124	1017	1182	1435	1195		1176
Dissolved Oxygen	T	mg/L	2.55	1.39	1.75	4.29	5.6	1.33	4.28	5.04	4.54	4.98	4.8		5.85	6.81		5.76
pH	T	pH units	7.57	7.36	7.51	7.21	7.2	7.59	7.32	7.25	7.33	7.39	7.25	7.32	7.33	7.33		7.47
Oxidation Reduction Potential Turbidity	T	mV NTU	114.5 2.74	39.7 0.95	104.9 0.54	86.4 2.06	103.2 2.3	155.1 10.9	50.9 	103.3	89.3 1.15	121 1.78	-371.9 5.26	104.3 0.98	35.9 4.69	229.7 1.13		239.3 3.92
Metals	<u> </u>	NIO	2.17	0.55	0.04	2.00	2.0	10.5			1.10	1.70	0.20	0.50	4.00	1.10		0.02
Arsenic	T	mg/L																
Cadmium	T	mg/L																
Chromium Iron	T D	mg/L mg/L						 < 0.20 U	 									
Iron	T	mg/L									-							
Manganese	D	mg/L						0.19	-	-	1						-	
Manganese	T	mg/L									-							
Selenium Other SVOCs	T	mg/L																
Hexachlorobutadiene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.20 U										
PAHs	_	g	*****	3.33				7	0	0.00	0.20	0.20	0.20	ŢŢ		7.20	,,,,,	0.20
Naphthalene	Т	ug/L	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U						
PLFA Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability	T	ratio trans/cis																
Eukaryotes (polyenoics)	Т	% PLFA							_		-						-	
Firmicutes (TerBrSats)	T	% PLFA									-						-	
Normal Saturated (Nsats) Proteobacteria (Monos)	T	% PLFA % PLFA							<u></u>				<u></u>					
Slowed Growth	T	ratio cy/cis																
SRB/Actinomycetes (MidBrSats)	Ť	% PLFA									-							
Total Biomass	Т	cells/bead						<b>-</b>			-				<b>-</b> -			
TPHs	T -	me/l					<u> </u>	1							1			
Gasoline Range Organics VFA	T	mg/L																
Acetic Acid	Т	mg/L																
Butyric Acid	Т	mg/L									-							
Formic Acid	T	mg/L																
Hexanoic Acid Isocaproic Acid	T	mg/L mg/L				<del></del>			 									
Isovaleric Acid	T	mg/L																
Lactic Acid	Т	mg/L									-						-	
Pentanoic Acid	Т	mg/L									-							
Propionic Acid	T	mg/L						-			-							
Pyruvic Acid	1 1	mg/L																

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		Location	MW-17I	MW-17I	MW-17I	MW-17I	MW-17I	MW-18I	MW-18I	MW-18I	MW-18I	MW-18I	MW-18I	MW-18I	MW-18I	MW-18I	MW-18I	MW-18I
		Date	11/16/2016	12/12/2017	03/20/2018	09/18/2018	03/19/2019	11/17/2010	03/29/2011	06/27/2011	10/11/2011	01/25/2012	05/29/2012	08/15/2012	04/16/2013	10/31/2013	03/11/2014	09/09/2014
Analyte	F4!	Sample	MW-17I-111616	MW-17I-121217	MW-17I-032018	MW-17I-091818	MW-17I-031919	MW-18I-111710	MW-18I-032911	MW-18I-062711	MW-18I-101111	MW-18I-012512	MW-18I-052912	MW-18I-081512	MW-18I-041613	MW-18I-103113	MW18I031114	MW-18I-090914
Analyte	Fraction	Unit																
VOCs 1.1.1.2-Tetrachloroethane	ТТ	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	l	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1.1.1-Trichloroethane	† †	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,2,2-Tetrachloroethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,2-Trichloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ
1,1-Dichloroethene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloropropene	T	ug/L	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U		< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
1,2-Dibromoethane (EDB)	+ +	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	 < 0.30 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.20 U	< 0.10 U
1,2-Dichlorobenzene 1,2-Dichloroethane (EDC)	+ +	ug/L ug/L	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.10 U
1,2-Dichloropropane	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	÷	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3-Dichlorobenzene	Ť	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	0.5	0.39	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,3-Dichloropropane	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,4-Dichlorobenzene	Т	ug/L	< 0.30 UJ	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
2,2-Dichloropropane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
2-Butanone	T	ug/L		-														
2-Chlorotoluene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene	T	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Acetone	T	ug/L																
Bromobenzene	T	ug/L	< 0.20 U < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U
Bromochloromethane	† †	ug/L ug/L	< 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U <b>0.27</b>	 < 0.20 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	0.100	< 0.10 U <b>0.15</b>
Bromodichloromethane Bromoform	+ +	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromomethane	<del>†</del>	ug/L	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Carbon Disulfide	Ť	ug/L																
Carbon Tetrachloride	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloroethane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
Chloroform	Т	ug/L	2.5	0.24	< 0.20 U	3	0.24	0.17	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.12	14	2.6
Chloromethane	T	ug/L	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J	< 0.10 U
cis-1,2-Dichloroethene (DCE)	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	0.59	0.23	0.13	0.14	0.13	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,3-Dichloropropene	T	ug/L	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromochloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromomethane	<u> </u>	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U < 0.40 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dichlorodifluoromethane	T	ug/L ug/L	< 0.40 U < 0.50 U	< 0.40 UJ < 0.50 U	< 0.40 U < 1.0 U	< 0.40 U < 1.0 U		< 0.40 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 UJ	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U
Isopropylbenzene m,p-Xylenes	† †	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Methyl tert-butyl ether (MTBE)	<del>†</del>	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 UJ		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J	< 0.10 U
Methylene Chloride	<del>                                     </del>	ug/L	< 0.50 U	< 0.50 U	< 5.0 U	< 5.0 UJ	< 5.0 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
n-Propylbenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
o-Xylene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
p-Isopropyltoluene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
sec-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Styrene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
tert-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Tetrachloroethene (PCE)	T	ug/L	17	5.7	4.3	5.7	5.4	17	9.5	8.1	9.3 J	11	7.1 J	6.5 J	6.8	8.4	3.9	4.1
trans-1,2-Dichloroethene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
trans-1,3-Dichloropropene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Trichloroethene (TCE)	T	ug/L	<b>0.2</b> < 0.50 U	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U	< 0.20 U	< 0.20 U < 0.50 U	<b>2.2</b> < 0.10 U	<b>1.5</b> < 0.10 U	<b>0.99</b> < 0.10 U	<b>1.2</b> < 0.10 U	<b>1.2</b> < 0.10 U	<b>0.83</b> < 0.10 U	<b>0.74</b> < 0.10 U	0.68	0.51	<b>0.61</b> < 0.10 U	<b>0.49</b> < 0.10 U
Trichlorofluoromethane Vinyl Chloride	+ + +	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U < 0.020 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.020 UJ	< 0.10 U	< 0.10 U	< 0.10 U < 0.020 U	< 0.10 U < 0.020 U	< 0.10 U < 0.020 U	< 0.10 U
Virtyi Offiolide	1 '	ug/L	~ U.UZU U	₹ 0.020 U	~ U.UZU U	~ U.UZU U	~ U.UZU U	► 0.020 U	~ U.UZU U	\ \ 0.020 U	~ U.UZU U	~ U.UZU UJ	~ U.UZU U	~ U.UZU U	\ 0.020 U	> 0.020 U	~ U.UZU U	> 0.020 U

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date	MW-18I 07/13/2016	MW-18I 11/16/2016	MW-19I 11/18/2010	MW-19I 03/29/2011	MW-19I 06/27/2011	MW-19I 10/11/2011	MW-19I 01/25/2012	MW-19I 05/29/2012	MW-19I 08/15/2012	MW-19I 04/16/2013	MW-19I 07/23/2013	MW-19I 10/31/2013	MW-19I 12/19/2013	MW-19I 03/11/2014	MW-19I 06/17/2014	MW-19I 09/09/2014
	T =	Sample	MW 18I-071316	MW-18I-111616	MW-19I-111810	MW-19I-032911	MW-19I-062711	MW-19I-101111	MW-19I-012512	MW-19I-052912	MW-19I-081512	MW-19I-041613	MW-19I-072313	MW-19I-103113	MW-19I-121913	MW-19I-031114	MW-19I-061714	MW-19I-090914
Analyte BTEX	Fraction	Unit																
Benzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U													
Toluene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U													
Ethylbenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U													
Total Xylenes	Т	ug/L									-							
Conventionals Chloride	Т	mg/L		I	I I									I				
Dissolved Organic Carbon	D	mg/L																
Dissolved Organic Carbon	T	mg/L																
Nitrate as Nitrogen	T	mg/L																
Nitrite as Nitrogen Silica (SiO2)	T D	mg/L mg/L																
Sulfate	T	mg/L																
Total Organic Carbon	Т	mg/L																
Total Suspended Solids	Т	mg/L																
Dechlor Bacteria	T =			1			1	1						1	1			
Dehalococcoides (DHC) Dissolved Gases	T	cells/bead																
Ethane	Т	mg/L	-															
Ethene	Т	mg/L									-							
Methane	Т	mg/L																
Field Parameters	T -	d0	40.4	40.4	47.04	40.00	40.5	20.5	40.00	40.4	20	400	40.4	20.0	40.0		47.0	20.7
Temperature Specific Conductance	T	deg C uS/cm	19.1 1186	19.4 911	17.91 1035	16.09 1302	18.5 1010	20.5 1284	18.28 1255	18.4 948	20 1076	16.9 1114	19.1 1023	20.6 1056	18.3 1332		17.2 955	20.7 1154
Dissolved Oxygen	Ť	mg/L	9.15	6.13	0.22	3.9	2.34	2.25	2.65	2.82		2.5	2.54	4.6	4.51		7.08	2.29
pH	Т	pH units	7.35	7.41	7.32	7.72	7.26	7.22	7.23	7.43	7.15	7.27	7.07	7.15	7.55		7.32	7.1
Oxidation Reduction Potential	Т	mV	90.7	141.7	130.9	107.6	102.9	79.3	116.6	-27.3	202.7	135.7	212.6	203.1	79.3		-5.1	1350
Turbidity	T	NTU	1.67	5.88	5.82			0.53	0.79	1.77	0.83	0.47	4.18	0.32	1.5		0.54	0.24
Metals Arsenic	Т	mg/L		I										T	I			
Cadmium	Ť	mg/L																
Chromium	T	mg/L																
Iron	D T	mg/L	-								-						-	
Iron Manganese	T D	mg/L mg/L				<del></del>							<u></u>					
Manganese	T	mg/L																
Selenium	Т	mg/L	-							-	-	-					-	
Other SVOCs			2.52.11												1			2.22.11
Hexachlorobutadiene PAHs	Т	ug/L	< 0.50 U	< 0.50 U	< 0.20 U													
Naphthalene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U									
PLFA																		
Anaerobic metal reducers (BrMonos)		% PLFA									-							
Decreased Permeability  Fukanyotes (polyenoics)	T	ratio trans/cis % PLFA	<u></u>			<u></u>			<u></u>				<u></u>					
Eukaryotes (polyenoics) Firmicutes (TerBrSats)	T	% PLFA % PLFA				 			 				 					
Normal Saturated (Nsats)	T	% PLFA																
Proteobacteria (Monos)	Т	% PLFA																
Slowed Growth	T	ratio cy/cis	-								-							
SRB/Actinomycetes (MidBrSats) Total Biomass	T	% PLFA cells/bead				 							 					
TPHs		cello/peau							<del></del>						<u></u>			
Gasoline Range Organics	Т	mg/L																
VFA																		
Acetic Acid	T	mg/L																
Butyric Acid Formic Acid	T	mg/L mg/L											 					
Hexanoic Acid	T	mg/L																
Isocaproic Acid	Т	mg/L									-							
Isovaleric Acid	Т	mg/L									-							
Lactic Acid	T	mg/L																
Pentanoic Acid Propionic Acid	T	mg/L mg/L																
Pyruvic Acid	T	mg/L							<del></del>									
1 Jiavio Aoia	<u>'</u>	mg/L	****		<u></u> ]	_ <del>-</del>							_ <del>-</del>			1		

Project No. 090018, New City Cleaners Richland, Washington

		Location	MW-18I	MW-18I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I
		Date	07/13/2016	11/16/2016	11/18/2010	03/29/2011	06/27/2011	10/11/2011	01/25/2012	05/29/2012	08/15/2012	04/16/2013	07/23/2013	10/31/2013	12/19/2013	03/11/2014	06/17/2014	09/09/2014
		Sample	MW 18I-071316	MW-18I-111616	MW-19I-111810	MW-19I-032911	MW-19I-062711	MW-19I-101111	MW-19I-012512	MW-19I-052912	MW-19I-081512	MW-19I-041613	MW-19I-072313	MW-19I-103113	MW-19I-121913	MW-19I-031114	MW-19I-061714	MW-19I-090914
Analyte	Fraction	Unit																
VOCs	T - T				1 .0.40.11		10.40.11		0.4011		1 .0.40.11	1 .0.40.11			1 .0.40.11		0.40.11	0.4011
1,1,1,2-Tetrachloroethane	<u> </u>	ug/L	< 0.20 U	< 0.20 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	T T	ug/L	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U
1.1.2-Trichloroethane	T T	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1.1-Dichloroethane	<del>'</del> +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ
1.1-Dichloroethene	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloropropene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U							
1,2,4-Trimethylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U							
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U	< 2.0 U	< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U							
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2-Dichloroethane (EDC)	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichloropropane	I I	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	1 7	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3-Dichloropenana	1 1	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,3-Dichloropropane 1,4-Dichlorobenzene		ug/L ug/L	< 0.20 U < 0.30 U	< 0.20 U < 0.30 UJ	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U
2.2-Dichloropropane	<del> </del>	ug/L ug/L	< 0.30 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
2-Butanone	<del>'</del>	ug/L ug/L											~ 0.10 O					
2-Chlorotoluene	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene	Ť	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Acetone	T	ug/L	-							-				-				-
Bromobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U							
Bromochloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromodichloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromoform	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 UJ	< 0.10 U				
Bromomethane	T	ug/L	< 1.0 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U						
Carbon Disulfide	Т	ug/L				-				-								
Carbon Tetrachloride	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U							
Chlorobenzene		ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloroethane		ug/L	< 0.50 U	< 0.50 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U						
Chloroform Chloromethane		ug/L	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U	< 0.10 U < 0.10 UJ	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U <b>0.1 J</b>	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U
cis-1.2-Dichloroethene (DCE)	† †	ug/L ug/L	< 0.20 U	< 0.30 U	0.58	0.32	1.4	0.23	0.69	0.72	0.33	0.42	0.41	0.10	0.10	0.13	< 0.10 U	< 0.10 U
cis-1,3-Dichloropropene	+ +	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U							
Dibromochloromethane	<del>†</del>	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromomethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dichlorodifluoromethane	Т	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U							
m,p-Xylenes	T	ug/L	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J	< 0.10 U	< 0.10 U
Methylene Chloride	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
n-Propylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
o-Xylene	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
p-Isopropyltoluene	T	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
sec-Butylbenzene	1 1	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Styrene tert-Butylbenzene	 	ug/L	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 UJ	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U							
Tetrachloroethene (PCE)	<u> </u>	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 00 11 J	< 0.10 U	< 0.10 U	< 0.10 U							
trans-1.2-Dichloroethene	'	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	0.2	< 0.10 U	< 0.10 U	0.15	< 0.10 U	< 0.10 U	< 0.10 U					
trans-1,2-Dichloroperne	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U							
Trichloroethene (TCE)	+ +	ug/L ug/L	0.28	0.47	3.1	1.9	7.1	2.4	4.9	4.9	2	2.4	1.5	1.1	1	1.3	0.95	0.66
Trichlorofluoromethane	+ +	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Vinyl Chloride	<del>†</del>	ug/L	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.020 U						
		~g, =	0.0200	0.0200	5.520 0	0.020 0	0.0200	J.JEU 0	0.020 00	0.0200	0.0200	0.0200	0.0200	0.0200	J.JEU U	0.0200	0.0200	J.JLU U

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date	MW-19I 12/17/2014	MW-19I 07/13/2016	MW-19I 11/16/2016	MW-19I 03/20/2018	MW-19I 09/18/2018	MW-19I 03/19/2019	MW-20I 01/25/2012	MW-20I 05/29/2012	MW-20I 08/14/2012	MW-21I 11/16/2010	MW-21I 03/29/2011	MW-21I 06/27/2011	MW-21I 10/11/2011	MW-21I 01/25/2012	MW-21I 05/29/2012	MW-21I 08/15/2012
Analyte	Erection	Sample	MW-19I-121714	MW 19I-071316	MW-19I-111616	MW-19I-032018	MW-19I-091818	MW-19I-031919	MW-20I-012512	MW-20I-052912	MW-20I-081412	MW-21I-111610	MW-21I-032911	MW-21I-062711	MW-21I-101111	MW-21I-012512	MW-21I-052912	MW-21I-081512
Analyte BTEX	Fraction	Unit						<u> </u>							<u> </u>			
Benzene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U									
Toluene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	-	< 0.10 U									
Ethylbenzene	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U									
Total Xylenes Conventionals	Т	ug/L																
Chloride	Т	mg/L																
Dissolved Organic Carbon	D	mg/L																
Dissolved Organic Carbon	T	mg/L																
Nitrate as Nitrogen	T	mg/L																
Nitrite as Nitrogen Silica (SiO2)	T D	mg/L mg/L							<del></del>									
Sulfate	T	mg/L																
Total Organic Carbon	T	mg/L							-									
Total Suspended Solids	Т	mg/L																
Dechlor Bacteria				1	1									T				
Dehalococcoides (DHC) Dissolved Gases	T	cells/bead																
Ethane	Т	mg/L		I	1			I I							I			
Ethene	Ť	mg/L									-						-	
Methane	Т	mg/L																
Field Parameters	T -	dar O	40.4	40.0	20.0	40.0	20.5	40.5	47.47	47.0	40.0	40.70	40.44	40		47.0	40.0	20.0
Temperature Specific Conductance	T	deg C uS/cm	19.1 997	19.2 1130	20.2 1076	16.8 1378	20.5 962	16.5 1230	17.17 1104	17.2 984	19.8 2357	19.72 961	16.41 953	19 764	21 878	17.9 982	18.8 979	20.9 1044
Dissolved Oxygen	Ť	mg/L	1.7	3	3.03	5.2	1.72	7.8	1.62	1.23	1.53	2.57	2.5	5.36	4.83	1.75	3.35	
pH	Ť	pH units	7.51	7.38	7.24	7.55	7.19	7.3	7.56	7.46	7.26	7.16	8.04	7.53	7.3	7.36	7.33	7.29
Oxidation Reduction Potential	Т	mV	122.2	124.6	140.4	122.1	79.1	105.3	99.7	-69.5	-78.5	138.6	94.2	136	82.5	78.6	-413	244
Turbidity	Т	NTU	0.56	1.83	7.19	0.47	5.2	0.6	4.53	9.52	< 2.0 UJ	7.02			0.71	1.93	0.77	0.84
Metals Arsenic	Ιт	mg/L		I	1			I I							l			
Cadmium	Ť	mg/L																
Chromium	Т	mg/L						-	-	-	1		-			-	-	
Iron	D	mg/L																
Iron	T	mg/L							-		-				-			
Manganese Manganese	D T	mg/L mg/L																
Selenium	Ť	mg/L							-									
Other SVOCs																		
Hexachlorobutadiene	Т	ug/L	< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.20 U									
PAHs Naphthalene	Т	ug/L	< 0.40 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
PLFA		g	*****		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				<u> </u>	31.15	4.14	0.10 00	31.12.2		2112 22		7.15	9779
Anaerobic metal reducers (BrMonos)		% PLFA									-							
Decreased Permeability	T	ratio trans/cis						-			-							
Eukaryotes (polyenoics) Firmicutes (TerBrSats)	T	% PLFA % PLFA																
Normal Saturated (Nsats)	Ť	% PLFA																
Proteobacteria (Monos)	Т	% PLFA									1		-					
Slowed Growth	T	ratio cy/cis									-		-				-	
SRB/Actinomycetes (MidBrSats)	T	% PLFA						-			-							
Total Biomass TPHs		cells/bead																
Gasoline Range Organics	Т	mg/L																-
VFA				1														
Acetic Acid	T	mg/L																
Butyric Acid Formic Acid	T	mg/L									-							
Hexanoic Acid	T	mg/L mg/L				 			 									
Isocaproic Acid	T	mg/L							-		-							
Isovaleric Acid	Т	mg/L							-		-						-	
Lactic Acid	Ţ	mg/L	-								-						-	-
Pentanoic Acid	T	mg/L						-			-							
Propionic Acid	T	mg/L mg/L							 									
Pyruvic Acid	_ '	IIIg/L	-	-		<u></u>	-		<u></u>		-					-	-	

Project No. 090018, New City Cleaners Richland, Washington

		Location	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-19I	MW-20I	MW-20I	MW-20I	MW-21I	MW-21I	MW-21I	MW-21I	MW-21I	MW-21I	MW-21I
		Date	12/17/2014	07/13/2016	11/16/2016	03/20/2018	09/18/2018	03/19/2019	01/25/2012	05/29/2012	08/14/2012	11/16/2010	03/29/2011	06/27/2011	10/11/2011	01/25/2012	05/29/2012	08/15/2012
	1 1	Sample	MW-19I-121714	MW 19I-071316	MW-19I-111616	MW-19I-032018	MW-19I-091818	MW-19I-031919	MW-20I-012512	MW-20I-052912	MW-20I-081412	MW-21I-111610	MW-21I-032911	MW-21I-062711	MW-21I-101111	MW-21I-012512	MW-21I-052912	MW-21I-081512
Analyte	Fraction	Unit			<u> </u>		<u> </u>	<u> </u>		<u> </u>		<u> </u>		<u> </u>	<u> </u>	<u> </u>		
VOCs	T	ua/l	< 0.10.11	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.1011	< 0.1011	< 0.10 UJ	< 0.10 U	< 0.10.11	< 0.10 U
1,1,1,2-Tetrachloroethane 1,1,1-Trichloroethane	+ +	ug/L ug/L	< 0.10 U < 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U
1,1,2,2-Tetrachloroethane	÷	ug/L	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
1.1.2-Trichloroethane	Ť	ug/L	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
1,1-Dichloroethane	Т	ug/L	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
1,1-Dichloroethene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
1,2,3-Trichlorobenzene	T	ug/L	< 0.40 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U						
1,2,3-Trichloropropane	T	ug/L	< 0.20 U	-	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U										
1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	-	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U
1,2-Dibromo-3-chloropropane	+ +	ug/L ug/L	< 0.10 U < 0.40 U	< 0.20 U < 2.0 U	< 0.20 U < 2.0 U	< 0.30 U < 2.0 U	< 0.30 U < 2.0 U		< 0.10 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.40 U	< 0.10 UJ < 0.40 UJ	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U
1,2-Dibromoethane (EDB)	<del>'</del> +	ug/L	< 0.10 U		< 0.10 U	< 0.10 U	< 0.40 U	< 0.10 U										
1,2-Dichlorobenzene	Ť	ug/L	< 0.20 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				
1,2-Dichloroethane (EDC)	T	ug/L	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
1,2-Dichloropropane	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	Т	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
1,3-Dichlorobenzene	T	ug/L	< 0.20 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	0.5	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				
1,3-Dichloropropane	<u>T</u>	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
1,4-Dichlorobenzene	 	ug/L	< 0.20 U	< 0.30 U	< 0.30 UJ	< 0.30 U	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
2,2-Dichloropropane 2-Butanone	T	ug/L ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
2-Chlorotoluene	+ +	ug/L ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
4-Chlorotoluene	Ť	ug/L	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U						
Acetone	T	ug/L	-	-				-			-			-	-	-	-	-
Bromobenzene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U					
Bromochloromethane	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
Bromodichloromethane	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	0.48	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromoform	<u> </u>	ug/L	< 0.10 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 UJ				
Bromomethane	T	ug/L	< 0.10 U	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.10 UJ	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U					
Carbon Disulfide Carbon Tetrachloride	T	ug/L ug/L	 < 0.10 U	 < 0.20 U	 < 0.20 U	< 0.20 U	 < 0.20 U	 < 0.20 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 UJ	 < 0.10 U	 < 0.10 U	 < 0.10 U
Chlorobenzene	+ +	ug/L	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
Chloroethane	Ť	ug/L	< 0.25 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U
Chloroform	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	11	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloromethane	Т	ug/L	< 0.10 U	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,2-Dichloroethene (DCE)	Т	ug/L	0.12	0.22	0.83	0.97	0.52	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	0.25	0.18	< 0.10 U	< 0.10 U	0.12	< 0.10 U	< 0.10 U
cis-1,3-Dichloropropene	T	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Dibromochloromethane	T	ug/L	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
Dibromomethane Dichlorodifluoromethane	† † T	ug/L ug/L	< 0.10 U < 0.40 U	< 0.20 U < 0.40 U		< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U									
Isopropylbenzene	† † T	ug/L ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 1.0 U	< 0.40 U		< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U					
m,p-Xylenes	÷	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.20 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 UJ		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
Methylene Chloride	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 5.0 U	< 5.0 UJ	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Butylbenzene	Т	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
n-Propylbenzene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
o-Xylene	T T	ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
p-Isopropyltoluene	T	ug/L	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U					
sec-Butylbenzene Styrene	T	ug/L ug/L	< 0.10 U < 0.10 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 1.0 U < 0.50 U	< 1.0 U < 0.50 U		< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U						
tert-Butylbenzene	† † T	ug/L ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U					
Tetrachloroethene (PCE)	÷	ug/L	6.5	6.2	4.8	2.9	4.5	0.97	0.99	0.76 J	0.94 J	10 J	8.6	2.6	5.7 J	10	7.5	4.5 J
trans-1,2-Dichloroethene	Ť	ug/L	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
trans-1,3-Dichloropropene	Т	ug/L	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U				
Trichloroethene (TCE)	Т	ug/L	1.2	1.8	2	1.4	1.5	0.29	0.19	0.16	0.14	2.1	1.9	0.37	0.87	1.5	0.88	0.59 J
Trichlorofluoromethane	Т	ug/L	< 0.10 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				
Vinyl Chloride	Т	ug/L	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U									

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date Sample	MW-21I 03/20/2018	MW-21l/2 11/16/2010	MW-21l/2 03/29/2011	MW-21l/2 06/27/2011	MW-21I/2 10/11/2011 MW-21D-101111	MW-21l/2 01/25/2012 MW-21D-012512	MW-21l/2 05/29/2012	MW-21I/2 08/15/2012	MW-211/2 04/16/2013	MW-211/2 07/23/2013	MW-21I/2 10/31/2013	MW-21I/2 12/19/2013 MW-21I/2-121913	MW-21l/2 03/11/2014 MW21/2-031114	MW-21l/2 06/17/2014 MW-21/2l-061714	MW-21l/2 09/09/2014	MW-211/2 12/17/2014
Analyte	Fraction	Unit	MIVV-211-032018	MW-21D-111610	MW-21D-032911	WW-21D-062711	MIVV-21D-101111	WW-21D-012512	WWV-21D-052912	WWV-21D-081512	MW-211/2-041613	WW-211/2-072313	MVV-21D-103113	WW-211/2-121913	WW21/2-031114	WWV-21/21-061714	WW-211/2-090914	WW-21112-121714
BTEX		1									T							
Benzene	T	ug/L	< 0.20 U	< 0.10 U <b>0.25</b>	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U
Toluene Ethylbenzene	<del> </del>	ug/L ug/L	< 0.20 U < 0.20 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U
Total Xylenes	Ť	ug/L																
Conventionals							•									'		
Chloride	T	mg/L															-	
Dissolved Organic Carbon	D	mg/L	-			-											-	
Dissolved Organic Carbon	T	mg/L																
Nitrate as Nitrogen Nitrite as Nitrogen	T	mg/L mg/L																
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L	-															
Total Organic Carbon	Т	mg/L	-														-	
Total Suspended Solids	Т	mg/L																
Dechlor Bacteria	_	1		1	1					ı				1				
Dehalococcoides (DHC)	T	cells/bead																
Dissolved Gases Ethane	Т	mg/L														T		
Ethene	Ť	mg/L	-															
Methane	T	mg/L																
Field Parameters														_				
Temperature	T	deg C	17	17.8	17.76	19.3	19.3	17.6	18.9	19.7	17.5	19.2	19.5	18	-	18.8	20.2	18.3
Specific Conductance	T	uS/cm	795	886	816	832	856	930	903	994	943	92.1	858	1028		809	881	903
Dissolved Oxygen	T	mg/L pH units	1.82 7.72	0.36 7.78	0.29 7.62	2.27 7.67	2.75 7.52	0.44 7.53	0.58 7.43	7.43	1.5 7.51	0.75 7.34	3.41 7.51	2.94 8.06	 	0.96 7.6	0.1 7.6	0.16 7.75
Oxidation Reduction Potential	Ť	mV	114.4	87.9	18.8	161.8	-190.3	31.1	-565.6	270.9	-1.3	213.1	197.2	77.4		84.9	232.5	88.9
Turbidity	T	NTU	0.68	72.2			5.28	20.9	5.05	10.8	15.2	12.4	4.93	6.19			2.75	7.55
Metals																		
Arsenic	T	mg/L																
Cadmium	T	mg/L	-						-						-			
Chromium Iron	D	mg/L mg/L																
Iron	T	mg/L							-									
Manganese	D	mg/L	-			-						-			-		-	
Manganese	T	mg/L	-														-	
Selenium	T	mg/L	-															
Other SVOCs Hexachlorobutadiene	Т	ug/L	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
PAHs	<u> </u>	ı ug/L ı	V 0.50 O	V 0.20 0	V 0.20 O	V 0.20 O	V 0.20 0	V 0.20 O	· 0.20 0	V 0.20 O	V 0.20 0	V 0.20 U	V 0.20 0	V 0.20 O	V 0.20 O	10.200	V 0.20 U	V 0.20 0
Naphthalene	Т	ug/L	< 1.0 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
PLFA Anaerobic metal reducers (BrMonos)	Т	% PLFA														T		
Decreased Permeability	Ť	ratio trans/cis																
Eukaryotes (polyenoics)	T	% PLFA	-												-		-	
Firmicutes (TerBrSats)	Т	% PLFA				-												
Normal Saturated (Nsats)	T	% PLFA	-															
Proteobacteria (Monos)	T	% PLFA																
Slowed Growth SRB/Actinomycetes (MidBrSats)	T	ratio cy/cis % PLFA							 									
Total Biomass	i i	cells/bead																
TPHs	<u> </u>													•		1		
Gasoline Range Organics VFA	Т	mg/L																
Acetic Acid	Т	mg/L		I	l						I			I				
Butyric Acid	T	mg/L																
Formic Acid	Т	mg/L	-			-									-		-	
Hexanoic Acid	T	mg/L	-			-												
Isocaproic Acid	T	mg/L																
Isovaleric Acid	T	mg/L																
Lactic Acid Pentanoic Acid	T	mg/L mg/L							<del></del>									
Propionic Acid	†	mg/L																
Pyruvic Acid	Ť	mg/L	-															
				•	•		•				•		•					

Project No. 090018, New City Cleaners Richland, Washington

Professional Pro			Location	MW-21I	MW-21I/2	MW-21I/2	MW-21I/2	MW-21I/2	MW-21I/2	MW-211/2	MW-211/2	MW-211/2	MW-21I/2	MW-211/2	MW-21I/2	MW-21I/2	MW-211/2	MW-211/2	MW-211/2
Margin   Paris   Unit																			
Color				MW-21I-032018	MW-21D-111610	MW-21D-032911	MW-21D-062711	MW-21D-101111	MW-21D-012512	MW-21D-052912	MW-21D-081512	MW-21I/2-041613	MW-21I/2-072313	MW-21D-103113	MW-21I/2-121913	MW21/2-031114	MW-21/2I-061714	MW-21l/2-090914	MW-21112-121714
1.19 June formation of the control o		Fraction	Unit										<u> </u>					<u> </u>	<u> </u>
Company   Comp		ТтТ	ua/l	< 0.3011	< 0.10.11		< 0.1011		< 0.10   1	< 0.1011	< 0.1011	< 0.1011	< 0.1011	< 0.1011	< 0.1011	< 0.1011	< 0.1011	< 0.10.11	< 0.1011
1			Ü																
1		+ ÷	Ü																
Company   Comp		Ť																	
Contragrages	1,1-Dichloroethane	Ť																	
257-State-server   7 gH	1,1-Dichloroethene	Т	ug/L	< 0.20 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
22.75   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.	1,1-Dichloropropene	Т	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
2-American company	1,2,3-Trichlorobenzene	T	ug/L	< 0.50 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U							
2.5 From Properties   1	1,2,3-Trichloropropane	T	ug/L																
Accordance   Total   Accordance   Total   Accordance   Total   Accordance   Total   Accordance	1,2,4-Trichlorobenzene		Ü																
22   22   23   24   25   25   25   25   25   25   25			Ü																
Commission   T			5																
2.000000000000000000000000000000000000		1 -	Ü																
22-bit   2		I	_																
3.3.   September   T	, , ,	 																	
2-Deleterouries	,		Ü																
2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000   2000	, ,		Ü																
Applications   T   ggl	,-		Ü																
220minospenger	,		Ü																
Post	2,2-Dichloropropane	Ť	Ü																
Charendrame	2-Butanone	T			-														-
Notice	2-Chlorotoluene	Т	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
Somewharmene	4-Chlorotoluene	Т	ug/L	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Standardinamethate   T   uglt   < 0.00 U   < 0.11 U	Acetone	T	ug/L		-							-					-		
Nonemission	Bromobenzene	Т	ug/L																
Stemetime	Bromochloromethane	Т																	
Semonethane	Bromodichloromethane		_																
Cambon Deliutified   T		_ · · -	- U																
Carbon Tetrachioride			Ü																
The companies		 	5																
Company   Comp		+ +	_																
Charled   T   ugl.   <0.20   0.19   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10   <0.10		Ť																	
Characheme	Chloroform	Ť																	
Set 12. Dehitrocethere (DCE)	Chloromethane	T	Ü																
Distromorphoromethane	cis-1,2-Dichloroethene (DCE)	Т	Ü	< 0.20 U		0.27	0.23			0.19	0.17		0.14	0.12	< 0.10 U	0.11			
Discommendance	cis-1,3-Dichloropropene	Т	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dichlorodifuloromethane	Dibromochloromethane	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U
SopropyBenzene   T   ug/L   <1.0 U   <0.10 U	Dibromomethane		Ü																
The Nymber   The	Dichlorodifluoromethane	Т	Ü																
Methylether (MTBE)	Isopropylbenzene	T	Ü																
Methylene Chloride		T	_																
Ellythenzene	, , , ,	<u> </u>	Ü																
Tug/L < 0.30 U < 0.10			Ü																
-Xylene T ug/L <0.50 U <0.10 U		† †	_							*****									
-Isopropyltoluene	o-Xylene	+ + +	Ü																
See Butylbenzene   T   ug/L   < 1.0 U   < 0.10 U   <	p-Isopropyltoluene																		
Styrené T ug/L <0.50 U <0.10 U	sec-Butylbenzene		_																
ert-Butylbenzene T ug/L < 0.50 U < 0.10	Styrene	T																	
Fetrachloroethene (PCE)         T         ug/L         5.6         4.9 J         5.7         7.3         8.3 J         11         8.1 J         9.6 J         11         8.6         9.4         8.8         5.2         7.7         4.7         7.3           rans-1,2-Dichloroethene         T         ug/L         < 0.20 U         < 0.10 U	tert-Butylbenzene	Т																	
rans-1,3-Dichloropropene T ug/L <0.20 U <0.10	Tetrachloroethene (PCE)	Т		5.6	4.9 J	5.7	7.3	8.3 J	11	8.1 J	9.6 J	11	8.6	9.4	8.8	5.2	7.7	4.7	7.3
Trichloredthene (TCE) T ug/L 0.28 1.2 1.4 1.5 2.1 2.8 1.7 1.8 1.7 1.3 1.3 1.1 1.1 1.1 0.88 1 Trichloredthene (TCE) T ug/L <0.50 U <0.10 U <0.1	trans-1,2-Dichloroethene	T		< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U							
Frichlorofluoromethane T ug/L <0.50 U <0.10 UJ <0.10 U	trans-1,3-Dichloropropene	Т	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
	Trichloroethene (TCE)	T	ug/L																
/inyl Chloride T   ug/L   <0.020 U   <0.020	Trichlorofluoromethane		_																
	Vinyl Chloride	Т	ug/L	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U				

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected
U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date Sample	MW-21I/2 07/13/2016 MW 21 1/2-071316	MW-21l/2 11/16/2016 MW-21l/2-111616	MW-21I/2 03/20/2018 MW-21I/2-032018	MW-21I/2 09/18/2018 MW-21I/2-091818	MW-21I/2 03/19/2019 MW-21I/2-031919	MW-22I 01/25/2012 MW-22I-012512	MW-22I 05/29/2012 MW-22I-052912	MW-22I 08/15/2012 MW-22I-081512	MW-22I 04/15/2013 MW-22I-041513	MW-22I 07/23/2013 MW-22I-072313	MW-22I 10/30/2013 MW-22I-103013	MW-22I 12/19/2013 MW-22I-121913	MW-22I 03/11/2014 MW22I031114	MW-22I 06/17/2014 MW-22I-061714	MW-22I 09/09/2014 MW-22I-090914	MW-22I 12/17/2014 MW-22I-121714
	Fraction																	
BTEX Benzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
Toluene	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
Ethylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U						
Total Xylenes	Т	ug/L																
Conventionals Chloride	Т	mg/L	[				T											
Dissolved Organic Carbon	D	mg/L																
Dissolved Organic Carbon	T	mg/L																
Nitrate as Nitrogen	T	mg/L																
Nitrite as Nitrogen	T	mg/L																
Silica (SiO2) Sulfate	D T	mg/L mg/L											<u></u>					
Total Organic Carbon	Ť	mg/L																
Total Suspended Solids	Ť	mg/L																
Dechlor Bacteria		, ,																
Dehalococcoides (DHC)	T	cells/bead																
Dissolved Gases Ethane	Т	mg/L														I .		I
Ethene	T	mg/L																
Methane	T	mg/L						-										
Field Parameters																		
Temperature	T	deg C	19.6	18.2	18.2	19.8	17.3	16.9	17.4	19.3	16.8	19.5	20.1	18.6	-	17.3	20.5	18.6
Specific Conductance	T	uS/cm	757	711	647	612	691	1015	1288	2725	1235	1349	1151	1346	-	1163	1271	1211
Dissolved Oxygen	T	mg/L pH units	0.4 7.65	0.28 7.88	0.98 7.63	0.18 7.46	0.9 7.6	0.87 7.9	5.84 7.56	7.41 7.58	7.17 7.56	7.12 7.62	9.99 7.71	8.16 7.86		7.12 7.82	5.93 7.64	0.08 7.84
Oxidation Reduction Potential	T	mV	52.4	111.2	136.5	55.4	88.5	57.4	-235.5	62.5	176.7	217.6	119.9	88		92.6	148.3	135.4
Turbidity	Т	NTU	4.4	13	5.35	12.2	6.8	14.1	3.12	2.04	1.06	4.98	0.61		-	1.52	1.55	2.14
Metals														T		T		
Arsenic	T	mg/L			-			-							-		-	
Cadmium Chromium	T T	mg/L mg/L																
Iron	D	mg/L															-	
Iron	Т	mg/L															-	
Manganese	D	mg/L																
Manganese	T	mg/L																
Selenium Other SVOCs	T	mg/L																
Hexachlorobutadiene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U						
PAHs	l	, ,																
Naphthalene PLFA	Т	ug/L	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U						
Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability	T	ratio trans/cis																
Eukaryotes (polyenoics)	T	% PLFA		-														
Firmicutes (TerBrSats)	T	% PLFA																
Normal Saturated (Nsats) Proteobacteria (Monos)	T T	% PLFA % PLFA											 					
Slowed Growth	T	ratio cy/cis						-										
SRB/Actinomycetes (MidBrSats)	T	% PLFA																
Total Biomass	Т	cells/bead																
TPHs	· -	1 mag n 1																
Gasoline Range Organics VFA	Т	mg/L																
Acetic Acid	Т	mg/L																
Butyric Acid	T	mg/L																
Formic Acid	Т	mg/L																
Hexanoic Acid	T	mg/L																
Isocaproic Acid Isovaleric Acid	T T	mg/L mg/L											 					
Lactic Acid	T	mg/L																
Pentanoic Acid	T	mg/L						-										
Propionic Acid	Т	mg/L													-			
Pyruvic Acid	Т	mg/L																
<del></del>																		

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		Location	MW-211/2	MW-211/2	MW-21I/2	MW-21I/2	MW-21I/2	MW-22I	MW-22I	MW-22I	MW-22I	MW-22I	MW-22I	MW-22I	MW-22I	MW-22I	MW-22I	MW-22I
		Date	07/13/2016	11/16/2016	03/20/2018	09/18/2018	03/19/2019	01/25/2012	05/29/2012	08/15/2012	04/15/2013	07/23/2013	10/30/2013	12/19/2013	03/11/2014	06/17/2014	09/09/2014	12/17/2014
		Sample	MW 21 1/2-071316	MW-211/2-111616	MW-21I/2-032018	MW-21I/2-091818	MW-21I/2-031919	MW-22I-012512	MW-22I-052912	MW-22I-081512	MW-22I-041513	MW-22I-072313	MW-22I-103013	MW-22I-121913	MW22I031114	MW-22I-061714	MW-22I-090914	MW-22I-121714
Analyte	Fraction	Unit																<u> </u>
VOCs	<del>-</del> -	,,	0.0011		1 .00011			. 0. 40.11		. 0.40.11		1 .0.40.11		1 .0.40.11		1 .0.40.11		10.40.11
1,1,1,2-Tetrachloroethane		ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	+ +	ug/L	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U
1.1.2-Trichloroethane	T T	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1.1-Dichloroethane	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U
1.1-Dichloroethene	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,1-Dichloropropene	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2-Dichloroethane (EDC)	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichloropropane	l L	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3,5-Trimethylbenzene	1 -	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3-Dichlorobenzene 1,3-Dichloropropane	1 7	ug/L ug/L	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U	< 0.30 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U
1,4-Dichlorobenzene	T T	ug/L ug/L	< 0.30 U	< 0.30 UJ	< 0.20 U	< 0.30 U	< 0.30 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
2.2-Dichloropropane	<u> </u>	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	~ 0.30 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U
2-Butanone	Ť	ug/L																
2-Chlorotoluene	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Acetone	Т	ug/L				-												
Bromobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromochloromethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromodichloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromoform	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U
Bromomethane	T	ug/L	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Carbon Disulfide	T	ug/L																
Carbon Tetrachloride		ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chlorobenzene Chloroethane	- I	ug/L	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U	< 0.20 U < 0.50 UJ	< 0.20 U < 0.50 U	< 0.10 U < 0.25 UJ	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U	< 0.10 U < 0.25 U			
Chloroform	T T	ug/L ug/L	< 0.20 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	0.23	< 0.10 U	< 0.10 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.10 U	< 0.25 U	< 0.25 U	< 0.10 U
Chloromethane	<u> </u>	ug/L ug/L	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1.2-Dichloroethene (DCE)	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,3-Dichloropropene	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromochloromethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromomethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dichlorodifluoromethane	Т	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
m,p-Xylenes	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 UJ		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.1 J	< 0.10 U	< 0.10 U	< 0.10 U
Methylene Chloride	T	ug/L	< 0.50 U	< 0.50 U	< 5.0 U	< 5.0 UJ	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	0.52	< 0.50 U	< 0.50 U
n-Butylbenzene	1 7	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
n-Propylbenzene o-Xylene	T	ug/L	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U	< 0.30 U < 0.50 U	< 0.30 U < 0.50 U		< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U
p-Isopropyltoluene	T T	ug/L ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.20 UJ	< 0.10 U	< 0.10 U < 0.20 U				
sec-Butylbenzene	'T	ug/L ug/L	< 0.50 U	< 0.30 U	< 1.0 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U					
Styrene	+ +	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
tert-Butylbenzene	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Tetrachloroethene (PCE)	Ť	ug/L	7.1	7.1	4.8	5.9	4	0.55	0.38	0.24 J	0.41	0.26	0.35	0.34	0.32	0.34	0.19	0.36
trans-1,2-Dichloroethene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
trans-1,3-Dichloropropene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Trichloroethene (TCE)	Т	ug/L	0.9	1	0.65	0.77	0.9	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Trichlorofluoromethane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Vinyl Chloride	Т	ug/L	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U
	· ·	-			L. C.		il.											

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date	MW-22I 11/16/2016	MW-23I 01/25/2012	MW-23I 05/29/2012	MW-23I 08/15/2012	MW-23I 04/15/2013	MW-23I 07/22/2013	MW-23I 10/30/2013	MW-23I 12/19/2013	MW-23I 03/11/2014	MW-23I 06/17/2014	MW-23I 09/09/2014	MW-23I 12/17/2014	MW-23I 07/13/2016	MW-23I 11/16/2016	MW-23I 03/20/2018	MW-23I 09/18/2018
Analyte	Erection	Sample	MW-22I-111616	MW-23I-012512	MW-23I-052912	MW-23I-081512	MW-23I-041513	MW-23I-072213	MW-23I-103013	MW-23I-121913	MW23I-031114	MW-23I-061714	MW-23I-090914	MW-23I-121714	MW 23I-071316	MW-23I-111616	MW-23I-032018	MW-23I-091818
Analyte BTEX	Fraction	Unit																
Benzene	Т	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Toluene	Т	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Ethylbenzene	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Total Xylenes Conventionals	T	ug/L																
Chloride	Т	mg/L			1										I			
Dissolved Organic Carbon	D	mg/L																
Dissolved Organic Carbon	Т	mg/L									-							
Nitrate as Nitrogen	T	mg/L																
Nitrite as Nitrogen Silica (SiO2)	T D	mg/L mg/L																
Sulfate	T	mg/L														-		
Total Organic Carbon	Т	mg/L						-		-	ı					-	-	
Total Suspended Solids	Т	mg/L									-							
Dechlor Bacteria	T -	a alla /h a a d			l l										1			
Dehalococcoides (DHC) Dissolved Gases	T	cells/bead																
Ethane	Т	mg/L																
Ethene	Т	mg/L																
Methane	Т	mg/L																
Field Parameters Temperature	Т	deg C	19	18	17.5	19.6	17.1	20.6	20.4	18.6		17.3	20.7	19.2	19.7	19.5	16.6	20.4
Specific Conductance	Ť	uS/cm	1122	991	1103	1989	1070	1050	955	1158		981	1000	1009	889	843	957	988
Dissolved Oxygen	T	mg/L	5.37	0.92	1.91	0.62	1.92	2.28	3.59	3.16		0.9	1.14	1.4	0.94	1.52	4.71	0.23
pH	Т	pH units	7.94	7.72	7.63	7.39	7.4	7.34	7.37	7.87	-	7.57	7.49	7.67	7.52	7.68	7.67	7.34
Oxidation Reduction Potential	T	mV	115.6	109.4	-44.2	15	163.3	187.9	114.5	84.4		84.9	214.7	124	94.8	112.9	116.2	72
Turbidity Metals	T	NTU	2.7	5.66	1.78	15.5	1.15	2.67	2.75	11.8		5.84	1.04	1.2	4.73	3.13	5.37	2.74
Arsenic	Т	mg/L																
Cadmium	Т	mg/L									-							
Chromium	T D	mg/L									-							
Iron Iron	T	mg/L mg/L				 							 					
Manganese	D	mg/L																
Manganese	Т	mg/L									-					-	-	
Selenium Other SVOCs	T	mg/L																
Other SVOCs Hexachlorobutadiene	Ιт	ug/L	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
PAHs		g,	0.00 0	0.200	0.20 0	0.200	0.200	0.200	0.20	0.20 0	0.20	0.20	0.20	0.200	0.000	0.00	0.00	5.55 5
Naphthalene	Т	ug/L	< 0.50 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
PLFA Anaerobic metal reducers (BrMonos)	Т	% PLFA			1													
Decreased Permeability	T	ratio trans/cis									-							
Eukaryotes (polyenoics)	T	% PLFA									-							
Firmicutes (TerBrSats)	T	% PLFA									-							
Normal Saturated (Nsats)	T	% PLFA									-							
Proteobacteria (Monos) Slowed Growth	T	% PLFA ratio cy/cis											 					
SRB/Actinomycetes (MidBrSats)	T	% PLFA																
Total Biomass	Т	cells/bead									-							
TPHs					· · · · · · · · · · · · · · · · · · ·			1				1			ı			
Gasoline Range Organics	Т	mg/L																
VFA Acetic Acid	Т	mg/L																
Butyric Acid	T	mg/L									-							
Formic Acid	T	mg/L									-							
Hexanoic Acid	T	mg/L									-							
Isocaproic Acid Isovaleric Acid	T	mg/L mg/L				<del></del>			 									
Lactic Acid	T	mg/L																
Pentanoic Acid	Ť	mg/L									-							
Propionic Acid	T	mg/L																
Pyruvic Acid	Т	mg/L																

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		Location Date Sample	MW-22I 11/16/2016 MW-22I-111616	MW-23I 01/25/2012 MW-23I-012512	MW-23I 05/29/2012 MW-23I-052912	MW-23I 08/15/2012 MW-23I-081512	MW-23I 04/15/2013 MW-23I-041513	MW-23I 07/22/2013 MW-23I-072213	MW-23I 10/30/2013 MW-23I-103013	MW-23I 12/19/2013 MW-23I-121913	MW-23I 03/11/2014 MW23I-031114	MW-23I 06/17/2014 MW-23I-061714	MW-23I 09/09/2014 MW-23I-090914	MW-23I 12/17/2014 MW-23I-121714	MW-23I 07/13/2016 MW 23I-071316	MW-23I 11/16/2016 MW-23I-111616	MW-23I 03/20/2018 MW-23I-032018	MW-23I 09/18/2018 MW-23I-091818
Analyte	Fraction	Unit																
VOCs 1.1.1.2-Tetrachloroethane	ТТ	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U							
1,1,1-Trichloroethane	Т	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
1,1,2,2-Tetrachloroethane	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
1,1,2-Trichloroethane	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
1,1-Dichloroethane 1.1-Dichloroethene	T	ug/L ug/L	< 0.20 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U							
1,1-Dichloropropene	T	ug/L	< 0.10 U                               < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U									
1,2,3-Trichlorobenzene	T	ug/L	< 0.50 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
1,2,3-Trichloropropane	Т	ug/L	< 0.20 U                               < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U									
1,2,4-Trichlorobenzene	Т	ug/L	< 0.20 U                               < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U									
1,2,4-Trimethylbenzene	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U							
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB)	<u> </u>	ug/L ug/L	< 2.0 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 2.0 U < 0.10 U	< 2.0 U < 0.10 U	< 2.0 U < 0.10 U	< 2.0 U < 0.10 U
1,2-Dibromoethane (EDB)  1,2-Dichlorobenzene	+ +	ug/L ug/L	< 0.10 U                               < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U									
1,2-Dichloroethane (EDC)	Ť	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
1,2-Dichloropropane	Т	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ							
1,3,5-Trimethylbenzene	T	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
1,3-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U							
1,3-Dichloropropane	T	ug/L	< 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.20 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 UJ	< 0.20 U < 0.30 U	< 0.20 U
1,4-Dichlorobenzene 2,2-Dichloropropane	+ +	ug/L ug/L	< 0.30 UJ < 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.30 U < 0.50 U
2-Butanone	Ť	ug/L																
2-Chlorotoluene	Т	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
4-Chlorotoluene	T	ug/L	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U							
Acetone	T	ug/L									-							
Bromobenzene	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Bromochloromethane Bromodichloromethane	T	ug/L ug/L	< 0.20 U < 0.20 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U										
Bromoform	<del>'</del> †	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U                               < 0.10 UJ	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U					
Bromomethane	T	ug/L	< 1.0 U	< 0.10 UJ	< 0.10 U                               < 0.10 U	< 0.10 U	< 0.10 U	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 UJ							
Carbon Disulfide	T	ug/L									-							
Carbon Tetrachloride	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Chlorosthana	T	ug/L	< 0.20 U	< 0.10 U < 0.25 UJ	< 0.10 U	< 0.10 U	< 0.10 U < 0.25 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U < 0.50 UJ
Chloroethane Chloroform	T	ug/L ug/L	< 0.50 U < 0.20 U	< 0.25 UJ < 0.10 U	< 0.25 U < 0.10 U	< 0.25 U < 0.10 U	0.25 0	< 0.25 U <b>0.14</b>	< 0.25 U <b>0.16</b>	< 0.25 U <b>0.1</b>	< 0.25 U <b>0.16</b>	< 0.25 U <b>0.23</b>	< 0.25 U 0.33	< 0.25 U <b>0.48</b>	< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	< 0.50 UJ < 0.20 U
Chloromethane	T	ug/L	< 0.30 U	< 0.10 U	0.1J	< 0.10 U	< 0.10 U	< 0.10 U	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U						
cis-1,2-Dichloroethene (DCE)	Ť	ug/L	< 0.20 U	0.11	< 0.10 U                               < 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
cis-1,3-Dichloropropene	T	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U							
Dibromochloromethane	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Dibromomethane	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
Dichlorodifluoromethane Isopropylbenzene	T	ug/L ug/L	< 0.40 U < 0.50 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.10 U	< 0.40 U < 0.50 U	< 0.40 U < 0.50 U	< 0.40 U < 1.0 U	< 0.40 U < 1.0 U							
m,p-Xylenes	T	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.20 U	0.95	0.32	0.74	1.1	0.6	0.11	< 0.10 U	0.1 J	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 UJ
Methylene Chloride	T	ug/L	< 0.50 U                               0.61	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 5.0 U	< 5.0 UJ									
n-Butylbenzene	T	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
n-Propylbenzene	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U							
o-Xylene p-Isopropyltoluene	T	ug/L ug/L	< 0.50 U < 0.30 U	< 0.10 U < 0.20 UJ	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.50 U < 0.30 U							
sec-Butylbenzene	<u> </u>	ug/L ug/L	< 0.50 U	< 0.20 UJ < 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U				
Styrene	† †	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
tert-Butylbenzene	Т	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U							
Tetrachloroethene (PCE)	T	ug/L	< 0.50 U	9.2	5 J	6.5 J	5.7	5.4	4.9	4.6	2.8	3.9	2.9	3.9	4.4	4	2.6	8.1
trans-1,2-Dichloroethene	Ţ	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U							
trans-1,3-Dichloropropene	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U <b>0.71</b>	< 0.10 U	< 0.10 U <b>0.63</b>	< 0.10 U <b>0.77</b>	< 0.10 U <b>0.52</b>	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U <b>0.4</b>	< 0.20 U < 0.20 U	< 0.20 U
Trichloroethene (TCE) Trichlorofluoromethane	<u> </u>	ug/L ug/L	< 0.20 U < 0.50 U	<b>1.3</b> < 0.10 U	<b>0.71</b> < 0.10 U	<b>0.99</b> < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<b>0.43</b> < 0.10 U	<b>0.43</b> < 0.10 U	<b>0.44</b> < 0.10 U	<b>0.38</b> < 0.10 U	<b>0.36</b> < 0.10 U	<b>0.44</b> < 0.50 U	< 0.50 U	< 0.20 U	<b>0.33</b> < 0.50 U
Vinyl Chloride	Ť	ug/L	< 0.020 U	< 0.020 UJ	< 0.020 U                              < 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U							
<u> </u>		J. –																

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation
 E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligr mV = millivolts, NTU = nephlometric turbic D = dissolved, T = total PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound TPH = total petroleum hydrocarbon VFA = volatile fatty acids

		Location Date	MW-23I 03/19/2019	MW-24I 01/25/2012	MW-24I 05/29/2012	MW-24I 08/14/2012	MW-25I 01/25/2012	MW-25I 05/30/2012	MW-25I 08/15/2012	MW-25I 04/16/2013	MW-25I 07/23/2013	MW-25I 10/31/2013	MW-25I 12/19/2013	MW-25I 03/11/2014	MW-25I 06/17/2014	MW-25I 09/10/2014	MW-25I 12/17/2014	MW-25I 07/13/2016
Anglista	Fraction	Sample Unit	MW-23I-031919	MW-24I-012512	MW-24I-052912	MW-24I-081412	MW-25I-012512	MW-25I-053012	MW-25I-081512	MW-25I-041613	MW-25I-072313	MW-25I-103113	MW-25I-121913	MW-25I-031114	MW-25I-061714	MW-25I-091014	MW-25I-121714	MW 25I-071316
Analyte BTEX	Fraction	Unit																
Benzene	Т	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	0.22	< 0.10 U	< 0.20 U									
Toluene	T	ug/L		< 0.10 U	< 0.10 U	< 0.10 U	0.21	< 0.10 U	< 0.20 U									
Ethylbenzene	T	ug/L		< 0.10 U	< 0.20 U													
Total Xylenes Conventionals	T	ug/L																
Chloride	Т	mg/L																
Dissolved Organic Carbon	D	mg/L								-	-							
Dissolved Organic Carbon	T	mg/L		-						-	-							-
Nitrate as Nitrogen	T	mg/L		-							-							-
Nitrite as Nitrogen Silica (SiO2)	T D	mg/L mg/L							 									
Sulfate	T	mg/L		_														
Total Organic Carbon	T	mg/L																
Total Suspended Solids	Т	mg/L																
Dechlor Bacteria Dehalococcoides (DHC)	Т	cells/bead	I				1								T			
Dissolved Gases		ceiis/peau													<u></u>	_ <del></del>		
Ethane	Т	mg/L																
Ethene	Т	mg/L									-							
Methane	T	mg/L																
Field Parameters Temperature	Т	deg C	16.3	16.7	16.7	19.7	16	16.6	17.7	16.3	17.8	17.6	16.7		16	16.8	16.3	18.5
Specific Conductance	T	uS/cm	1577	1096	1124	2090	1157	825	906	724	847	816	991		799	876	900	706
Dissolved Oxygen	Т	mg/L	7.3	2.58	4.24	4.14	0.42	2.62		2.29	2.52	3.49	3.87		2.74	1.22	0.16	1.68
pΗ	T	pH units	7.6	7.28	7.22	7.21	7.63	7.62	7.95	7.72	7.56	7.61	8.65		7.64	7.46	7.85	7.58
Oxidation Reduction Potential	T	mV	96.4 5.5	83.3 24.7	-94.7 4.94	-60.5 1.08	-258.5 95.4	-23.2 3.45	-90.9 9.83	-31.2 2.41	200.1 1.74	163.5 0.87	90.8 0.77		96.5 0.75	20.6 1.09	82.5 2.4	86.4
Turbidity Metals	<u> </u>	NTU	5.5	24.7	4.54	1.00	95.4	3.45	9.03	2.41	1.74	0.07	0.77		0.75	1.09	2.4	
Arsenic	Т	mg/L																
Cadmium	Т	mg/L		-		-				-	-	-					-	
Chromium	T D	mg/L mg/L		-														
Iron Iron	T	mg/L																
Manganese	D	mg/L																
Manganese	Т	mg/L				-					-							
Selenium Other SVOCe	Т	mg/L																
Other SVOCs Hexachlorobutadiene	Ιт	ug/L		< 0.20 U	< 0.50 U													
PAHs	•			0.200	0.20 0	0.20 0	3.23 3	0.200	0.20	0.20 0	0.20	0.20 0	0.20	0.200	3.23 3	0.20 0	0.20	5.55 5
Naphthalene	Т	ug/L		< 0.40 U	< 0.50 U													
PLFA Anaerobic metal reducers (BrMonos)	Т	% PLFA	_				1 .				_				1 .			
Decreased Permeability	+ +	ratio trans/cis				 							<u></u>					
Eukaryotes (polyenoics)	Ť	% PLFA																
Firmicutes (TerBrSats)	Т	% PLFA																
Normal Saturated (Nsats)	T	% PLFA																
Proteobacteria (Monos) Slowed Growth	T	% PLFA ratio cy/cis	<u></u>						<u></u>	<u></u>			<u></u>					-
SRB/Actinomycetes (MidBrSats)	T	% PLFA											<del></del>					
Total Biomass	Ť	cells/bead																
TPHs				T			T								T		T	
Gasoline Range Organics	Т	mg/L																
VFA Acetic Acid	Ιт	mg/L						1							I			I
Butyric Acid	Ť	mg/L																
Formic Acid	Т	mg/L																
Hexanoic Acid	T	mg/L																-
Isocaproic Acid	T	mg/L							<u></u>				<u></u>					
Isovaleric Acid Lactic Acid	T	mg/L mg/L				 			 				 					
Pentanoic Acid	T	mg/L																
Propionic Acid	Т	mg/L																
Pyruvic Acid	Т	mg/L							-									

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Part			Location	MW-23I	MW-24I	MW-24I	MW-24I	MW-25I											
Adapta																			
Color				MW-23I-031919	MW-24I-012512	MW-24I-052912	MW-24I-081412	MW-25I-012512	MW-25I-053012	MW-25I-081512	MW-25I-041613	MW-25I-072313	MW-25I-103113	MW-25I-121913	MW-25I-031114	MW-25I-061714	MW-25I-091014	MW-25I-121714	MW 25I-071316
1.   Approximation   7		Fraction	Unit			<u> </u>		<u> </u>	<u> </u>		<u> </u>		<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>	
1.   Marcharder   1		T + T	ug/l		< 0.10.11	< 0.1011	< 0.10.11	< 0.1011	< 0.1011	< 0.1011	< 0.1011	< 0.1011	< 0.10   1	< 0.1011	< 0.1011	-0.10 LI	< 0.1011	< 0.10.11	< 0.2011
10 pt		T T	,																
Color	, ,	† †																	
Tickbeamfram			,																
1	1,1-Dichloroethane	Т		< 0.20 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U									
1255-1056-1056-1056-1056-1056-1056-1056-10	1,1-Dichloroethene	T	ug/L	< 0.20 U	< 0.10 U														
1257th/pages    1		T	,																
12.4Terminaturane		T																	
12   Free Processor   1																			
12	, ,																		
1200mentare   17																			
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1266-decomposes	, , ,	T		< 0.30 U															
1.5.Firmalishessees	•	Т	,																
13000000000000000000000000000000000000	1,2-Dichloropropane	Т	ug/L	< 0.20 U															
3.20intengages																			
1.0-Chinophemen	,		,																
22.Deletereproper																			
2   2   2   2   2   2   2   2   2   2		T T																	
Composition   T		+ +	,									~ 0.10 O							
4.Chorestenere		Ť										< 0.10 U							
Sementerwere		Т			< 0.20 U	< 0.20 U	< 0.20 U					< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U		
Bennechshormerhame	Acetone	Т	ug/L		-														
Bernordeinbernementence	Bromobenzene	T	ug/L																
Beneform																			
Bommerhame			,																
Carbon Designation																			
Carbon Frienchionide								1											
Chioroberane			,																
Chiorothane		T	,																
Coloromethane   T	Chloroethane	Т		< 0.50 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.50 U									
Sest_2Delhororethene (DCE)	Chloroform	Т	ug/L	< 0.20 U	0.5	0.55	0.5	0.65	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.20 U					
CB-13-Dichlorpropene			,																
Distribution   T   Ug/L   C   C   C   C   C   C   C   C   C	,		,																
Discrimentation   T																			
Dichicondifilipromethane		+ +	,																
Sopropythenzene		† †																	
mp-Xylenes																			
Methylene Chloride		Т																	
n-Butylbenzene T ug/L <0.10 U <0.10	Methyl tert-butyl ether (MTBE)	Т	ug/L		< 0.10 U	0.1 J	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U									
n-Propylbenzene T ug/L <0.10 U <0.1	Methylene Chloride	Т		< 5.0 U															
o-Xylene         T         ug/L         -         < 0.10 U	,	T	,																
p-Isopropyltoluene	- 17	T																	
Sec-Butylbenzene   T   ug/L     < 0.10 U   < 0.10																			
Styrene   T   ug/L     < 0.10 U   < 0.1																			
tert-Butylbenzene         T         ug/L          < 0.10 U		<del>'</del> †																	
Tetrachloroethene (PCE) T ug/L 0.82 1 0.72 J 1 3.3 0.56 J 0.57 J 1.1 0.5 0.54 0.86 0.51 0.65 0.61 0.64 <0.50 U trans-1,2-Dichloroethene T ug/L <0.20 U <0.10 U		Т																	
trans-1,3-Dichloropropene         T         ug/L         < 0.20 U		Т		0.82		0.72 J			0.56 J	0.57 J					0.51				
Trichloroethene (TCE)         T         ug/L         < 0.20 U	trans-1,2-Dichloroethene	Т	ug/L																
Trichlorofluoromethane T ug/L < 0.50 U < 0.10 U	trans-1,3-Dichloropropene																		
	\ /																		
pringramonae   1   ugil   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.020 0   < 0.		T	,																
	viriyi Chionde		ug/L	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U										

ams per liter, uS/cm = microsiemens per centimeter ity units, C = Celsius

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation

E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

 $ug/L = micrograms \ per \ liter, \ mg/L = milligrams \ per \ liter, \ uS/cm = microsiemens \ per \ centimeter \ mV = millivolts, \ NTU = nephlometric turbidity units, \ C = Celsius$ 

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location	MW-25I	MW-25I
		Date Sample	11/16/2016 MW-25I-111616	03/19/2018 MW-25I-031918
Analyte	Fraction	Unit		
BTEX				
Benzene	T	ug/L	< 0.20 U	< 0.20 U
Toluene	T	ug/L	< 0.20 U	< 0.20 U
Ethylbenzene	T	ug/L	< 0.20 U	< 0.20 U
Total Xylenes Conventionals	_ ' _	ug/L		
Chloride	Т	mg/L		
Dissolved Organic Carbon	D	mg/L		
Dissolved Organic Carbon	T	mg/L	-	
Nitrate as Nitrogen	T	mg/L		
Nitrite as Nitrogen	T	mg/L		
Silica (SiO2)	D	mg/L		
Sulfate	T	mg/L	-	
Total Organic Carbon	T	mg/L		
Total Suspended Solids	Т	mg/L		
Dechlor Bacteria	T + 1			
Dehalococcoides (DHC) Dissolved Gases	<u> </u>	cells/bead		
Ethane	Т	mg/L		
Ethene	†	mg/L	-	
Methane	Ť	mg/L		
Field Parameters		<u> </u>		
Temperature	Т	deg C	17.6	16.3
Specific Conductance	T	uS/cm	730	690
Dissolved Oxygen	Т	mg/L	0.71	2.65
pH	T	pH units	7.43	7.69
Oxidation Reduction Potential	T	mV	129.6	12.2
Turbidity	Т	NTU	5.71	0.67
Metals Arsenic	Т	mg/L		
Cadmium	T	mg/L		
Chromium	Ť	mg/L		
Iron	D	mg/L		
Iron	Т	mg/L		
Manganese	D	mg/L		
Manganese	Т	mg/L		
Selenium	Т	mg/L	-	
Other SVOCs				
Hexachlorobutadiene	Т	ug/L	< 0.50 U	< 0.50 U
PAHs Nanhthalana	Т	110/	< 0.50 U	< 1.011
Naphthalene PLFA		ug/L	< 0.50 0	< 1.0 U
Anaerobic metal reducers (BrMonos)	Т	% PLFA		
Decreased Permeability	Ť	ratio trans/cis		
Eukaryotes (polyenoics)	Т	% PLFA		
Firmicutes (TerBrSats)	Т	% PLFA		
Normal Saturated (Nsats)	T	% PLFA		
Proteobacteria (Monos)	Т	% PLFA		
Slowed Growth	Т	ratio cy/cis		
SRB/Actinomycetes (MidBrSats)	T	% PLFA		
Total Biomass	T	cells/bead		
TPHs Gasoline Range Organics	І т І	mg/l		
VFA		mg/L		
Acetic Acid	Т	mg/L		
Butyric Acid	Ť	mg/L		
Formic Acid	Ť	mg/L		
Hexanoic Acid	Ť	mg/L		
Isocaproic Acid	Т	mg/L		
Isovaleric Acid	Т	mg/L		
Lactic Acid	T	mg/L		
Pentanoic Acid	T	mg/L		
Propionic Acid	T	mg/L		
Pyruvic Acid	Т	mg/L		

		Location Date Sample	MW-25I 11/16/2016 MW-25I-111616	MW-25I 03/19/2018 MW-25I-031918
Analyte	Fraction	Unit		
VOCs				
1,1,1,2-Tetrachloroethane	T	ug/L	< 0.20 U	< 0.30 U
1,1,1-Trichloroethane	T	ug/L	< 0.20 U	< 0.20 U
1,1,2,2-Tetrachloroethane	T	ug/L	< 0.20 U	< 0.20 U
1,1,2-Trichloroethane	T	ug/L	< 0.20 U	< 0.20 U
1,1-Dichloroethane	T	ug/L	< 0.20 U	< 0.20 U
1,1-Dichloroethene	Т	ug/L	< 0.10 U	< 0.20 U
1,1-Dichloropropene	Т	ug/L	< 0.10 U	< 0.20 U
1,2,3-Trichlorobenzene	Т	ug/L	< 0.50 U	< 0.50 U
1,2,3-Trichloropropane	Т	ug/L	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	T	ug/L	< 0.20 U	< 0.30 U
1,2,4-Trimethylbenzene	T	ug/L	< 0.20 U	< 0.30 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U	< 2.0 U
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	T	ug/L	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U
1,2-Dichloroethane (EDC)	† †	ug/L		< 0.20 U
1,2-Dichloropropane	† †	ug/L	< 0.20 U < 0.50 U	< 0.50 U
1,3,5-Trimethylbenzene	T	ug/L	< 0.30 U	< 0.30 U
1,3-Dichlorobenzene 1,3-Dichloropropane	T	ug/L ug/L	< 0.20 U	< 0.20 U
1,4-Dichlorobenzene	T	ug/L ug/L	< 0.30 UJ	< 0.30 U
2,2-Dichloropropane	T	ug/L ug/L	< 0.50 U	< 0.50 U
2-Butanone	<u> </u>	ug/L ug/L		
2-Chlorotoluene	Ť	ug/L	< 0.50 U	< 0.50 U
4-Chlorotoluene	T	ug/L	< 0.30 U	< 0.30 U
Acetone	Ť	ug/L		
Bromobenzene	Ť	ug/L	< 0.20 U	< 0.20 U
Bromochloromethane	Т	ug/L	< 0.20 U	< 0.20 U
Bromodichloromethane	Т	ug/L	< 0.20 U	< 0.20 U
Bromoform	Т	ug/L	< 0.50 U	< 0.50 U
Bromomethane	Т	ug/L	< 1.0 U	< 0.50 U
Carbon Disulfide	T	ug/L		
Carbon Tetrachloride	T	ug/L	< 0.20 U	< 0.20 U
Chlorobenzene	T	ug/L	< 0.20 U	< 0.20 U
Chloroethane	T	ug/L	< 0.50 U	< 0.50 U
Chloroform	T	ug/L	< 0.20 U	< 0.20 U
Chloromethane	T	ug/L	< 0.30 U	< 0.50 U
cis-1,2-Dichloroethene (DCE)	T	ug/L	0.38	0.26
cis-1,3-Dichloropropene	Т	ug/L	< 0.50 U	< 0.20 U
Dibromochloromethane	Т	ug/L	< 0.20 U	< 0.20 U
Dibromomethane	T	ug/L	< 0.20 U	< 0.20 U
Dichlorodifluoromethane	Т	ug/L	< 0.40 U	< 0.40 U
Isopropylbenzene	T	ug/L	< 0.50 U	< 1.0 U
m,p-Xylenes	T	ug/L	< 0.50 U	< 0.50 U
Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.20 U	< 0.30 U
Methylene Chloride	T	ug/L	< 0.50 U	< 5.0 U
n-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U
n-Propylbenzene	T	ug/L	< 0.20 U	< 0.30 U
o-Xylene	T	ug/L	< 0.50 U < 0.30 U	< 0.50 U
p-Isopropyltoluene sec-Butylbenzene	T	ug/L ug/L	< 0.50 U	< 0.30 U < 1.0 U
Styrene	T		< 0.50 U	
tert-Butylbenzene	T	ug/L ug/L	< 0.50 U	< 0.50 U < 0.50 U
Tetrachloroethene (PCE)	T	ug/L ug/L	< 0.50 U	< 0.50 U
trans-1,2-Dichloroethene	T	ug/L ug/L	< 0.20 U	< 0.20 U
trans-1,3-Dichloropropene	T	ug/L	< 0.20 U	< 0.20 U
Trichloroethene (TCE)	T	ug/L	0.5	0.36
Trichlorofluoromethane	T	ug/L	< 0.50 U	< 0.50 U
Vinyl Chloride	Ť	ug/L	< 0.020 U	< 0.020 U
		J. –		

Aspect Consulting
August 2019
V:\090018 New City Cleaners\Deliverables\RIFS\2019\Final\Appendices\E - Historical Water Results\GW everything

		Location Date	MW-25I 09/18/2018	MW-25I 03/19/2019	MW-26I 01/26/2012	MW-26I 05/30/2012	MW-26I 08/16/2012	MW-26I 04/16/2013	MW-26I 03/12/2014	MW-26I 06/17/2014	MW-26I 09/10/2014	MW-26I 12/16/2014	MW-26I 07/12/2016	MW-26I 11/15/2016	MW-26I 10/03/2017	MW-26I 12/12/2017	MW-26I 03/19/2018	MW-26I 06/19/2018
Analyte	Fraction	Sample Unit	MW-25I-091818	MW-25I-031919	MW-26I-012612	MW-26I-053012	MW-26I-081612	MW-26I-041613	MW-26I-031214	MW-26I-061714	MW-26I-091014	MW-26I-121614	MW26I-071216	MW-26I-111516	MW-26I-100317	MW26I-121217	MW-26I-031918	MW-100I-061918
BTEX																		
Benzene	T	ug/L	< 0.20 U		0.3	0.21	0.28	0.26	0.25	< 0.10 U	0.23	0.15	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Toluene Ethylbenzene	T	ug/L ug/L	< 0.20 U < 0.20 U		<b>0.13</b> < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U			
Total Xylenes	Ť	ug/L																
Conventionals		J.									•							
Chloride	Т	mg/L		-					52	12	35	33	29 J	23	44	48	43	36
Dissolved Organic Carbon	D T	mg/L													2	2.2 J	2.1	2.3
Dissolved Organic Carbon Nitrate as Nitrogen	Ť	mg/L mg/L				 			 < 0.90 UJ	 < 0.10 U	 < 0.90 U	 < 0.90 U	 0.56 J	 < 0.20 U	 < 0.20 U	 < 0.20 UJ	0.28	 < 0.20 U
Nitrite as Nitrogen	Ť	mg/L							4.1 J	< 0.10 U	< 0.60 U	9.2	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L							56	15	31	23	25 J	19	16	17	19	21
Total Organic Carbon Total Suspended Solids	T	mg/L mg/L																
Dechlor Bacteria	'	IIIg/L																
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases																		
Ethane	T	mg/L							< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Ethene Methane	T	mg/L mg/L				<u></u>			< 0.0050 U <b>0.16</b>	< 0.0050 U 0.011	< 0.0050 U 0.057	< 0.0050 U 0.32	< 0.0050 U <b>0.73</b>	< 0.0050 U	< 0.0050 U <b>0.58</b>	< 0.0050 U <b>0.4</b>	< 0.0050 U <b>0.4</b>	< 0.0050 U 1.1
Field Parameters	<u> </u>	IIIg/L							U. 16	0.011	U.U5/	0.32	0.73	1	U.58	0.4	0.4	1.1
Temperature	Т	deg C	18	15.8	14.5	15.2	16.4	15.2	15	15.6	16.6	14.2	16.9	15.9	16.1	14.7	16.1	
Specific Conductance	T	uS/cm	428.7	579.4	1250	1079	2011	1121	887	67.3	863	737	606	660	710	608.1	589.6	
Dissolved Oxygen	T	mg/L	0.14	3.8	0.28	3.14	1.69	3.4	0.16	7.76	0.06	0.17	1.04	0.12	0.13	0.15	1.94	
PH Oxidation Reduction Potential	T	pH units mV	6.98 54.6	7.5 93.2	7.93 -325.6	7.69 -190.6	7.6 -119.8	7.69 35.4	7.63 -22.7	6.94 88.2	7.63 -175.6	7.65 -163	7.78 -83.4	7.58 -115.6	7.58 31.2	7.44 -80.3	7.61 -59.2	
Turbidity	†	NTU	2.13	1.1	9.26	1.47	5.32	0.73	0.78	< 2.0 UJ	6.35	1.47	1.52	3.67	1.9	0.96	1.23	
Metals	-						0.02		, , , , , , , , , , , , , , , , , , ,		1 2137		1102			****		
Arsenic	T	mg/L																
Chromium	T	mg/L																
Chromium Iron	D	mg/L mg/L																
Iron	T	mg/L							< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Manganese	D	mg/L																
Manganese	T	mg/L																
Selenium Other SVOCs	T	mg/L																
Hexachlorobutadiene PAHs	Т	ug/L	< 0.50 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Naphthalene	Т	ug/L	< 1.0 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
PLFA Anaerobic metal reducers (BrMonos)	Т	% PLFA					I				I			T				
Decreased Permeability	T	ratio trans/cis																
Eukaryotes (polyenoics)	Т	% PLFA											-					
Firmicutes (TerBrSats)	T	% PLFA																
Normal Saturated (Nsats)	T	% PLFA																
Proteobacteria (Monos) Slowed Growth	T T	% PLFA ratio cy/cis																
SRB/Actinomycetes (MidBrSats)	Ť	% PLFA																
Total Biomass	T	cells/bead											-					
TPHs		·			1			1							1			
Gasoline Range Organics VFA	T	mg/L																
Acetic Acid	Т	mg/L	I								I		< 0.10 U	< 0.10	I			
Butyric Acid	T	mg/L											< 0.10 U	< 0.10				
Formic Acid	T	mg/L											< 0.10 U	< 0.10				
Hexanoic Acid	T	mg/L											< 0.20 U	< 0.20				
Isocaproic Acid Isovaleric Acid	T T	mg/L mg/L				 							< 0.20 U < 0.10 U	< 0.20 < 0.10		 		
Lactic Acid	Ť	mg/L											< 0.10 U	< 0.10				
Pentanoic Acid	Ť	mg/L											< 0.10 U	< 0.10				
Propionic Acid	Т	mg/L											< 0.10 U	< 0.10 U				
Pyruvic Acid	T	mg/L											< 0.10 U	< 0.10				

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		Location	MW-25I	MW-25I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I	MW-26I
		Date	09/18/2018	03/19/2019	01/26/2012	05/30/2012	08/16/2012	04/16/2013	03/12/2014	06/17/2014	09/10/2014	12/16/2014	07/12/2016	11/15/2016	10/03/2017	12/12/2017	03/19/2018	06/19/2018
Accelete	I =	Sample	MW-25I-091818	MW-25I-031919	MW-26I-012612	MW-26I-053012	MW-26I-081612	MW-26I-041613	MW-26I-031214	MW-26I-061714	MW-26I-091014	MW-26I-121614	MW26I-071216	MW-26I-111516	MW-26I-100317	MW26I-121217	MW-26I-031918	MW-100I-061918
Analyte VOCs	Fraction	Unit						<u> </u>		<u> </u>					<u> </u>		<u> </u>	
1,1,1,2-Tetrachloroethane	ТТ	ug/L	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1.1.1-Trichloroethane	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1,2,2-Tetrachloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	0.50 J	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1,2-Trichloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloroethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloroethene	T	ug/L	< 0.20 U	< 0.20 U	1	1.3	1.7	1.5	1.2	0.36	1.7	1.1	< 0.10 U	0.5	0.33	0.17	< 0.20 U	0.2
1,1-Dichloropropene	T	ug/L	< 0.20 U		< 0.10 U < 0.40 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U	< 0.10 U < 0.50 U	< 0.10 U	< 0.10 U < 0.50 U	< 0.20 U < 0.50 U	< 0.20 U
1,2,3-Trichlorobenzene 1,2,3-Trichloropropane	+ +	ug/L ug/L	< 0.50 U < 0.20 U		< 0.40 U	< 0.40 U < 0.20 U	< 0.40 U < 0.20 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.50 U < 0.20 U	< 0.50 U	< 0.50 U < 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U < 0.20 U
1.2.4-Trichlorobenzene	<del>                                     </del>	ug/L ug/L	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U
1,2,4-Trimethylbenzene	† †	ug/L	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
1,2-Dibromoethane (EDB)	Т	ug/L	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.12	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,2-Dichloroethane (EDC)	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2-Dichloropropane	T T	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,3,5-Trimethylbenzene	T	ug/L	< 0.50 U	 < 0.30 H	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U	< 0.10 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U
1,3-Dichlorobenzene 1,3-Dichloropropane	T	ug/L ug/L	< 0.30 U < 0.20 U	< 0.30 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U	< 0.30 U < 0.20 U			
1.4-Dichlorobenzene	† †	ug/L	< 0.30 U	< 0.30 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
2,2-Dichloropropane	Ť	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
2-Butanone	Т	ug/L																
2-Chlorotoluene	Т	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
4-Chlorotoluene	T	ug/L	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
Acetone	T	ug/L																
Bromobenzene		ug/L	< 0.20 U < 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U
Bromochloromethane Bromodichloromethane	+ +	ug/L ug/L	< 0.20 U	 < 0.20 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U <b>0.29</b>	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U < 0.20 U
Bromoform	† †	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Bromomethane	Ť	ug/L	< 0.50 UJ	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 U
Carbon Disulfide	Т	ug/L	-															
Carbon Tetrachloride	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chloroethane	T	ug/L	< 0.50 UJ	< 0.50 U	< 0.25 U	< 0.25 U	0.32 J	1.1 J	0.82	< 0.25 U	< 0.25 U	< 0.25 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Chlorograph and	T	ug/L	0.69	< 0.20 U	<b>0.38</b> < 0.10 U	<b>0.14</b> < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	<b>26</b> < 0.10 U	<b>1.4</b> < 0.10 U	<b>2.1</b> < 0.10 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U	< 0.20 U	< 0.20 U < 0.50 U	< 0.20 U
Chloromethane cis-1.2-Dichloroethene (DCE)	+ +	ug/L ug/L	< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	280	440	< 0.10 U 780	< 0.10 U <b>670</b>	620	140	640	670	340	570	630	< 0.30 U 330	250	< 0.50 U 380
cis-1,3-Dichloropropene	† †	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U
Dibromochloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Dibromomethane	Т	ug/L	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Dichlorodifluoromethane	Т	ug/L	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ
Isopropylbenzene	T	ug/L	< 1.0 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
m,p-Xylenes	T	ug/L	< 0.50 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Methyl tert-butyl ether (MTBE) Methylene Chloride		ug/L ug/L	< 0.30 UJ < 5.0 UJ	 < 5.0 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U <b>0.86</b>	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.20 U < 0.50 U	< 0.30 U < 5.0 U	< 0.30 U < 5.0 U			
n-Butylbenzene	+ +	ug/L ug/L	< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U				
n-Propylbenzene	Ť	ug/L	< 0.30 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
o-Xylene	Т	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
p-Isopropyltoluene	Т	ug/L	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
sec-Butylbenzene	Т	ug/L	< 1.0 U		0.69	0.45	0.63	0.49	0.33	< 0.10 U	0.26	0.21	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
Styrene	T	ug/L	< 0.50 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
tert-Butylbenzene	T T	ug/L	< 0.50 U		0.13	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Tetrachloroethene (PCE) trans-1,2-Dichloroethene	T	ug/L ug/L	< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	270 1.5	220 2.6	180 J 3.8	160 3.3	47 3	11 0.77	17 4.2	6.8 2.5	2.1 1.5	3.3 1.5	1.1 1.5	< 0.50 U <b>0.61</b>	< 0.50 U <b>0.6</b>	1.6 0.93
trans-1,2-Dichloroethene trans-1,3-Dichloropropene	T	ug/L ug/L	< 0.20 U	< 0.20 U	1.5 < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<b>4.2</b> < 0.10 U	< 0.10 U	1.5 < 0.20 U	1.5 < 0.20 U	1.5 < 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Trichloroethene (TCE)	†	ug/L ug/L	0.37	0.39	290	430	590	540	460	62	210	98	67	44	39	5.3	4.6	32
Trichlorofluoromethane	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Vinyl Chloride	T	ug/L	< 0.020 U	< 0.020 U	2.5	1	0.93	0.51 J	0.47	0.077	0.61	0.36	0.18	0.29	0.45	0.21	0.16	0.26
		J. –																

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- J Result value estimated
- X Chromatographic pattern does not match fuel standard used for quantitation

  E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

 $\label{eq:continuous} \begin{tabular}{ll} ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per centimeter mV = millivolts, NTU = nephlometric turbidity units, C = Celsius \\ \end{tabular}$ 

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Lagation	MAY OCI	MW OCI	MAN OCI	MAN OCC	MMA OCC	MM OCC	MW acc	MW 200	MW 200	MW 200	MMA OCC	MW 200	MIN OCC	MMA OCC	MW-26S
		Location Date	MW-26I 06/19/2018	MW-26I 09/19/2018	MW-26I 03/20/2019	MW-26S 03/12/2014	MW-26S 06/16/2014	MW-26S 09/10/2014	MW-26S 12/16/2014	MW-26S 07/12/2016	MW-26S 07/12/2016	MW-26S 11/14/2016	MW-26S 11/16/2016	MW-26S 10/03/2017	MW-26S 12/12/2017	MW-26S 03/19/2018	06/19/2018
			MW-26I-061918	MW-26I-091918	MW-26I-032019	MW-26S-031214				MW26S-071216			MW-26S-111616			MW-26S-031918	
Analyte	Fraction	Unit															
BTEX																	
Benzene	T	ug/L	< 0.20 U	< 10 UJ	< 0.20 U	< 0.10 U	< 0.10 U	0.1 J	0.25		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Toluene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	0.19 J	0.24		< 0.20 U		< 0.20 U	< 0.20 U	0.25	2.9	2.5
Ethylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Total Xylenes	T	ug/L													-		
Conventionals	Т т Т			0.4		0.5	44	40	04		00.1			.00.11	1 4-	40	40
Chloride Dissolved Organic Carbon	D	mg/L mg/L	2.3	34	26 1.8	25	11	19	21		20 J		20	< 90 U <b>100</b>	17 33 J	18 27	19 18
Dissolved Organic Carbon  Dissolved Organic Carbon	T	mg/L				3											
Nitrate as Nitrogen	Ť	mg/L	< 0.20 U	0.24	0.31	< 0.90 UJ	< 0.10 UJ	< 0.90 U	< 0.90 U		< 0.20 U		< 0.20 U	< 20 U	< 0.20 UJ	< 0.20 U	< 0.20 U
Nitrite as Nitrogen	<del>+ +</del>	mg/L	< 0.40 U	< 0.40 U	< 0.40 U	3.1 J	< 0.10 UJ	< 0.60 U	24		< 0.40 U		< 2.0 UJ	< 40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
Silica (SiO2)	D	mg/L								-							
Sulfate	T	mg/L	21	17	18	35	10	< 1.2 U	< 1.2 U		< 1.2 U		< 1.2 U	< 120 U	< 1.2 U	< 1.2 U	< 1.2 U
Total Organic Carbon	Т	mg/L		2.4	-			-			_			_	-		
Total Suspended Solids	Т	mg/L						1						-			
Dechlor Bacteria																	
Dehalococcoides (DHC)	T	cells/bead									168						
Dissolved Gases																	
Ethane	Т	mg/L	< 0.0050 U		< 0.0050 U	-	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U						
Ethene	T	mg/L	< 0.0050 U		0.0053		< 0.0050 U	< 0.0050 U	0.018	0.0091	0.016						
Methane	T	mg/L	1.1	0.82	1.7	< 0.0050 U	0.0058	1	3.8		12		5.3	7.1	14	15	13
Field Parameters	T = T	4 0	47.4	100	45.0	44.0	440	40.4	450	40.4			400	40	457	45.0	40.0
Temperature	T	deg C	17.4 686	16.9 799	15.8 837	14.3 549.9	14.6 536.4	16.1 2491	15.6 2520	16.1			16.8 1940	16 1506	15.7 1773	15.6 1974	16.8 2013
Specific Conductance	+ +	uS/cm	1.57	0.21	0.2	0.92	0.09	0.26	0.09	2357 0.09			0.34	0.09	0.1	0.41	0.31
Dissolved Oxygen	<del> </del>	mg/L pH units	7.28	7.54	7.3	7.6	6.65	6.75	6.8	6.93			7.02	6.49	6.76	6.82	6.64
Oxidation Reduction Potential	Ť	mV	86.8	-11.3	-43.4	91.4	-26	-66.1	-91.9	-126.5			-109.6	-101.2	-123.9	-100.5	-28.2
Turbidity	T	NTU	0.76	2.5	0.4	0.88	< 2.0 UJ	2.91	32.5	46			8.74	63.2	14.9	40.2	-20.2
Metals		1110	0.10	2.0	V	0.00	12.0 00	2.01	02.0				V.1 <del>-</del>	00.2	14.0	40.2	
Arsenic	Т	mg/L				< 0.0050 U							0.08				
Cadmium	Т	mg/L		-		< 0.0020 U							< 0.0020 U	-			
Chromium	Т	mg/L	-	-		< 0.0020 U		-			-		< 0.0020 U	-			
Iron	D	mg/L						-						-			
Iron	T	mg/L	< 0.50 U	0.52	< 0.50 U	< 0.50 U	4.7	41	57		36			27	32	37	34
Manganese	D	mg/L						-			-			-			
Manganese	T	mg/L				0.13							8.7				
Selenium	T	mg/L				< 0.0050 U							< 0.0050 U				
Other SVOCs	<del></del>	, ,	. 0. 50.11	. 0. 50.11	. 0 50 11		. 0. 00 11	. 0. 00 111			. 0. 50 11		0.5011	. 0 50 11			
Hexachlorobutadiene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
PAHs	ТТ	ua/l	< 1.0 U	< 50 UJ	< 1.0 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
Naphthalene PLFA		ug/L	< 1.0 0	< 50 03	< 1.0 0	< 0.40 0	< 0.40 0	< 0.40 UJ	< 0.40 0		< 0.50 0	-	< 0.50 0	< 0.50 0	< 0.50 0	< 1.0 0	< 1.0 0
Anaerobic metal reducers (BrMonos)	Т Т	% PLFA				T	<b></b>				0.2	0.38			l	I	
Decreased Permeability	T	ratio trans/cis									0.074634928	0.07345065					
Eukaryotes (polyenoics)	T	% PLFA									27.6	18.23					
Firmicutes (TerBrSats)	T	% PLFA			-						13.57	< 0.0 U					
Normal Saturated (Nsats)	T	% PLFA									18.41	18.33					
Proteobacteria (Monos)	Т	% PLFA	-	-				ı			39.97	63.04		ı			
Slowed Growth	T	ratio cy/cis						-			0.081675107	0.117351592		-			
SRB/Actinomycetes (MidBrSats)	T	% PLFA									0.24	< 0.0 U					
Total Biomass	T	cells/bead	-	-				-		-	465000	136000		-			
TPHs						1	1				1				1	1	ı
Gasoline Range Organics	Т	mg/L															
VFA	T - T					ı	1			0.4	1		0.47		1		
Acetic Acid	T	mg/L								2.4			0.47				
Butyric Acid Formic Acid	T	mg/L								< 1.0 U			< 0.10 U 0.13				
Hexanoic Acid	T	mg/L mg/L								< 1.0 U		 	< 0.20 U				
Isocaproic Acid	T	mg/L								< 2.0 U			< 0.20 U				
Isovaleric Acid	T T	mg/L								< 1.0 U			< 0.10 U				
Lactic Acid	Ť	mg/L								< 2.0 U			< 0.20 U				
Pentanoic Acid	T	mg/L	_		-					< 1.0 U		-	< 0.10 U	-			
Propionic Acid	T	mg/L			-					< 1.0 U			< 0.10 U				
Pyruvic Acid	T	mg/L			-					< 1.0 U			< 0.10 U				
		J. =									1				1		

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		Location	MW-26I	MW-26I	MW-26I	MW-26S	MW-26S	MW-26S	MW-26S	MW-26S	MW-26S	MW-26S	MW-26S	MW-26S	MW-26S	MW-26S	MW-26S
		Date	06/19/2018	09/19/2018	03/20/2019	03/12/2014	06/16/2014	09/10/2014	12/16/2014	07/12/2016	07/12/2016	11/14/2016	11/16/2016	10/03/2017	12/12/2017	03/19/2018	06/19/2018
		Sample	MW-26I-061918	MW-26I-091918	MW-26I-032019	MW-26S-031214	MW-26S-061614	MW-26S-091014	MW-26S-121614	MW26S-071216	MW-26S-071116	MW-26S-111416	MW-26S-111616	MW-26S-100317	MW26S-121217	MW-26S-031918	MW-26S-061918
Analyte	Fraction	Unit															
VOCs																	
1,1,1,2-Tetrachloroethane	T	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U	-	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1,1,1-Trichloroethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
1,1,2,2-Tetrachloroethane	T	ug/L	< 0.20 U	< 10 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
1,1,2-Trichloroethane	Т	ug/L	< 0.20 U	< 10 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U	-	< 0.20 U				
1,1-Dichloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U	-	< 0.20 U				
1,1-Dichloroethene	T	ug/L	0.26	< 10 UJ	0.5	0.11	0.14	0.65 J	0.74		0.22		0.19	0.1	< 0.10 U	< 0.20 U	< 0.20 U
1,1-Dichloropropene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U
1,2,3-Trichlorobenzene	+ +	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U		< 0.50 U		< 0.50 U				
1,2,3-Trichloropropane 1,2,4-Trichlorobenzene	+ +	ug/L ug/L	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 UJ < 0.20 UJ	< 0.20 U < 0.20 U		< 0.20 U < 0.20 U		< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.30 U	< 0.20 U < 0.30 U
1,2,4-Trimethylbenzene	+ +	ug/L ug/L	< 0.30 U	< 0.30 U	< 0.30 U	0.25	< 0.10 U	0.26 J	0.35		1.6		1.5	0.42	1.1	2.7	2.1
1,2-Dibromo-3-chloropropane	†	ug/L ug/L	< 2.0 U	< 2.0 U	< 2.0 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U		< 2.0 U		< 2.0 U				
1,2-Dibromoethane (EDB)	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.40 U	< 0.10 U	< 0.10 UJ	< 0.40 U		< 0.10 U		< 0.10 U				
1,2-Dichlorobenzene	<u> </u>	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.30 U		< 0.30 U				
1,2-Dichloroethane (EDC)	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
1,2-Dichloropropane	Ť	ug/L	< 0.20 U	< 10 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
1,3,5-Trimethylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.50 U		< 0.50 U				
1,3-Dichlorobenzene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.30 U		< 0.30 U				
1,3-Dichloropropane	T	ug/L	< 0.20 U	< 10 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
1,4-Dichlorobenzene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.30 U	-	< 0.30 UJ	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
2,2-Dichloropropane	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.50 U		< 0.50 U				
2-Butanone	T	ug/L															
2-Chlorotoluene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.50 U		< 0.50 U				
4-Chlorotoluene	T	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.30 U		< 0.30 U				
Acetone	T	ug/L															
Bromobenzene	<u> </u>	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
Bromochloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
Bromodichloromethane	T	ug/L	< 0.20 U	< 10 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
Bromoform Bromomothono	T	ug/L	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 UJ < 0.10 UJ	< 0.10 U < 0.10 U		< 0.50 U < 1.0 U		< 0.50 U < 1.0 U	< 0.50 U < 1.0 U	< 0.50 U < 1.0 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U
Bromomethane Carbon Disulfide	<del>'</del> +	ug/L ug/L							< 0.10 U								
Carbon Tetrachloride	T	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
Chlorobenzene	†	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
Chloroethane	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U		< 0.50 U		< 0.50 U				
Chloroform	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	20	0.1 J	< 0.10 U		< 0.20 U		< 0.20 U				
Chloromethane	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.30 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U
cis-1,2-Dichloroethene (DCE)	Т	ug/L	490	360 J	760	9.7	48	330 J	510		400		350	260	86	0.67	0.62
cis-1,3-Dichloropropene	Т	ug/L	< 0.20 U	< 10 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.50 U	-	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U
Dibromochloromethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U	1	< 0.20 U				
Dibromomethane	T	ug/L	< 0.20 U	< 10 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 UJ		< 0.20 U		< 0.20 U				
Dichlorodifluoromethane	Т	ug/L	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U		< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ
Isopropylbenzene	Т	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	0.15	< 0.10 U	0.17 J	0.19		< 0.50 U	-	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
m,p-Xylenes	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U		< 0.50 U		< 0.50 U				
Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.30 U	< 15 UJ	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
Methylene Chloride	T	ug/L	< 5.0 U	< 250 UJ	< 5.0 U	< 0.50 U	2.8	< 0.50 UJ	< 0.50 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 5.0 U	< 5.0 U
n-Butylbenzene	T	ug/L	< 0.50 U	< 25 UJ	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		0.59		< 0.50 U	< 0.50 U	< 0.50 U	0.6	0.52
n-Propylbenzene	<del>   </del>	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.10 U	< 0.10 U	0.13 J	0.19		0.46		< 20 U	< 0.20 U	0.26	0.73	0.49
o-Xylene p-Isopropyltoluene	T	ug/L	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U	<b>0.16</b> < 0.20 U	<b>0.11</b> < 0.20 U	<b>0.19 J</b> < 0.20 UJ	<b>0.24</b> < 0.20 U		<b>0.78</b> < 0.30 U		<b>0.82</b> < 0.30 U	< 0.50 U < 0.30 U	<b>0.6</b> < 0.30 U	<b>1.8</b> < 0.30 U	<b>1.3</b> < 0.30 U
sec-Butylbenzene	+ +	ug/L ug/L	< 1.0 U	< 0.30 U	< 1.0 U	0.20	< 0.20 U	< 0.20 UJ	0.20 0		0.6		< 0.50 U	< 0.50 U	< 0.50 U	< 0.30 U	< 1.0 U
Styrene	<del> </del>	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.19 U		< 0.50 U		< 0.50 U				
tert-Butylbenzene	<del>'</del>	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.50 U		< 0.50 U				
Tetrachloroethene (PCE)	Ť	ug/L	1.4	1.3	0.78	74	12	3.8 J	3.1		< 0.50 U		0.95	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
trans-1,2-Dichloroethene	Ť	ug/L	1	1.0	2.4	0.31	0.27	0.93 J	1.4		0.89		0.95	0.55	0.51	0.37	0.3
trans-1,3-Dichloropropene	Ť	ug/L	< 0.20 U	< 10 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.20 U		< 0.20 U				
Trichloroethene (TCE)	T	ug/L	33	19	46	180	31	13 J	7.9		0.35		0.44	0.38	< 0.20 U	< 0.20 U	< 0.20 U
Trichlorofluoromethane	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U		< 0.50 U		< 0.50 U				
Vinyl Chloride	Т	ug/L	0.25	< 0.020 U	0.49	< 0.020 U	0.34	5.5 J	5.2		4.2		4.3	4.5	41	3	1.5
			-				-		•		•			•	•	-	

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- J Result value estimated
- X Chromatographic pattern does not match fuel standard used for quantitation

  E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per centimeter mV = millivolts, NTU = nephlometric turbidity units, C = Celsius

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location Date	MW-26S 09/19/2018	MW-26S 03/20/2019	MW-27I 03/11/2014	MW-27I 12/17/2014	MW-28I 03/12/2014	MW-28I 06/17/2014	MW-28I 09/10/2014	MW-28I 12/16/2014	MW-28I 07/12/2016	MW-28I 07/12/2016	MW-28I 11/15/2016	MW-28I 10/03/2017	MW-28I 12/12/2017	MW-28I 03/19/2018	MW-28I 06/19/2018	MW-28I 09/19/2018
		Sample			MW-27I-031114	MW-27I-121714	MW-28I-031214		MW-28I-091014	MW-28I-121614	MW28I-071216	MW-28I-071116	MW-28I-111516	MW-28I-100317	MW28I-121217	MW-28I-031918	MW-28I-061918	
Analyte BTEX	Fraction	Unit																
Benzene	Т	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	0.12	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	0.23	0.39	0.34 J
Toluene	T	ug/L	3.7	4.5	0.29	0.39	< 0.10 U	< 0.10 U	< 0.10 U	0.12		< 0.20 U	0.21	< 0.20 U	< 0.20 U	0.25	< 0.20 U	< 0.20 U
Ethylbenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Total Xylenes Conventionals	<u> </u>	ug/L																
Chloride	Т	mg/L	18	17	14	12	20	66	16	14		22 J	10	110	25	18	13	17
Dissolved Organic Carbon	D	mg/L		6.8		-								960	850 J	1600	1300	
Dissolved Organic Carbon	T	mg/L																
Nitrate as Nitrogen Nitrite as Nitrogen	T	mg/L mg/L	< 0.20 U < 0.40 U	< 0.20 U < 0.40 U	< 0.90 UJ <b>3.1 J</b>	< 0.90 U <b>9.6 J</b>	< 0.90 UJ <b>3.2 J</b>	< 0.10 UJ < 0.10 UJ	< 0.90 U < 0.60 U	< 0.90 U <b>6.3</b>		< 0.20 U < 0.40 U	< 0.20 U < 0.40 U	< 20 U < 40 UJ	< 0.20 UJ < 0.40 U	< 0.20 U < 0.40 U	< 0.20 U < 0.40 U	< 0.20 U < 0.40 U
Silica (SiO2)	D	mg/L	~ 0.40 U	~ 0.40 U	3.13	9.0 3	3.2 J 	~ 0.10 03 										~ 0.40 U
Sulfate	T	mg/L	< 1.2 U	1.2	8.9	< 1.2 U	24	< 1.0 U	< 1.2 U	< 1.2 U		3.8 J	6.8	< 120 U	3.2	< 1.2 U	< 1.2 U	1.5
Total Organic Carbon	T	mg/L	13												840			500
Total Suspended Solids	T	mg/L																
Dechlor Bacteria Dehalococcoides (DHC)	Т	cells/bead									I			I				
Dissolved Gases	'	ociis/beau											- <del>-</del>				· · · · · · · · · · · · · · · · · · ·	
Ethane	Т	mg/L	< 0.0050 U	< 0.0050 U			< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U		< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Ethene	T	mg/L	0.042	0.0064			< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U		< 0.0050 U	0.012	< 0.0050 U	0.0064	< 0.0050 U	< 0.0050 U	0.0055
Methane Field Parameters	Т	mg/L	11	12			0.049	< 0.0050 U	0.1	2.3		6.8	8.3	8.3	16	11	8	8.6
Temperature	Т	deg C	16.5	15.9	14.7	15.1	14.4	14.9	16.1	14.7	18.4		16.6	16.7	15.5	15.7	19.4	17.2
Specific Conductance	T	uS/cm	1984	1633	542	1401	517.4	1595	1175	1302	753		591.3	1808	1860	2084	1595	1758
Dissolved Oxygen	T	mg/L	0.53	0.2	0.16	0.35	0.1	0.18	0.17	0.05	0.06		0.2	0.41		0.53	0.29	0.27
pH	T	pH units	6.66	6.5	7.4	5.99	7.66	5.89	5.66	5.89	6.08		6.04	5.77	5.79	5.5	5.17	5.1
Oxidation Reduction Potential Turbidity	T	mV NTU	-24.3 31.8	-97.9 12.2	71.4 4.71	21.9 397	<b>79.2</b> < 2.0 UJ	10.3 158	37.6 31.9	-19.6 111	-61.2 22.1		-114.2 11.5	2 622	-61 555	30 19.2	95.9 20.7	51 21.2
Metals	<u> </u>	NIO	01.0	12.2	7.71	001	12.0 00	100	01.0		22.1		11.0	022		13.2	20.7	21.2
Arsenic	T	mg/L																
Cadmium	T	mg/L																
Chromium Iron	T D	mg/L mg/L																
Iron	T	mg/L	26	26			< 0.50 U	30	29	71		27	26	52	110	160	130	110
Manganese	D	mg/L	-	-		-		-	-									
Manganese	T	mg/L		-														
Selenium Other SVOCs	T	mg/L																
Hexachlorobutadiene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
PAHs																		
Naphthalene PLFA	Т	ug/L	< 1.0 UJ	< 1.0 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 UJ
Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability	T	ratio trans/cis																
Eukaryotes (polyenoics) Firmicutes (TerBrSats)	T	% PLFA % PLFA																
Normal Saturated (Nsats)	T	% PLFA		-														
Proteobacteria (Monos)	T	% PLFA																
Slowed Growth	T	ratio cy/cis		-														
SRB/Actinomycetes (MidBrSats) Total Biomass	T	% PLFA		-														-
TPHs	_ '	cells/bead																
Gasoline Range Organics	Т	mg/L																
VFA Acetic Acid	Т	mg/L									82	I	39					
Butyric Acid	T	mg/L									18		4.4					
Formic Acid	T	mg/L		-							3.3		1.4					
Hexanoic Acid	T	mg/L									8.4		2.3					
Isocaproic Acid	T	mg/L									< 0.20 U		< 0.20 U					
Isovaleric Acid Lactic Acid	T	mg/L mg/L				 					2.9 0.63		<b>1.1</b> < 2.0 U					
Pentanoic Acid	T	mg/L		-							14		4.4					-
Propionic Acid	Ť	mg/L									78		52					
Pyruvic Acid	Т	mg/L									4.5		1.8					

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		Location	MW-26S	MW-26S	MW-27I	MW-27I	MW-28I	MW-28I	MW-28I	MW-28I	MW-28I	MW-28I	MW-28I	MW-28I	MW-28I	MW-28I	MW-28I	MW-28I
		Date	09/19/2018	03/20/2019	03/11/2014	12/17/2014	03/12/2014	06/17/2014	09/10/2014	12/16/2014	07/12/2016	07/12/2016	11/15/2016	10/03/2017	12/12/2017	03/19/2018	06/19/2018	09/19/2018
	1=	Sample	MW-26S-091918	MW-26S-032019	MW-27I-031114	MW-27I-121714	MW-28I-031214	MW-28I-061714	MW-28I-091014	MW-28I-121614	MW28I-071216	MW-28I-071116	MW-28I-111516	MW-28I-100317	MW28I-121217	MW-28I-031918	MW-28I-061918	MW-28I-091918
Analyte	Fraction	Unit																
VOCs 1,1,1,2-Tetrachloroethane	ТТ	ug/L	< 0.30 U	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U
1.1.1-Trichloroethane	<del>                                     </del>	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1.1.2.2-Tetrachloroethane	Ť	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ
1,1,2-Trichloroethane	Ť	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ
1,1-Dichloroethane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloroethene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloropropene	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,3-Trichlorobenzene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2,3-Trichloropropane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U
1,2,4-Trimethylbenzene	T	ug/L	<b>2.2</b> < 2.0 U	<b>3</b> < 2.0 U	< 0.10 U < 0.40 UJ	< 0.10 U < 0.40 U		< 0.20 U < 2.0 U	< 0.20 U < 2.0 U	< 0.20 U < 2.0 U	< 0.20 U < 2.0 U	< 0.30 U < 2.0 U	< 0.30 U < 2.0 U	< 0.30 U < 2.0 U				
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB)	T	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ < 0.10 U	< 0.40 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Diblomoetriane (EDB)	+ +	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.20 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,2-Dichloroethane (EDC)	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.20 U
1,2-Dichloropropane	Ť	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ
1,3,5-Trimethylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,3-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,3-Dichloropropane	Т	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ
1,4-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
2,2-Dichloropropane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
2-Butanone	T	ug/L				<u></u>							<u> </u>					
2-Chlorotoluene	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
4-Chlorotoluene	T	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
Acetone Bromobenzene	T	ug/L ug/L	 < 0.20 U	 < 0.20 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U	 < 0.10 U		 < 0.20 U	 < 0.20 U	 < 0.20 U	 < 0.20 U	 < 0.20 U	 < 0.20 U	 < 0.20 U
Bromochloromethane	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Bromodichloromethane	Ť	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ
Bromoform	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Bromomethane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 U	< 0.50 U
Carbon Disulfide	T	ug/L		-				-										
Carbon Tetrachloride	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chloroethane	Т	ug/L	0.63	2.3	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Chloroform	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	9.5	4	2.5	1.6	0.98
Chloromethane	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.30 U	< 0.30 U	0.49	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 UJ
cis-1,2-Dichloroethene (DCE) cis-1,3-Dichloropropene	T	ug/L ug/L	<b>0.81 J</b> < 0.20 UJ	<b>0.8</b> < 0.20 U	<b>0.1</b> < 0.10 U	<b>5.1</b> < 0.10 U	<b>1.5</b> < 0.10 U	<b>4.3</b> < 0.10 U	<b>47</b> < 0.10 U	<b>81</b> < 0.10 U		<b>100</b> < 0.50 U	<b>72</b> < 0.50 U	23 < 0.50 U	<b>12</b> < 0.50 U	14 < 0.20 U	15 < 0.20 U	<b>14 J</b> < 0.20 UJ
Dibromochloromethane	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Dibromomethane	† †	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ
Dichlorodifluoromethane	Ť	ug/L	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U
Isopropylbenzene	Т	ug/L	< 1.0 U	< 1.0 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U				
m,p-Xylenes	Т	ug/L	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.30 UJ	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 UJ
Methylene Chloride	T	ug/L	< 5.0 UJ	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	4.5	1.6	1.3		< 0.50 U	< 0.50 U	7	4	6.9	6.1	< 5.0 UJ
n-Butylbenzene	T	ug/L	< 0.50 UJ	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
n-Propylbenzene	T	ug/L	0.52	0.55	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U				
o-Xylene	T	ug/L	1	1.3	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U				
p-Isopropyltoluene	T	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
sec-Butylbenzene Styrene	T	ug/L ug/L	< 1.0 U < 0.50 U	< 1.0 U < 0.50 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U		< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 1.0 U < 0.50 U	< 1.0 U < 0.50 U	< 1.0 U < 0.50 U				
tert-Butylbenzene	+ +	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Tetrachloroethene (PCE)	<del> </del>	ug/L ug/L	< 0.50 U	< 0.50 U	2.3	0.26	8.3	0.25	0.18	0.25		0.89	1.1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	0.53
trans-1,2-Dichloroethene	<del>                                     </del>	ug/L	0.4	0.26	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.16	0.25		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
trans-1,3-Dichloropropene	Ť	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ
Trichloroethene (TCE)	Ť	ug/L	0.2	< 0.20 U	0.3	0.23	11	3	5.4	7.5		3.9	2.7	0.62	0.4	0.55	0.7	0.79
Trichlorofluoromethane	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Vinyl Chloride	Т	ug/L	< 0.020 U	0.82	0.021	0.16	< 0.020 U	0.07	1.2	1.7		1.4	0.71	5.7	2.6	1.6	0.83	< 0.020 U
		•	· L				•	•		•				•	•		•	•

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- J Result value estimated
- X Chromatographic pattern does not match fuel standard used for quantitation

  E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

 $\label{eq:continuous} \begin{tabular}{ll} ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per centimeter mV = millivolts, NTU = nephlometric turbidity units, C = Celsius \\ \end{tabular}$ 

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location Date	MW-28I 03/20/2019	MW-29I 03/11/2014	MW-29I 12/17/2014	MW-30I 03/12/2014	MW-30I 12/17/2014	MW-31I 03/12/2014	MW-31I 06/17/2014	MW-31I 09/10/2014	MW-31I 12/16/2014	MW-31I 07/12/2016	MW-31I 07/12/2016	MW-31I 11/15/2016	MW-31I 10/03/2017	MW-31I 12/12/2017	MW-31I 03/19/2018	MW-31I 06/19/2018
Analyta	Fraction	Sample Unit	MW-28I-032019	MW-29I-031114	MW-29I-121714	MW-30I-031214	MW-30I-121714	MW-31I-031214	MW-31I-061714	MW-31I-091014	MW-31I-121614	MW31I-071216	MW-31I-071116	MW-31I-111516	MW-31I-100317	MW31I-121217	MW-31I-031918	
Analyte BTEX	Fraction	Unit																
Benzene	Т	ug/L	0.61	< 0.10 U	0.12	0.35	0.14		< 0.20 U									
Toluene	T	ug/L	< 0.20 U	0.38	0.29	0.57	0.17	0.11	< 0.10 U	0.14	0.36		< 0.20 U	0.45				
Ethylbenzene Total Xylenes	T	ug/L ug/L	< 0.20 U	< 0.10 U	< 0.10 U		< 0.20 U											
Conventionals	<u> </u>	ug/L																
Chloride	Т	mg/L	5	32	26	59	29	23	52	40	34		57 J	28	< 90 U	39	41	41
Dissolved Organic Carbon	D	mg/L	670											15	780	1100 J	300	93
Dissolved Organic Carbon	T	mg/L	 < 0.20 U	 < 0.90 UJ	 < 0.90 U	 < 0.90 U	 < 0.90 U	<b>3.4</b> < 0.90 U	<b>260</b> < 0.10 UJ	<b>600</b> < 0.90 U	<b>570</b> < 0.90 U		<b>27</b> < 0.20 U	 < 0.20 U	 < 20 U	 < 0.20 UJ	 < 0.20 U	 < 0.20 U
Nitrate as Nitrogen Nitrite as Nitrogen	T	mg/L mg/L	< 0.40 U	3 J	7.2	2.8	10	3.2	< 0.10 UJ	3.2	6.4		< 0.40 U	< 0.40 U	< 40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L	9.5	22	< 1.2 U	23	< 1.2 U	24	10	< 1.2 U	< 1.2 U		12 J	13	< 120 U	3	1.2	< 1.2 U
Total Organic Carbon	T	mg/L														960		
Total Suspended Solids  Dechlor Bacteria		mg/L																
Dehalococcoides (DHC)	Т	cells/bead					I				I			I				I
Dissolved Gases																		
Ethane	T	mg/L	< 0.0050 U	-									< 0.0050 U					
Ethene	T	mg/L	0.021										< 0.0050 U	0.01	0.006	0.016	0.0067	< 0.0050 U
Methane Field Parameters	Т	mg/L	4.6										8.8	11	12	15	6.6	7.6
Temperature	Т	deg C	15.9	14.2	13.7	14.2	14.1	15.3	15.5	16.7	14.9	16.8		16.3	17.8	15.9	16.2	18.9
Specific Conductance	Т	uS/cm	219.6	664	1317	555.8	1449	532.8	921	1475	1700	1002		818	2035	2250	1550	1427
Dissolved Oxygen	Т	mg/L	0.1	2.6	0.14	0.07	0.2	0.07	0.14	0.34	0.07	0.05		0.09	0.11	-	0.48	0.24
pH Oxidation Reduction Potential	T	pH units mV	4.2 154.6	7.68 -29.9	5.9 29.1	8.33 -616.6	5.72 61.6	7.69 -28	6.05 -3.6	5.49 66.7	5.46 76.7	6.77 -142.5		6.62 -129.6	5.82 -47.7	5.88 -81.1	6.4 -66.1	6.18 -13.4
Turbidity	T	NTU	8.2	5.38	261	4.66	388	2.39	41.6	24.5	22.5	18.7		16.2	553	36.8	63.5	-13.4
Metals			<u> </u>	0.00												00.0		
Arsenic	Т	mg/L	1	-						-		1				1	-	
Cadmium	T	mg/L																
Chromium Iron	T D	mg/L mg/L																
Iron	T	mg/L	18					< 0.50 U	17	72	110		26	22	73	140	69	62
Manganese	D	mg/L										-						
Manganese	T	mg/L																
Selenium Other SVOCs	Т	mg/L																
Hexachlorobutadiene	Т	ug/L	< 0.50 U	< 0.20 U	< 0.20 U		< 0.50 U											
PAHs Naphthalene	Т	ug/L	< 1.0 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
PLFA	1	ug/L	V 1.0 O	V 0.40 U	V 0.40 O	V 0.40 O	V 0.40 0	V 0.40 O	< 0.40 O	V 0.40 U	V 0.40 O	-	V 0.30 O	V 0.30 0	< 0.50 O	< 0.50 O	V 1.0 0	V 1.0 0
Anaerobic metal reducers (BrMonos)	T	% PLFA																
Decreased Permeability Eukaryotes (polyenoics)	T	ratio trans/cis % PLFA																
Firmicutes (TerBrSats)	T	% PLFA																
Normal Saturated (Nsats)	Ť	% PLFA		-												-		
Proteobacteria (Monos)	T	% PLFA		-				-			-				-	-	-	-
Slowed Growth	T	ratio cy/cis																
SRB/Actinomycetes (MidBrSats) Total Biomass	T	% PLFA cells/bead				 										<u></u>		
TPHs	<u> </u>	oono, bead	_	-	_			_		-	-				_	-		
Gasoline Range Organics	Т	mg/L																
VFA Acetic Acid	Ιт	mg/L					I					22		18				
Butyric Acid	T	mg/L		-								1.6		0.24				
Formic Acid	Т	mg/L	-	-								< 0.10 U		0.14		-		
Hexanoic Acid	T	mg/L		-								0.32		< 0.20 U				
Isocaproic Acid	T	mg/L		-								< 0.20 U <b>0.48</b>		< 0.20 U				
Isovaleric Acid Lactic Acid	T	mg/L mg/L				 			 			<b>0.48</b> < 2.0 U		< 0.10 U < 0.20 U				
Pentanoic Acid	T	mg/L										1		< 0.10 U				
Propionic Acid	T	mg/L	-	-								9.5		5.5				
Pyruvic Acid	Т	mg/L	1	-								1.2		0.22				

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		Location	MW-28I	MW-29I	MW-29I	MW-30I	MW-30I	MW-31I	MW-31I	MW-31I	MW-31I	MW-31I	MW-31I	MW-31I	MW-31I	MW-31I	MW-31I	MW-31I
		Date	03/20/2019	03/11/2014	12/17/2014	03/12/2014	12/17/2014	03/12/2014	06/17/2014	09/10/2014	12/16/2014	07/12/2016	07/12/2016	11/15/2016	10/03/2017	12/12/2017	03/19/2018	06/19/2018
Analysis	Freetien	Sample	MW-28I-032019	MW-29I-031114	MW-29I-121714	MW-30I-031214	MW-30I-121714	MW-31I-031214	MW-31I-061714	MW-31I-091014	MW-31I-121614	MW31I-071216	MW-31I-071116	MW-31I-111516	MW-31I-100317	MW31I-121217	MW-31I-031918	MW-31I-061918
Analyte VOCs	Fraction	Unit									<u> </u>						<u> </u>	
1,1,1,2-Tetrachloroethane	1 T I	ug/L	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	1	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1,1,1-Trichloroethane	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1,2,2-Tetrachloroethane	Т	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1,2-Trichloroethane	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloroethane	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloroethene	T	ug/L	< 0.20 U	< 0.10 U	0.12	< 0.10 U	0.11	0.17	1.1	4.4	5		< 0.10 U	< 0.10 U	0.14	0.18	< 0.20 U	< 0.20 U
1,1-Dichloropropene 1,2,3-Trichlorobenzene	+ +	ug/L ug/L	< 0.20 U < 0.50 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U	< 0.10 U < 0.40 U		< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.10 U < 0.50 U	< 0.20 U < 0.50 U	< 0.20 U < 0.50 U
1,2,3-Trichloropropane	+ +	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	Ť	ug/L	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1,2,4-Trimethylbenzene	Т	ug/L	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.12		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
1,2-Dibromo-3-chloropropane	Т	ug/L	< 2.0 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U		< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	T	ug/L	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,2-Dichloroethane (EDC)	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2-Dichloropropane	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,3,5-Trimethylbenzene 1,3-Dichlorobenzene	T T	ug/L	< 0.50 U < 0.30 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U	< 0.10 U < 0.20 U		< 0.50 U < 0.30 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U
1,3-Dichloropenzene	T	ug/L ug/L	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,4-Dichlorobenzene	Ť	ug/L	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
2,2-Dichloropropane	T	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
2-Butanone	Т	ug/L								-						-		
2-Chlorotoluene	Т	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
4-Chlorotoluene	T	ug/L	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
Acetone	T	ug/L																
Bromobenzene	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Bromochloromethane  Bromodichloromethane	T	ug/L	< 0.20 U < 0.20 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U		< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U
Bromodichloromethane Bromoform	T T	ug/L ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Bromomethane	Ť	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 U
Carbon Disulfide	T	ug/L																
Carbon Tetrachloride	Т	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chlorobenzene	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chloroethane	Т	ug/L	< 0.50 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Chloroform	T	ug/L	0.67	< 0.10 U	< 0.10 U	< 0.10 U	0.1	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	2	< 0.20 U	< 0.20 U	< 0.20 U
Chloromethane	1 T	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U <b>310</b>	< 0.10 U 2900	< 0.10 U		< 0.30 U <b>260</b>	< 0.30 U	0.49	< 0.30 U	< 0.50 U	< 0.50 U
cis-1,2-Dichloroethene (DCE) cis-1,3-Dichloropropene	T T	ug/L ug/L	<b>11</b> < 0.20 U	<b>2.1</b> < 0.10 U	<b>47</b> < 0.10 U	<b>0.78</b> < 0.10 U	<b>33</b> < 0.10 U	<b>12</b> < 0.10 U	< 0.10 U	< 0.10 U	<b>3200</b> < 0.10 U		< 0.50 U	<b>340</b> < 0.50 U	<b>330</b> < 0.50 U	<b>340</b> < 0.50 U	<b>15</b> < 0.20 U	<b>7.6</b> < 0.20 U
Dibromochloromethane	+ +	ug/L ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Dibromomethane	Ť	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Dichlorodifluoromethane	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ
Isopropylbenzene	Т	ug/L	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
m,p-Xylenes	T	ug/L	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U
Methylene Chloride	T	ug/L	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	1.2	< 0.50 U	< 0.50 U		< 0.50 U	< 0.50 U	9.3	3.9	< 5.0 U	< 5.0 U
n-Butylbenzene n-Propylbenzene	T	ug/L ug/L	< 0.50 U < 0.30 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U <b>0.12</b>		< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	< 0.50 U < 0.20 U	< 0.50 U < 0.30 U	< 0.50 U < 0.30 U
o-Xylene	T	ug/L ug/L	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.12 < 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.50 U	< 0.50 U
p-Isopropyltoluene	† †	ug/L ug/L	< 0.30 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
sec-Butylbenzene	T	ug/L	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U
Styrene	T	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.12		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
tert-Butylbenzene	Т	ug/L	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Tetrachloroethene (PCE)	T	ug/L	< 0.50 U	7.4	1.3	4	0.75	19	7.4	6.4	13		0.6	< 0.50 U	0.63	1.3	1.3	25
trans-1,2-Dichloroethene	T	ug/L	< 0.20 U	< 0.10 U	0.18	< 0.10 U	< 0.10 U	0.13	4.4	12	9.8		0.28	0.34	1.2	1.5	1.2	1.9
trans-1,3-Dichloropropene	T	ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Trichloroethene (TCE)	1 1	ug/L	0.74	7.5	12	2	8.8	70	590	750	420		2.8	2.4	2.4	2.7	3.2	5
Trichlorofluoromethane Vinyl Chloride	T	ug/L	< 0.50 U < 0.020 U	< 0.10 U 0.053	< 0.10 U 2.3	< 0.10 U <b>0.025</b>	< 0.10 U 1.2	< 0.10 U <b>0.21</b>	< 0.10 U <b>2.4</b>	< 0.10 U 49	< 0.10 U		< 0.50 U	< 0.50 U 2.3	< 0.50 U 140	< 0.50 U 100	< 0.50 U	< 0.50 U <b>9.5</b>
viriyi Cilionae	1	ug/L	> 0.020 U	0.053	۷.۵	0.020	1.4	U.Z I	4.4	43	_		1.4	۷.۵	140	100		3.0

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- J Result value estimated
- X Chromatographic pattern does not match fuel standard used for quantitation

  E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

 $\label{eq:continuous} \begin{tabular}{ll} ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per centimeter mV = millivolts, NTU = nephlometric turbidity units, C = Celsius \\ \end{tabular}$ 

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Loostian	MW-31I	MW-31I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I
		Location Date	09/19/2018	03/20/2019	03/12/2014	06/16/2014	09/10/2014	12/16/2014	07/12/2016	07/12/2016	11/14/2016	11/15/2016	10/03/2017	12/12/2017	03/19/2018	06/19/2018	09/19/2018	03/20/2019
		Sample	MW-31I-091918	MW-31I-032019	MW-32I-031214		MW-32I-091014		MW32I-071216	MW-32I-071116		MW-32I-111516	MW-32I-100317	MW32I-121217	MW-32I-031918			MW-32I-032019
Analyte	Fraction	Unit																
BTEX				T										T			T	
Benzene	T	ug/L	< 0.20 UJ	< 0.20 U	0.4	0.33	0.32	0.26		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 20 UJ	< 0.20 U
Toluene	T	ug/L	< 0.20 U	0.26	1.1	0.84	0.7	0.62		< 0.20 U		0.41	0.33	< 0.20 U	< 0.20 U	< 0.20 U	0.32	0.28
Ethylbenzene Total Xylenes	T	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Conventionals		ug/L																
Chloride	Т	mg/L	38	38	52	56	54	45		45 J		39	48	43	44	43	43	37
Dissolved Organic Carbon	D	mg/L		23								3.1	5.1	2.2 J	2.1	2.2		1.7
Dissolved Organic Carbon	Т	mg/L			3.4	6.8	4.9	2.8		2.4								
Nitrate as Nitrogen	Т	mg/L	0.34	0.21	< 0.90 UJ	< 0.10 UJ	< 0.90 U	< 0.90 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 UJ	0.32	< 0.20 U	< 0.20 U	< 0.20 U
Nitrite as Nitrogen	Т	mg/L	< 0.40 U	< 0.40 U	3.1 J	< 0.10 UJ	< 0.60 U	9.4		< 0.40 U		< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Silica (SiO2)	D	mg/L																
Sulfate	T	mg/L	< 1.2 U	< 1.2 U	27	26	10	8.4	-	14 J		9.5	7.9	9.6	13	7	4.9	8.2
Total Organic Carbon	T	mg/L	62														2.4	
Total Suspended Solids  Dechlor Bacteria		mg/L																
Dehalococcoides (DHC)	Т	cells/bead			<u> </u>					17.7 J				I	I		<u> </u>	
Dissolved Gases		300, 2004												·	1			
Ethane	Т	mg/L	< 0.0050 U	< 0.0050 U						0.0058		0.019	< 0.0050 U	0.0054	< 0.0050 U	< 0.0050 U	< 0.0050 U	0.028
Ethene	Т	mg/L	0.011	0.0053		-				< 0.0050 U		< 0.0050 U	< 0.0050 U	0.007	0.018	0.04	0.063	0.036
Methane	T	mg/L	11	14						4.6		4	2.2	4.2	3	4.2	6.3	5.4
Field Parameters		'			1					ı		1		1	1	10.1	I	
Temperature	T	deg C	17.3	16	14.8	15.9	16.9	14.9	16.7			16.3	16.3	15.4	16.2	18.1	16.6	14.1
Specific Conductance	T	uS/cm	1389	1213	618.8	749	844	808	849			844	767	756	752	778	846	743
Dissolved Oxygen	T	mg/L pH units	0.27 6.29	0.1 6.5	0.14 7.88	0.33 7.5	0.09 7.77	0.17 7.84	0.13 7.84			0.09 7.68	0.27 7.59	0.1 7.39	0.16 7.64	0.16 7.36	0.12 7.51	0.1 7.6
Oxidation Reduction Potential	†	mV	-58.3	-31.2	-108.2	-76.9	-150.2	-117.5	-119.1			-185.5	-87.1	-100	-65.3	119.2	5	87.6
Turbidity	Ť	NTU	20.6	10.3	2.75	1.59	0.84	1.17	8.7			3.24	3.21	9.25	3.03	4.5	0.86	0.6
Metals			= 111			1166	2.2.					<u> </u>	¥ := :	<u> </u>				319
Arsenic	T	mg/L																
Cadmium	Т	mg/L		-		-							-		-			-
Chromium	T	mg/L																
Iron	D	mg/L				 < 0.50 U	 < 0.50 U							0.04		0.85	0.70	0.59
Iron Manganese	T D	mg/L mg/L	48	38	< 0.50 U	< 0.50 0	< 0.50 0	< 0.50 U	 	0.82		0.63	0.62	0.81	0.92	0.85	0.79	0.59
Manganese	T	mg/L																
Selenium	Ť	mg/L																
Other SVOCs		<u> </u>					'	<u>'</u>							•	'		
Hexachlorobutadiene	T	ug/L	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
PAHs					, ,					1					1			
Naphthalene	Т	ug/L	< 1.0 UJ	< 1.0 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U	< 100 UJ	< 1.0 U
PLFA Apparable metal reducers (PrMenes)	Т	0/ DIEA I	I							< 0.011	< 0.011			I	I			
Anaerobic metal reducers (BrMonos)  Decreased Permeability	T	% PLFA ratio trans/cis							 	< 0.0 U 0.058533955	< 0.0 U < 0.0 U							
Eukaryotes (polyenoics)	T T	% PLFA								2.19	15.82							
Firmicutes (TerBrSats)	T	% PLFA		-						6.2	< 0.0 U							
Normal Saturated (Nsats)	T	% PLFA								18.59	20.45							
Proteobacteria (Monos)	Т	% PLFA	-	-		-	-	-	-	72.42	63.72		-	-	-	-	-	-
Slowed Growth	Т	ratio cy/cis								0.073032626	0.274659634							
SRB/Actinomycetes (MidBrSats)	Т	% PLFA		-		-				0.6	< 0.0 U		-		-			-
Total Biomass	T	cells/bead								239000	70400							
TPHs Casalina Panga Organics	Т	ma/l I	I	l			T	I		1	l			ı	I	T	l	
Gasoline Range Organics VFA		mg/L																
Acetic Acid	Т	mg/L							< 0.10 U	I		0.63		T	I		<u> </u>	
Butyric Acid	T	mg/L		-					< 0.10 U			< 0.10 U						
Formic Acid	T	mg/L							< 0.10 U			< 0.10 U						
Hexanoic Acid	Т	mg/L				-			< 0.20 U			< 0.20 U						
Isocaproic Acid	T	mg/L							< 0.20 U			< 0.20 U						
Isovaleric Acid	Т	mg/L		-		1		-	< 0.10 U		-	< 0.10 U	-				-	-
Lactic Acid	T	mg/L							< 0.20 U			< 0.20 U						
Pentanoic Acid	T	mg/L							< 0.10 U			< 0.10 U						
Propionic Acid	T	mg/L							< 0.10 U			< 0.10 U						
Pyruvic Acid		mg/L		-					< 0.10 U			< 0.10 U						

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		Location	MW-31I	MW-31I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I	MW-32I
		Date	09/19/2018	03/20/2019	03/12/2014	06/16/2014	09/10/2014	12/16/2014	07/12/2016	07/12/2016	11/14/2016	11/15/2016	10/03/2017	12/12/2017	03/19/2018	06/19/2018	09/19/2018	03/20/2019
		Sample	MW-31I-091918	MW-31I-032019	MW-32I-031214	MW-32I-061614	MW-32I-091014	MW-32I-121614	MW32I-071216	MW-32I-071116	MW-32I-111416	MW-32I-111516	MW-32I-100317	MW32I-121217	MW-32I-031918	MW-32I-061918	MW-32I-091918	MW-32I-032019
Analyte	Fraction	Unit					<u> </u>	<u> </u>							<u> </u>		<u> </u>	
VOCs 1,1,1,2-Tetrachloroethane	ТТ	ug/L	< 0.30 U	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1.1.1-Trichloroethane	T	ug/L ug/L	< 0.20 U	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.20 U
1.1.2.2-Tetrachloroethane	†	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 20 UJ	< 0.20 U
1,1,2-Trichloroethane	Ť	ug/L	< 0.20 UJ	< 0.20 U	1	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 20 UJ	< 0.20 U
1,1-Dichloroethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloroethene	Т	ug/L	< 0.20 U	< 0.20 U	0.16	0.19	0.18	< 0.10 U	-	0.59		0.42	0.28	0.3	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,1-Dichloropropene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,3-Trichlorobenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2,3-Trichloropropane	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	-	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,2,4-Trimethylbenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U	< 2.0 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	-	< 2.0 U		< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.10 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	1 1	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U < 0.20 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,2-Dichloroethane (EDC) 1,2-Dichloropropane	+ + +	ug/L ug/L	< 0.20 U < 0.20 UJ	< 0.20 U < 0.20 U	< 0.10 U <b>0.23</b>	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U		< 0.20 U		< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 0.20 U	< 0.20 U < 20 UJ	< 0.20 U < 0.20 U
1,3,5-Trimethylbenzene	T	ug/L ug/L	< 0.20 UJ < 0.50 U	< 0.20 U	<b>0.23</b> < 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	 	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 20 UJ < 0.50 U	< 0.20 U
1.3-Dichlorobenzene	T	Ü	< 0.30 U	< 0.30 U	< 0.10 U	< 0.20 U	< 0.10 U	< 0.10 U		< 0.30 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
1,3-Dichloropropane	+ +	ug/L ug/L	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 20 UJ	< 0.20 U
1.4-Dichlorobenzene	<del>'</del> +	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
2,2-Dichloropropane	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
2-Butanone	Ť	ug/L																
2-Chlorotoluene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
4-Chlorotoluene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.30 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
Acetone	Т	ug/L							-									
Bromobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Bromochloromethane	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Bromodichloromethane	T	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 20 UJ	< 0.20 U
Bromoform	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Bromomethane	Т	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 1.0 U		< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Carbon Disulfide	Т	ug/L																
Carbon Tetrachloride	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chlorobenzene	1 +	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chloroethane	<u> </u>	ug/L	0.97 J	< 0.50 U	< 0.25 U	< 0.25 U	0.43	1.9	-	< 0.50 U		1.8	1.1	< 0.50 U	0.7	1.2	< 50 UJ	1.1
Chloroform	T	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Chloromethane cis-1.2-Dichloroethene (DCE)	+ +	ug/L ug/L	< 0.50 U <b>5.7 J</b>	< 0.50 U	0.14 45	< 0.10 U	< 0.10 U	< 0.10 U 300		< 0.30 U 820		< 0.30 U 1000	< 0.30 U 980	< 0.30 U <b>690</b>	< 0.50 U 460	< 0.50 U 430	< 0.50 U <b>530 J</b>	< 0.50 U <b>570</b>
cis-1,3-Dichloropropene	T	ug/L ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 20 UJ	< 0.20 U
Dibromochloromethane	+ + +	ug/L	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Dibromomethane	+ +	ug/L ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 20 UJ	< 0.20 U
Dichlorodifluoromethane	Ť	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U		< 0.40 U		< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U
Isopropylbenzene	T	ug/L	< 1.0 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
m,p-Xylenes	T	ug/L	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Methyl tert-butyl ether (MTBE)	Т	ug/L	< 0.30 UJ	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 30 UJ	< 0.30 U
Methylene Chloride	Т	ug/L	< 5.0 UJ	< 5.0 U	< 0.50 U	0.69	< 0.50 U	< 0.50 U	1	< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 5.0 U	< 5.0 U	< 500 UJ	< 5.0 U
n-Butylbenzene	Т	ug/L	< 0.50 UJ	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 50 UJ	< 0.50 U
n-Propylbenzene	T	ug/L	< 0.30 U	< 0.30 U	< 0.10 U	< 0.10 U	< 0.10 U	0.11		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
o-Xylene	Т	ug/L	< 0.50 U	< 0.50 U	0.1	< 0.10 U	< 0.10 U	< 0.10 U	-	< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
p-Isopropyltoluene	Т	ug/L	< 0.30 U	< 0.30 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	-	< 0.30 U		< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
sec-Butylbenzene	T	ug/L	< 1.0 U	< 1.0 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Styrene	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
tert-Butylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Tetrachloroethene (PCE)	T	ug/L	47	< 0.50 U	52	28	0.92	2.8		< 0.50 U		< 0.50 U	23	0.83	< 0.50 U	< 0.50 U	4.1	< 0.50 U
trans-1,2-Dichloroethene	T	ug/L	4.7	4.5	0.31	0.42	0.78	0.59		5.3		3.1	3	2.7	2.1	1.7	1.7	1.5
trans-1,3-Dichloropropene	T	ug/L	< 0.20 UJ	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U		< 0.20 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 20 UJ	< 0.20 U
Trichloroethene (TCE) Trichlorofluoromethane	T	ug/L	<b>14</b> < 0.50 U	<b>0.44</b> < 0.50 U	<b>68</b> < 0.10 U	<b>120</b> < 0.10 U	<b>35</b> < 0.10 U	< 0.10 U < 0.10 U		<b>40</b> < 0.50 U		< 20 U < 0.50 U	<b>65</b> < 0.50 U	13 < 0.50 U	<b>1.8</b> < 0.50 U	< 4.0 U < 0.50 U	<b>41</b> < 0.50 U	<b>17</b> < 0.50 U
Vinyl Chloride	T	ug/L ug/L	< 0.50 U	< 0.50 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	 	< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
viriyi Orlionde	1 1	ug/L	3.3	4.1	0.43	> 0.020 U	0.74	0.07		1.3		4.0	4.0	1.3	14	, J	10	

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- J Result value estimated
- X Chromatographic pattern does not match fuel standard used for quantitation

  E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

 $\label{eq:continuous} \begin{tabular}{ll} ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per centimeter mV = millivolts, NTU = nephlometric turbidity units, C = Celsius \\ \end{tabular}$ 

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location Date	MW-33I 07/11/2016	MW-33I 11/14/2016	MW-33I 12/11/2017	MW-33I 03/20/2018	MW-33I 09/18/2018	MW-33I 03/19/2019	MW-34I 07/11/2016	MW-34I 11/14/2016	MW-34I 12/11/2017	MW-34I 03/20/2018	MW-34I 09/18/2018	MW-34I 03/19/2019	MWD 05/12/1997	MWD 08/20/1997	MWD 11/13/1997	MWD 11/16/2010
Analyto	Fraction	Sample Unit	MW-33I-071116	MW-33I-111416	MW33I-121117	MW-33I-032018	MW-33I-091818	MW-33I-031919	MW-34I-071116	MW-34I-111416	MW34I-121117	MW-34I-032018	MW-34I-091818	MW-34I-031919	MW-D-0597	MW-D-0897	MW-D-1197	MW-D-111610
Analyte BTEX	Fraction	Unit						<u> </u>										
Benzene	Т	ug/L	< 0.20 U		< 0.20 U					< 0.10 U								
Toluene	Т	ug/L	< 0.20 U	-	< 0.20 U		_		1	< 0.10 U								
Ethylbenzene	T	ug/L	< 0.20 U		< 0.20 U					< 0.10 U								
Total Xylenes Conventionals	<u> </u>	ug/L																
Chloride	Т	mg/L																
Dissolved Organic Carbon	D	mg/L																
Dissolved Organic Carbon	Т	mg/L																
Nitrate as Nitrogen	T	mg/L																
Nitrite as Nitrogen Silica (SiO2)	T D	mg/L mg/L							<del></del>									
Sulfate	T	mg/L																
Total Organic Carbon	Т	mg/L				-							-				-	
Total Suspended Solids	Т	mg/L																
Dechlor Bacteria	T -	aplia/lace at					<u> </u>	1										
Dehalococcoides (DHC) Dissolved Gases	<u> </u>	cells/bead																
Ethane	Т	mg/L													-			-
Ethene	Т	mg/L				-			-				-					_
Methane	Т	mg/L																
Field Parameters	Т	dog C	19.3	19.5	18.4	16.9	10	16.2	19.8	19.9	19.1	16.8	19.8	17.1				17.55
Temperature Specific Conductance	T	deg C uS/cm	794	768	868	903	19 789	968	1013	1019	924	954	19.8	925				507
Dissolved Oxygen	Ť	mg/L	0.1	0.24		0.46	0.42	0.7	0.44	1.65		0.85	1.11	0.9	-		-	0.31
pH	Т	pH units	8.28	7.73	7.48	7.67	7.15	7.4	7.94	7.36	7.4	7.6	7.32	7.3	-		-	7.39
Oxidation Reduction Potential	Т	mV	-194.3	141.4	133.3	114.9	113.4	100.6	-157.6	142	149.6	111.6	61.7	100.7			ı	105.1
Turbidity	<u> </u>	NTU	1.73	1.84	2.89	1.48	8.38	1.4	20.4	2.83	13.8	1.39	0.02	0.4				0.9
Metals Arsenic	Т	mg/L												I I				
Cadmium	Ť	mg/L																
Chromium	Т	mg/L	-			-		-	-				-		_		1	-
Iron	D	mg/L																
Iron	T	mg/L																
Manganese Manganese	D T	mg/L mg/L							<del></del>						<del></del>			
Selenium	Ť	mg/L		_					-									
Other SVOCs																		
Hexachlorobutadiene	<u> </u>	ug/L	< 0.50 U		< 0.50 U					< 0.20 U								
PAHs Naphthalene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U		< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U					< 0.40 U
PLFA	<u> </u>	ug/L	1 0.00 0	1 0.00 0	10.000	11.00	11.00		10.000	10.000	1 0.00 0	11.00	11.00		-			10.400
Anaerobic metal reducers (BrMonos)		% PLFA																
Decreased Permeability	T	ratio trans/cis																
Eukaryotes (polyenoics) Firmicutes (TerBrSats)	T	% PLFA % PLFA							<u></u>						<u></u>	<u></u>	<b></b>	-
Normal Saturated (Nsats)	<del>                                     </del>	% PLFA % PLFA				 			<del></del>						 	 		
Proteobacteria (Monos)	Ť	% PLFA																
Slowed Growth	T	ratio cy/cis																
SRB/Actinomycetes (MidBrSats)	T	% PLFA																
Total Biomass TPHs	<u> </u>	cells/bead																
Gasoline Range Organics	Т	mg/L						I						I I				
VFA														· · · · · · · · · · · · · · · · · · ·				
Acetic Acid	Т	mg/L																-
Butyric Acid	T	mg/L																
Formic Acid Hexanoic Acid	T	mg/L mg/L																
Isocaproic Acid	T	mg/L							<u></u>						<u></u>			
Isovaleric Acid	T	mg/L																
Lactic Acid	Т	mg/L	-	-		-			-	-			-		-		-	_
Pentanoic Acid	T	mg/L	-	-					-						-		-	-
Propionic Acid	T	mg/L						-									-	
Pyruvic Acid	Т	mg/L																

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		Location	MW-33I	MW-33I	MW-33I	MW-33I	MW-33I	MW-33I	MW-34I	MW-34I	MW-34I	MW-34I	MW-34I	MW-34I	MWD	MWD	MWD	MWD
		Date	07/11/2016	11/14/2016	12/11/2017	03/20/2018	09/18/2018	03/19/2019	07/11/2016	11/14/2016	12/11/2017	03/20/2018	09/18/2018	03/19/2019	05/12/1997	08/20/1997	11/13/1997	11/16/2010
	I = I	Sample	MW-33I-071116	MW-33I-111416	MW33I-121117	MW-33I-032018	MW-33I-091818	MW-33I-031919	MW-34I-071116	MW-34I-111416	MW34I-121117	MW-34I-032018	MW-34I-091818	MW-34I-031919	MW-D-0597	MW-D-0897	MW-D-1197	MW-D-111610
Analyte	Fraction	Unit																
VOCs 1,1,1,2-Tetrachloroethane	ТТТ	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U					< 0.10 U
1.1.1-Trichloroethane	Ť	ug/L	< 0.20 U		<u> </u>		< 0.10 U											
1.1.2.2-Tetrachloroethane	<del>†</del>	ug/L	< 0.20 U				< 0.10 U											
1,1,2-Trichloroethane	Ť	ug/L	< 0.20 U				< 0.10 U											
1,1-Dichloroethane	Т	ug/L	< 0.20 U				< 0.10 U											
1,1-Dichloroethene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U	< 0.20 U	-			< 0.10 U
1,1-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U		< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20 U		-	-		< 0.10 U
1,2,3-Trichlorobenzene	T	ug/L	< 0.50 U		< 0.50 U					< 0.40 U								
1,2,3-Trichloropropane	Т	ug/L	< 0.20 U		< 0.20 U		-			< 0.20 U								
1,2,4-Trichlorobenzene	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U					< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L	0.21	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U		< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 U					< 0.10 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 2.0 U	-	< 2.0 U		-			< 0.20 U								
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U		< 0.10 U		-			< 0.10 U								
1,2-Dichlorobenzene 1,2-Dichloroethane (EDC)	<u> </u>	ug/L ug/L	< 0.30 U < 0.20 U				< 0.20 U < 0.10 U											
1,2-Dichloropropane	T T	ug/L ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 UJ	< 0.20 U	<u>-</u>			< 0.10 U				
1,3,5-Trimethylbenzene	<del>'</del> +	ug/L	< 0.50 U		< 0.50 U					< 0.10 U								
1.3-Dichlorobenzene	Ť	ug/L	< 0.30 U				0.52											
1,3-Dichloropropane	<del>†</del>	ug/L	< 0.20 U		< 0.20 U					< 0.10 U								
1,4-Dichlorobenzene	T	ug/L	< 0.30 U	_			< 0.20 U											
2,2-Dichloropropane	Т	ug/L	< 0.50 U		< 0.50 U					< 0.10 U								
2-Butanone	Т	ug/L		-									-			-		
2-Chlorotoluene	Т	ug/L	< 0.50 U	-	< 0.50 U		-	-	-	< 0.10 U								
4-Chlorotoluene	Т	ug/L	< 0.30 U		< 0.30 U					< 0.20 U								
Acetone	T	ug/L		-														
Bromobenzene	Т	ug/L	< 0.20 U		< 0.20 U			-		< 0.10 U								
Bromochloromethane	T	ug/L	< 0.20 U		< 0.20 U			-		< 0.10 U								
Bromodichloromethane	T	ug/L	< 0.20 U				< 0.10 U											
Bromoform	T	ug/L	< 0.50 U				< 0.10 U											
Bromomethane Carbon Disulfide	T	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 0.50 UJ	< 0.50 U				< 0.10 U
Carbon Tetrachloride	+ +	ug/L ug/L	< 0.20 U				< 0.10 U											
Chlorobenzene	+ +	ug/L ug/L	< 0.20 U				< 0.10 U											
Chloroethane	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.50 UJ	< 0.50 U				< 0.25 U				
Chloroform	<del>†</del>	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	0.32	0.58	0.2	0.68	0.5	0.34	0.29	0.44	0.5	0.9	0.6	< 0.10 U
Chloromethane	T	ug/L	< 0.30 U	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.50 U	< 0.50 U	< 0.50 U	-			< 0.10 U
cis-1,2-Dichloroethene (DCE)	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	0.6	< 0.20 U	0.24	< 0.20 U	0.5	0.5	0.5	< 0.10 U					
cis-1,3-Dichloropropene	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.20 U	< 0.20 U	< 0.20 U	-			< 0.10 U
Dibromochloromethane	Т	ug/L	< 0.20 U				< 0.10 U											
Dibromomethane	T	ug/L	< 0.20 U		< 0.20 U					< 0.10 U								
Dichlorodifluoromethane	T	ug/L	< 0.40 U		< 0.40 U					< 0.40 U								
Isopropylbenzene	T	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U		< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U					< 0.10 U
m,p-Xylenes	T	ug/L	< 0.50 U		< 0.50 U					< 0.20 U								
Methylana Chlorida	<u> </u>	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 UJ	 5011	< 0.20 U	< 0.20 U	< 0.20 U	< 0.30 U	< 0.30 UJ	 F O I I				< 0.10 U
Methylene Chloride n-Butylbenzene	+ <u> </u>	ug/L ug/L	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 5.0 U < 0.50 U	< 5.0 UJ < 0.50 U	< 5.0 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 0.50 U < 0.50 U	< 5.0 U < 0.50 U	< 5.0 UJ < 0.50 U	< 5.0 U				< 0.10 U < 0.10 U
n-Propylbenzene	T T	ug/L ug/L	< 0.50 U		< 0.50 U	< 0.50 U	< 0.50 U	< 0.30 U	< 0.50 U					< 0.10 U				
o-Xylene	T T	ug/L ug/L	< 0.50 U		< 0.50 U					< 0.10 U								
p-Isopropyltoluene	<del>i</del>	ug/L	< 0.30 U		< 0.30 U					< 0.20 U								
sec-Butylbenzene	Ť	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U		< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 1.0 U					< 0.10 U
Styrene	Т	ug/L	< 0.50 U		< 0.50 U					< 0.10 U								
tert-Butylbenzene	Т	ug/L	< 0.50 U		< 0.50 U					< 0.10 U								
Tetrachloroethene (PCE)	Т	ug/L	6.1	6.9	6	5.7	5.8	5.5	6.5	5.1	4.3	5.7	7.2	6	0.5	0.5	0.5	< 0.10 UJ
trans-1,2-Dichloroethene	Т	ug/L	< 0.20 U		-		< 0.10 U											
trans-1,3-Dichloropropene	T	ug/L	< 0.20 U				< 0.10 U											
Trichloroethene (TCE)	T	ug/L	0.37	0.85	0.75	1.4	0.49	0.99	0.39	0.36	0.3	0.39	0.37	0.42	0.5	0.5	0.5	0.18
Trichlorofluoromethane Vinyl Chloride	T	ug/L	< 0.50 U				< 0.10 U											
	T	ug/L	< 0.020 U				< 0.020 U											

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- J Result value estimated
- X Chromatographic pattern does not match fuel standard used for quantitation

  E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

 $\label{eq:continuous} \begin{tabular}{ll} ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per centimeter mV = millivolts, NTU = nephlometric turbidity units, C = Celsius \\ \end{tabular}$ 

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids

SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Location Date	MWD 03/29/2011	MWD 06/28/2011	MWD 10/12/2011	MWD 01/25/2012	MWD 05/30/2012	MWD 08/15/2012	MWE 05/12/1997	MWE 08/20/1997	MWE 11/13/1997	MWE 11/16/2010	MWE 03/29/2011	MWE 06/28/2011	MWE 10/12/2011	MWE 01/26/2012	MWE 05/30/2012	MWE 08/15/2012
		Sample	MW-D-032911	MW-D-062811	MW-D101211	MW-D-012512	MW-D-053012	MW-D-081512	MW-E-0597	MW-E-0897	MW-E-1197	MW-E-111610	MW-E-032911	MW-E-062811	MW-E-101211	MW-E-012612	MW-E-053012	MW-E-081512
Analyte	Fraction	n Unit																<u> </u>
BTEX Benzene	Т	ug/L	< 0.10 U				< 0.10 U											
Toluene	T	ug/L ug/L	< 0.10 U	 			< 0.10 U											
Ethylbenzene	Ť	ug/L	< 0.10 U				< 0.10 U	0.11										
Total Xylenes	Т	ug/L																
Conventionals	T -			<u> </u>	I	T T		I				I		T T	I			
Chloride Dissolved Organic Carbon	T D	mg/L mg/L							 									
Dissolved Organic Carbon	T	mg/L									-						-	
Nitrate as Nitrogen	Т	mg/L	-								-				-		-	
Nitrite as Nitrogen	T	mg/L																
Silica (SiO2) Sulfate	D T	mg/L																-
Total Organic Carbon	T	mg/L mg/L							 									
Total Suspended Solids	Ť	mg/L																
Dechlor Bacteria	•																	
Dehalococcoides (DHC)	Т	cells/bead																
Dissolved Gases Ethane	Т	mg/L		I				1	<u></u>									
Ethene	T	mg/L																
Methane	T	mg/L															-	
Field Parameters																		
Temperature	T	deg C	14.2	16.3	17.4	16.01	15.4	17.5				18.54	14.21	17.4	19.5	15.4	16.2	19.4
Specific Conductance Dissolved Oxygen	T	uS/cm mg/L	330 2.4	275.9 2.06	375.9 0.62	345 0.7	352.5 2.83	203.7				98 2.61	1130 0.33	871 0.24	549.2 1.3	7008 1.13	499.2 0.16	1852 0.97
pH	T	pH units	6.57	6.81	6.49	6.58	6.42	6.63	 			6.54	7.08	6.98	6.77	7.28	6.46	6.79
Oxidation Reduction Potential	T	mV	83.4	133.6	-54.4	117.7	-255.4	-58.6				179.9	45.6	-116	-173.4	-67.7	-515.6	-181
Turbidity	T	NTU	-		8.57	13	9.52	2.6			-	52.3			44	882	41	91.2
Metals	Т	ma/l		1	T	T						I		T	1	T		
Arsenic Cadmium	T	mg/L mg/L																
Chromium	T	mg/L									-						-	
Iron	D	mg/L									-							
Iron	T	mg/L															-	
Manganese	D	mg/L	-								-				-		-	-
Manganese Selenium	T	mg/L mg/L							 								 	
Other SVOCs		9/=																
Hexachlorobutadiene	T	ug/L	< 0.20 U				< 0.20 U											
PAHs	Т		< 0.40 LL	< 0.40 U	z 0 40 III	4 O 4O II	< 0.40 U	< 0.40 U				z 0.40 II	- 0 40 II	z 0.40 II	4040111	4 O 4 O L L	4 O 40 II	< 0.40 U
Naphthalene PLFA	<u> </u>	ug/L	< 0.40 U	< 0.40 0	< 0.40 UJ	< 0.40 U	< 0.40 0	< 0.40 0	<u></u>			< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	V 0.40 U
Anaerobic metal reducers (BrMonos)	Т	% PLFA																
Decreased Permeability	Т	ratio trans/cis									-						-	
Eukaryotes (polyenoics)	T	% PLFA																
Firmicutes (TerBrSats) Normal Saturated (Nsats)	T	% PLFA % PLFA							<u></u>									
Proteobacteria (Monos)	T	% PLFA																
Slowed Growth	T	ratio cy/cis															-	
SRB/Actinomycetes (MidBrSats)	T	% PLFA																
Total Biomass	Т	cells/bead																
TPHs Gasoline Range Organics	Т	mg/L										< 0.050 U						
VFA	<u> </u>	g/L	-		-	-		-		-	-		-		-			
Acetic Acid	Т	mg/L																
Butyric Acid	Т	mg/L	-								-						-	
Formic Acid	T	mg/L																
Hexanoic Acid Isocaproic Acid	T	mg/L mg/L																
Isovaleric Acid	T	mg/L																
Lactic Acid	T	mg/L															-	
Pentanoic Acid	T	mg/L																
Propionic Acid	T	mg/L																
Pyruvic Acid	Т	mg/L																

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		Location	MWD	MWD	MWD	MWD	MWD	MWD	MWE	MWE	MWE	MWE	MWE	MWE	MWE	MWE	MWE	MWE
		Date	03/29/2011	06/28/2011	10/12/2011	01/25/2012	05/30/2012	08/15/2012	05/12/1997	08/20/1997	11/13/1997	11/16/2010	03/29/2011	06/28/2011	10/12/2011	01/26/2012	05/30/2012	08/15/2012
		Sample	MW-D-032911	MW-D-062811	MW-D101211	MW-D-012512	MW-D-053012	MW-D-081512	MW-E-0597	MW-E-0897	MW-E-1197	MW-E-111610	MW-E-032911	MW-E-062811	MW-E-101211	MW-E-012612	MW-E-053012	MW-E-081512
Analyte	Fraction	Unit																
VOCs		1								1		T			T			
1,1,1,2-Tetrachloroethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane	T	ug/L	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U				< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U			
1,1,2-Trichloroethane	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1.1-Dichloroethane	Ť	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<u></u>			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1.1-Dichloroethene	Ť	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	0.15	0.25	0.2	< 0.10 U	0.13	0.21
1,1-Dichloropropene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2,3-Trichlorobenzene	Т	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U				< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
1,2,3-Trichloropropane	Т	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			-	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trichlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U				< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U
1,2,4-Trimethylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dibromo-3-chloropropane	T	ug/L	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U				< 0.20 U	< 0.20 U	< 0.40 U	< 0.40 UJ	< 0.40 U	< 0.40 U	< 0.40 U
1,2-Dibromoethane (EDB)	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichlorobenzene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	-			< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
1,2-Dichloroethane (EDC)	+ +	ug/L	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U				< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U			
1,2-Dichloropropane 1,3,5-Trimethylbenzene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.10 U	< 0.10 U	< 0.10 U < 0.10 U
1.3-Dichlorobenzene	+ +	ug/L ug/L	< 0.20 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<del>-</del>			0.25	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1,3-Dichloropropane	÷	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
1.4-Dichlorobenzene	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U				< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
2,2-Dichloropropane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U
2-Butanone	Т	ug/L		-							-		-					
2-Chlorotoluene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	-	-	-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
4-Chlorotoluene	T	ug/L	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U			-	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
Acetone	T	ug/L																
Bromobenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Bromochloromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromodichloromethane	T	ug/L	< 0.10 U	0.73	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Bromoform Bromomothana	T	ug/L	< 0.10 U < 0.10 U	<b>0.51</b> < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 UJ	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U				< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U	< 0.10 U < 0.10 U	< 0.10 U < 0.10 U	< 0.10 UJ < 0.10 U
Bromomethane Carbon Disulfide	+ +	ug/L ug/L	< 0.10 U	< 0.10 U			< 0.10 U						< 0.10 U				< 0.10 U	
Carbon Tetrachloride	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Chlorobenzene	+ +	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	<del>-</del>			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloroethane	T	ug/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U				< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U
Chloroform	T	ug/L	< 0.10 U	11	0.2	< 0.10 U	0.31	1.9	0.5	0.5	0.5	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Chloromethane	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U			-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
cis-1,2-Dichloroethene (DCE)	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	0.8	0.6	0.5	0.16	4.7	3.6	6.6	0.84	5.9	6.1
cis-1,3-Dichloropropene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U			-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Dibromochloromethane	T	ug/L	< 0.10 U	0.57	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dibromomethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Dichlorodifluoromethane	T	ug/L	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U				< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Isopropylbenzene	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	-			< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
m,p-Xylenes Methyl tert-butyl ether (MTBE)	T	ug/L	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U				< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	<b>0.25</b> < 0.10 U	<b>0.43</b> < 0.10 U	< 0.20 U < 0.10 U	< 0.20 U < 0.10 U	<b>0.37</b> < 0.10 U
Methylene Chloride	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U < 0.50 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
n-Butylbenzene	<del> </del>	ug/L ug/L	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U				< 0.10 U	< 0.10 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
n-Propylbenzene	+ +	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
o-Xylene	i i	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	0.38	0.33	< 0.10 U	0.21	0.36
p-Isopropyltoluene	Ť	ug/L	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 U	< 0.20 U	< 0.20 U				< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 UJ	< 0.20 UJ	< 0.20 U	< 0.20 U
sec-Butylbenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Styrene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U			-	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
tert-Butylbenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Tetrachloroethene (PCE)	Т	ug/L	< 0.10 UJ	< 0.10 U	0.38 J	< 0.10 U	0.1	< 0.10 UJ	39	7.7	2.8	0.46 J	31 J	16	12 J	0.48	0.64 J	9.2 J
trans-1,2-Dichloroethene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	0.74	0.46	0.65	< 0.10 U	0.17	0.38
trans-1,3-Dichloropropene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U
Trichloroethene (TCE)	Т	ug/L	< 0.10 U	< 0.10 U	0.14	< 0.10 U	< 0.10 U	< 0.10 U	6.1	3.4	1.5	0.54 J	26	18	20	1.4	2.8	16
Trichlorofluoromethane	T	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U				< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Vinyl Chloride	Т	ug/L	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 UJ	< 0.020 U	< 0.020 U				< 0.020 U	0.071	0.11	< 0.020 U	< 0.020 UJ	< 0.020 U	0.17

Bold - Analyte Detected

- U Analyte not detected at or above Reporting Limit (RL) shown
- UJ Analyte not detected and the Reporting Limit (RL) is an estimate
- J Result value estimated
- X Chromatographic pattern does not match fuel standard used for quantitation

  E Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.
- D Dissolved Fraction (filtered) sample result
- T Total Fraction (unfiltered) sample result

 $\label{eq:continuous} \begin{tabular}{ll} ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per centimeter mV = millivolts, NTU = nephlometric turbidity units, C = Celsius \\ \end{tabular}$ 

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

TPH = total petroleum hydrocarbon

VFA = volatile fatty acids

		Loostion	NTS-10	NTS-11	NTS-12	NTS-3	NTS-7	NTS-8	NTS-9
		Location Date	04/10/1992	04/10/1992	04/10/1992	04/10/1992	04/28/1992	04/28/1992	04/10/1992
		Sample		NTS-11-92	NTS-12-92	NTS-3-92	NTS-7-92	NTS-8-92	NTS-9-92
Analyte	Fraction	Unit	11.0 10 02	1110 11102	1110 12 02	1110002	1110 7 02	1110002	1110002
BTEX									
Benzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	726	< 0.10 U	< 0.10 U	< 0.10 U
Toluene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	1590	< 0.10 U	< 0.10 U	< 0.10 U
Ethylbenzene	Т	ug/L	< 0.10 U	< 0.10 U	< 0.10 U	117	< 0.10 U	< 0.10 U	< 0.10 U
Total Xylenes	T	ug/L	< 2.0 U	< 2.0 U	< 2.0 U	357	< 2.0 U	< 2.0 U	< 2.0 U
Conventionals									
Chloride	T	mg/L	1	-			-		
Dissolved Organic Carbon	D	mg/L	-						
Dissolved Organic Carbon	T	mg/L	-						
Nitrate as Nitrogen	T	mg/L	-						
Nitrite as Nitrogen	T	mg/L							
Silica (SiO2)	D	mg/L	-	-					
Sulfate	Т	mg/L	-				-		
Total Organic Carbon	T	mg/L	-				-		
Total Suspended Solids	Т	mg/L							
Dechlor Bacteria		y a .			1	1		1	1
Dehalococcoides (DHC)	Т	cells/bead	-						
Dissolved Gases	-	ma c: N			ı	ı		ı	
Ethane	T	mg/L	-						
Ethene	T	mg/L	-						
Methane	Т	mg/L	-						
Field Parameters Temperature	Т	deg C						l	
Specific Conductance	T	uS/cm	-	-			-		
Dissolved Oxygen	T	mg/L							
pH	T	pH units							
Oxidation Reduction Potential	T	mV							
Turbidity	T	NTU							
Metals	<u> </u>	1110							
Arsenic	Т	mg/L							
Cadmium	Т	mg/L	_						
Chromium	Т	mg/L	_						
Iron	D	mg/L	-						
Iron	Т	mg/L	-						
Manganese	D	mg/L	-						
Manganese	T	mg/L	-	-			-		
Selenium	T	mg/L	-						
Other SVOCs									
Hexachlorobutadiene	T	ug/L	-	-			-		
PAHs									
Naphthalene	Т	ug/L							
PLFA									
Anaerobic metal reducers (BrMonos)	Т	% PLFA							
Decreased Permeability	T	ratio trans/cis	ı	-			-		-
Eukaryotes (polyenoics)	T	% PLFA	-	-			-		-
Firmicutes (TerBrSats)	T	% PLFA							
Normal Saturated (Nsats)	T	% PLFA							
Proteobacteria (Monos)	T	% PLFA							
Slowed Growth	T	ratio cy/cis							
SRB/Actinomycetes (MidBrSats)	T	% PLFA	-						
Total Biomass	T	cells/bead	-						
TPHs	-	ma c: 11			ı	ı		1	
Gasoline Range Organics	Т	mg/L	-						
VFA	-	ma c: 11			ı	l e		1	ı
Acetic Acid	T	mg/L	-						
Butyric Acid	T	mg/L	-						
Formic Acid	T	mg/L	-						
Hexanoic Acid	T	mg/L	-						
Isocaproic Acid	T	mg/L	-						
Isovaleric Acid	T	mg/L	-						
Lactic Acid Pentanoic Acid	T T	mg/L	-						
Propionic Acid	T	mg/L mg/L	-						
Pyruvic Acid	T	mg/L	-						
	1 1	mg/L							

Project No. 090018, New City Cleaners Richland, Washington

		Location Date Sample	NTS-10 04/10/1992 NTS-10-92	NTS-11 04/10/1992 NTS-11-92	NTS-12 04/10/1992 NTS-12-92	NTS-3 04/10/1992 NTS-3-92	NTS-7 04/28/1992 NTS-7-92	NTS-8 04/28/1992 NTS-8-92	NTS-9 04/10/1992 NTS-9-92
Analyte	Fraction	Unit							
VOCs									
1,1,1,2-Tetrachloroethane	Т	ug/L	-			-	-		
1,1,1-Trichloroethane	T	ug/L				-	-		
1,1,2,2-Tetrachloroethane	T	ug/L				-	-		
1,1,2-Trichloroethane	T	ug/L							
1,1-Dichloroethane	T	ug/L					-		
1,1-Dichloroethene	T	ug/L	-			-	-		
1,1-Dichloropropene	T	ug/L					-		
1,2,3-Trichlorobenzene	T	ug/L							
1,2,3-Trichloropropane	T	ug/L	-			-	-		
1,2,4-Trichlorobenzene	T	ug/L	-	-		-	-		
1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane	T	ug/L ug/L				-	-		
1,2-Dibromoethane (EDB)	T	ug/L ug/L							
1,2-Distribution (EDB)	T	ug/L ug/L							
1,2-Dichloroethane (EDC)	T	ug/L ug/L	< 0.10 U	< 0.10 U	< 0.10 U	842	< 0.10 U	< 0.10 U	< 0.10 U
1,2-Dichloropropane	T	ug/L ug/L	~ 0.10 0						
1,3,5-Trimethylbenzene	T	ug/L ug/L							
1,3-Dichlorobenzene	T	ug/L ug/L							
1,3-Dichloropropane	Ť	ug/L							
1.4-Dichlorobenzene	T	ug/L					-		
2.2-Dichloropropane	Ť	ug/L							
2-Butanone	T	ug/L					-		
2-Chlorotoluene	Ť	ug/L					-		
4-Chlorotoluene	Ť	ug/L					-		
Acetone	Ť	ug/L					-		
Bromobenzene	Ť	ug/L					-		
Bromochloromethane	T	ug/L					_		
Bromodichloromethane	Т	ug/L				-	-		
Bromoform	Т	ug/L				-	-		
Bromomethane	Т	ug/L					-		
Carbon Disulfide	Т	ug/L					-		
Carbon Tetrachloride	Т	ug/L							
Chlorobenzene	Т	ug/L	-	-		-	_		
Chloroethane	Т	ug/L				-	ı		
Chloroform	Т	ug/L				-	ı		
Chloromethane	Т	ug/L				-	-		
cis-1,2-Dichloroethene (DCE)	Т	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	34	< 0.50 U	< 0.50 U
cis-1,3-Dichloropropene	T	ug/L							
Dibromochloromethane	Т	ug/L					-		
Dibromomethane	T	ug/L				-	-		
Dichlorodifluoromethane	T	ug/L				-	-		
Isopropylbenzene	T	ug/L							
m,p-Xylenes	T	ug/L					-		
Methyl tert-butyl ether (MTBE)	T	ug/L							
Methylene Chloride	T	ug/L							
n-Butylbenzene	T	ug/L	-				-		
n-Propylbenzene	T	ug/L	-			-	-		
o-Xylene	T	ug/L					-		
p-Isopropyltoluene	T	ug/L	-				-		
sec-Butylbenzene	T	ug/L	-			-	-		-
Styrene tort Rutulbenzone	T	ug/L	-				-		
tert-Butylbenzene Tetrachloroethene (PCE)		ug/L	 E007	 < 0.50 LI		 < 0.50 LI	70	 5007	15290
trans-1,2-Dichloroethene	T	ug/L	5887	< 0.50 U	< 0.50 U	< 0.50 U	70	5887	15280
trans-1,2-Dichloropetnene trans-1,3-Dichloropropene	T T	ug/L					-		
Trichloroethene (TCE)	T	ug/L	982	< 0.50 U	< 0.50 U	< 0.50 U	77	982	254
Trichlorofluoromethane	T	ug/L							
Vinyl Chloride	T	ug/L ug/L							
Virtyi Officiae	_ ' _	ug/L	-			-	-		

Bold - Analyte Detected

U - Analyte not detected at or above Reporting Limit (RL) shown

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

J - Result value estimated

X - Chromatographic pattern does not match fuel standard used for quantitation SVOC = semivolatile organic compo

E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value shoul-TPH = total petroleum hydrocarbon

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

ug/L = micrograms per liter, mg/L = milligrams per liter, uS/cm = microsiemens per centimeter mV = millivolts, NTU = nephlometric turbidity units, C = Celsius

D = dissolved, T = total

PLFA = phospholipid-derived fatty acids SVOC = semivolatile organic compound

VFA = volatile fatty acids

VOC = volatile organic compounds

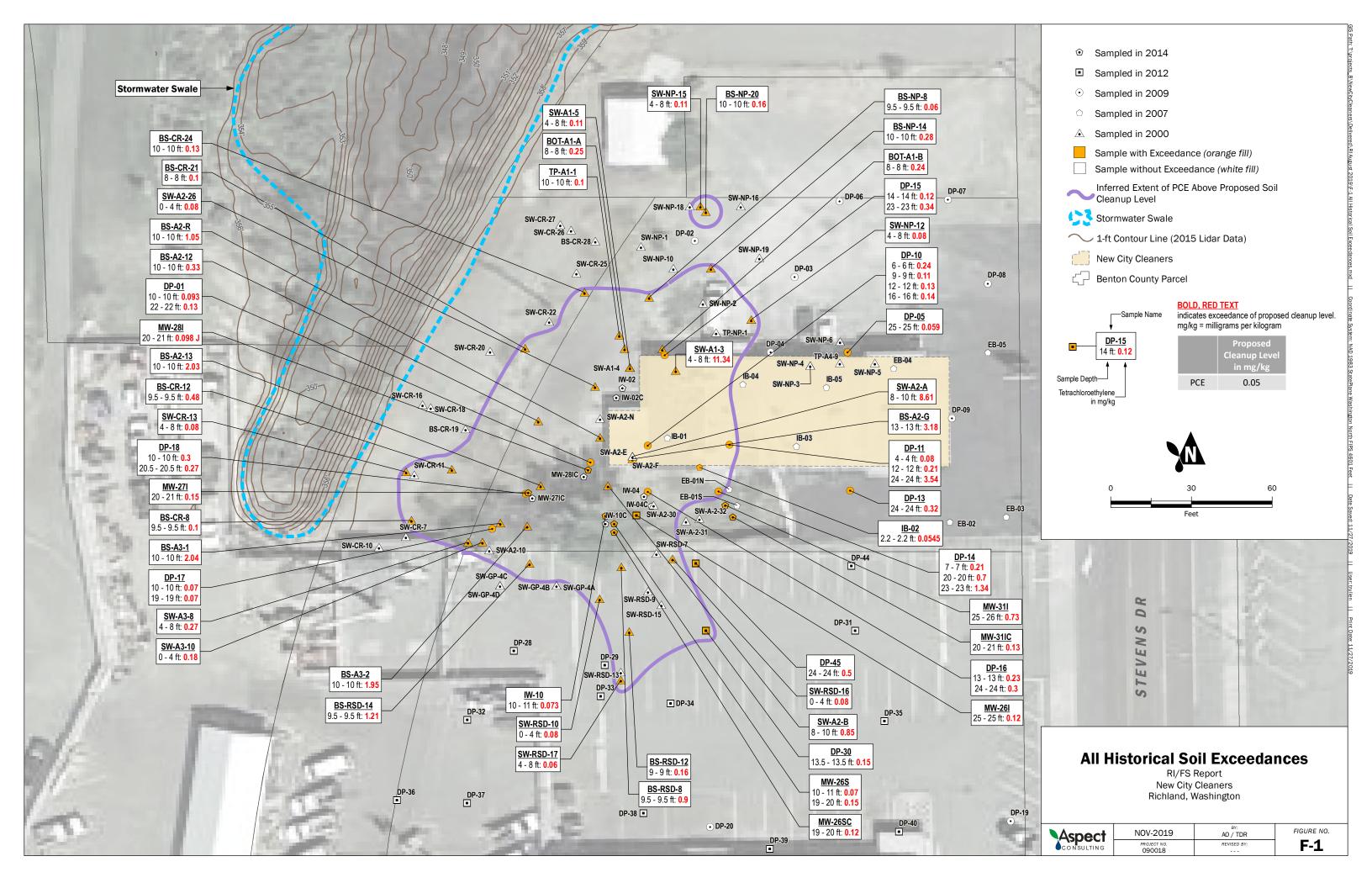
Aspect Consulting

August 2019

V:\090018 New City Cleaners\Deliverables\RIFS\2019\Final\Appendices\E - Historical Water Results\GW everything

## **APPENDIX F**

**All Historical Exceedances of PCE** 



## **APPENDIX G**

**Mann Kendall Analysis** 

**Table G-1 Mann Kendall Summary** Project No. 090018, New City Cleaners Richland, Washington

					cis-1,2-DCE	
			PCE Concentration	Confidence	Concentration	Confidence
Unit	Well ID	Location	Trend	Factor (%)	Trend	Factor (%)
Upper Silt	MW-05S	NCC Property	Decreasing	>99.9	No Trend	84.9
Unit	MW-08S	NCC Property	Stable	72.3	Decreasing	99.8
Oilit	MW-26S	NCC Property	Decreasing	99.9	Decreasing	95.7
	MW-06I	NCC Property	No Trend	66.1	Increasing	>99.9
	MW-07I	NCC Property	Decreasing	99.9	Probably Decreasing	90.8
	MW-10I	Downgradient - RSD	Decreasing	>99.9	Increasing	96.6
	MW-13I	Downgradient - Albertson's	Decreasing	97.7	No Trend	70
	MW-14I	Downgradient - Albertson's	Decreasing	99.5	<b>Probably Decreasing</b>	91.2
	MW-15I	Downgradient - RSD	Probably Increasing	91.3	<b>Probably Decreasing</b>	94.4
	MW-16I	Downgradient - RSD	No Trend	62.3	Increasing	>99.9
Upper	MW-17I	Downgradient - Albertson's	Stable	79	Stable	48.8
Gravelly	MW-19I	Downgradient - Albertson's	Decreasing	>99.9	Stable	87.7
Sand Unit	MW-21I/2	Downgradient - Albertson's	Decreasing	97.1	Decreasing	>99.9
Sand Onit	MW-23I	Downgradient - Albertson's	Decreasing	99.8	Stable	73.3
	MW-25I	Downgradient - RSD	Decreasing	99.3	No Trend	68.7
	MW-26I	NCC Property	Decreasing	>99.9	Stable	60.5
	MW-32I	NCC Property	Decreasing	96.9	Probably Increasing	92.4
	MW-33I	Downgradient - S of Lee Blvd	Decreasing	97.2	No Trend	76.5
	MW-34I	Downgradient - S of Lee Blvd	No Trend	64	Stable	39.3
	MW-03-LL	Downgradient - S of Lee Blvd	Decreasing	99.4	Stable	40.8
	MW-05-LL	Downgradient - S of Lee Blvd	Stable	85.9	Stable	40.8

## **APPENDIX H**

**Site-Specific Degradation Rate Estimates** 

**Table H-1. Degradation Rate Summary**Project No. 090018, New City Cleaners
Richland, Washington

			PCE Degradation	
Unit	Well ID	Location	Rate (d ⁻¹ )	R²
	MW-07I	NCC Property	-0.0007	0.676
	MW-13I	Downgradient - Albertson's	-0.0003	0.4256
	MW-14I	Downgradient - Albertson's	-0.0006	0.5633
Upper	MW-17I	Downgradient - Albertson's	-0.0002	0.0357
Gravelly	MW-18I	Downgradient - Albertson's	-0.0005	0.6764
Sand Unit	MW-19I	Downgradient - Albertson's	-0.0005	0.4678
Sand Onit	MW-21I/2	Downgradient - Albertson's	-0.0001	0.2018
	MW-23I	Downgradient - Albertson's	-0.0004	0.3042
	MW-33I	Downgradient - S of Lee Blvd	-0.0002	0.6215
	MW-03-LL	Downgradient - S of Lee Blvd	-0.0005	0.7123

Average PCE degradation rate: -0.0004



## **APPENDIX I**

**Detailed Cost Estimates for Remedial Alternatives** 

## Table I-1. Detailed Cost Estimate for Alternative 1

New City Cleaners Remedial Investigation/Feasibility Study

Direct Costs	Quantity	Units	Unit Cost	Extension	Description
Well Decommissioning	6	Each	\$400	\$2,400	6 wells: MW-11I, MW-12I, MW-18I, MW-20I, MW-22I, MW24I
		Direct	Costs (Subtotal):	\$2,000	
		Consultant (	Oversight (10%):	\$200	
			ales Tax (8.6%):	\$200	
		Total Di	rect Cost ( <u>DC</u> ):	\$2,400	
Indirect Costs	Quantity	Units	Unit Cost	Extension	Description
Draft Cleanup Action Plan	1	LS	\$10,000	\$10,000	
Groundwater Compliance Monitoring Plar	1	LS	\$15,000	\$15,000	
Institutional Controls - Legal Fees	1	LS	\$20,000	\$20,000	
Institutional Controls - Technical and Administrative Suppor	1	LS	\$10,000	\$10,000	
		Total Inc	lirect Cost ( <u>IC</u> ):	\$55,000	
	Total	Capital Inves	tment (Subtotal)	\$57,000	
		Contingency	(20% Subtotal):	\$11,400	
TOTAL CAPITAL INVE	ESTMENT (TCI) [DC + IC+ Contingency]:			\$68,000	
Annual Operations and Monitoring Costs	Quantity	Units	Unit Cost	Extension	Description
Groundwater MNA Monitoring	1	Event	\$12,000	\$12,000	Annual for years 1-20.
Reporting	1	Event	\$8,000	\$8,000	Annual for years 1-20.
Project Management	1	Event	\$5,000	\$5,000	Annual for years 1-20.
		TOTAL	O&M COST :	\$500,000	
TOTAL ALTERNA	ATIVE COST (A	rs, 20 years):	\$570,000		
TOTAL A	ALTERNATIVE (	COST (NP	/, 20 years) ² :	\$470,000	

### Notes:

^{1.} The costs presented are preliminary, Feasibility Study-level estimates based on existing information and are estimated to be within +50/-30% of actual costs.

2. Net Present Value (NPV) calculated using a real discount rate of 2.0%.

### Table I-2. Detailed Cost Estimate for Alternative 2

**New City Cleaners** 

Remedial Investigation/Feasibility Study

Direct Installation Costs	Quantity	Units	Unit Cost	Extension	Description
Well Decommissioning	6	Each	\$400	\$2,400	6 wells: MW-11I, MW-12I, MW-18I, MW-20I MW-22I, MW24I
Install Performance Monitoring Wells	5	Each	\$2,750	\$13,750	2-inch PVC, 34 ft depth, 10-ft screen
Install Injection Wells	12	Each	\$2,750	\$33,000	2-inch PVC, 34 ft depth, 10-ft screen
IDW mgmt and disposal	1	LS	\$6,000	\$6,000	Soil and water from drilling
<u>EAB</u>					
Mobilization/Demobilizatior	1	LS	\$5,000	\$5,000	
Injection Subcontractor	1	event	\$62,000	\$62,000	0DM ( D :
Reagent ³	3,780	pounds	\$4.50	\$17,010	3DMe from Regenesis.
Misc. (makeup water, permitting, equipment)	1	LS	\$10,000	\$10,000	
Performance Monitoring⁴	1	LS	\$44,100	\$44,100	Quarterly for 1 year following injection.
			Cost (Subtotal):	\$193,000	
	Consultant Oversight (10% DI): Sales Tax (8.6% DI): Total Direct Installation Cost (DI):			\$19,000	
				\$17,000 <b>\$229,000</b>	_
		on eet motan		,	
Indirect Costs	Quantity	Units	Unit Cost	Extension	Description
Engineering Design Report	1	LS	\$20,000	\$20,000	
Draft Cleanup Action Plan	1	LS	\$15,000	\$15,000	
Groundwater Compliance Monitoring Plar	1	LS	\$15,000	\$15,000	
Institutional Controls - Legal Fees	1	LS	\$20,000	\$20,000	
Institutional Controls - Technical and Administrative Suppor	1	LS	\$10,000	\$10,000	
	T-4-1		lirect Cost (IC):	\$80,000	
			tment (Subtotal): (20% Subtotal):	\$309,000	
TOTAL CARITAL INIVE			, ,	\$61,800	
TOTAL CAPITAL INVE	SIMENI (ICI)	[DI + IC+ C	contingency]:	\$371,000	
Annual Operations and Monitoring Costs	Quantity	Units	Unit Cost	Extension	Description
Groundwater MNA Monitoring⁵	1	Event	\$12,000	\$12,000	Annual for years 1-15.
Reporting	1	Event	\$8,000	\$8,000	Annual for years 1-15
EAB Injection and Performance Monitoring Event	1	Event	\$135,610	\$135,610	Years 2 and 4
Project Management	1	Event	\$7,500	\$7,500	Annual for years 1-15
		TOTAL	O&M COST:	\$683,720	
TOTAL ALTERNA	TIVE COST (Ad	ctual Dolla	rs, 15 years):	\$1,050,000	
TOTAL 41	TERMATUE O	OOT (4/5)	/ 45 ···································	\$960,000	
TOTAL AL	LTERNATIVE C	USI (NP	/, 15 years)⁻:	φ300,000	

### Notes:

EAB - Enhanced Anaerobic Bioremediation

- 1. The costs presented are preliminary, Feasibility Study-level estimates based on existing information and are estimated to be within +50/-30% of actual costs
- 2. Net Present Value (NPV) calculated using a real discount rate of 2.0%.
- Assume 3DMe injection reagent concentration of 0.12 lb/gal.
- 4. Sampling of 11 performance monitoring wells for CVOCs, dissolved gases (methane, ethane, ethene), and conventionals (sulfate, chloride, nitrate, nitrite, DOC, and iron) for the first tw quarterly post-injection events. Only CVOCs, dissolved gases, and DOC will be analyzed for the subsequent post-injection events. Includes 6 existing performance monitoring wells plus 5 new wells.
- 5. Sampling of 19 existing monitoring wells for CVOCs
- 6. Assumes that three total injection events are implemented. The first event in year 0 and then subsequent events in years 2 and 4 as O&M activities with optimized performance monitoring and associated costs.

### Table I-3. Detailed Cost Estimate for Alternative 3

**New City Cleaners** 

Remedial Investigation/Feasibility Study

Direct Installation Costs	Quantity	Units	Unit Cost	Extension	Description
Well Decommissioning	6	Each	\$400	\$2,400	6 wells: MW-11I, MW-12I, MW-18I, MW-20I, MW-22I, MW24I
Install Performance Monitoring Wells	5	Each	\$2,750	\$13,750	2-inch PVC, 34-ft depth, 10-ft screen
Install Injection Wells	12	Each	\$2,750	\$33,000	2-inch PVC, 34-ft depth, 10-ft screen
Install SVE Wells and Wellhead Assembly	9	Each	\$3,500	\$31,500	4-inch wells, 11-ft depth
IDW mgmt and disposal	1	LS	\$13,500	\$13,500	,
<u>EAB</u>					
Mobilization/Demobilization	1	LS	\$5,000	\$5,000	
Injection Subcontractor	1	event	\$62,000	\$62,000	
Reagent ³	3,780	pounds	\$4.50	\$17,010	3DMe from Regenesis.
Misc. (makeup water, permitting, equipment)	1	LS	\$10,000	\$10,000	
Performance Monitoring ⁴	1	LS	\$44,100	\$44,100	Quarterly for 1 year following injection.
<u>SVE</u>					
Mobilization/demobilization	1	LS	\$5,000	\$5,000	
Wellhead fittings	9	Each	\$1,400	\$12,600	valves, gauges, fittings
Trenching for pipe runs	200	BCY	\$14	\$2,800	550 ft trench x 3 ft x 3 ft
Backfill for pipe runs	1	LS	\$2,500	\$2,500	utility bedding, plus compaction
SVE piping	600	LF	\$7	\$4,200	4 inch HDPE pipe
SVE blower/controls/enclosure/condensate tank and pump	1	Is	\$45,000	\$45,000	
Mechanical/electrical work	1	LS	\$20,000	\$20,000	plumbing, electrical hookup, and controls
			Cost (Subtotal):	\$324,000	
	Co		rsight (10% DI):	\$32,000	
	Total		s Tax (8.6% DI): ation Cost (DI):	\$28,000 <b>\$384,000</b>	<u> </u>
Indianat Costs			.—,	,	Description
Indirect Costs	Quantity	Units	Unit Cost	Extension	Description
Engineering Design Report	1	LS	\$25,000	\$25,000	
Draft Cleanup Action Plan	1	LS	\$15.000	\$15.000	
Construction Bid Package	1 1	LS LS	\$10,000 \$15.000	\$10,000 \$15.000	
Groundwater Compliance Monitoring Plan	1		lirect Cost (IC):	\$15,000 \$ <b>65.000</b>	
	Total			\$ <b>65,000</b> \$449,000	
	iotai		ment (Subtotal): (20% Subtotal):	\$449,000 \$89,800	
			<u> </u>	\$09,000	
TOTAL CAPITAL IN	VESTMENT (TCI)	[DI + IC+ C	contingency]:	\$539,000	
Annual Operations and Monitoring Costs	Quantity	Units	Unit Cost	Extension	Description
Groundwater MNA Monitoring⁵	1	Event	\$15,000	\$15,000	Annual for years 1-15
Reporting	1	Event	\$12,000	\$12,000	Annual for 15 years
EAB Injection and Performance Monitoring Even®	1	Event	\$135,610	\$135,610	Years 2 and 4
SVE Operations ⁷	1	Year	\$30,000	\$30,000	Quarterly for 10 years
Confirmation soil sampling	1	Event	\$25,000	\$25,000	Once after 10 years of SVE operation
Project Management	1	Event	\$7,500	\$7,500	Annual for years 1-15
-				A	
		TOTAL	O&M COST :	\$1,138,720	_
TOTAL ALTERN	ATIVE COST (Ad	ctual Dolla	rs, 15 years):	\$1,680,000	
			•	04 500 000	$\neg$
TOTAL	ALTERNATIVE C	OST (NPV	, 15 years) ² :	\$1,520,000	

- EAB Enhanced Anaerobic Bioremediation; SVE Soil Vapor Extractior

  1. The costs presented are preliminary, Feasibility Study-level estimates based on existing information and are estimated to be within +50/-30% of actual costs

  2. Net Present Value (NPV) calculated using a real discount rate of 2.0%.

  3. Assume 3DMe injection reagent concentration of 0.12 lb/gal.

  4. Sampling of 11 performance monitoring wells for CVOCs, dissolved gases (methane, ethane, ethane), and conventionals (sulfate, chloride, nitrate, nitrite, DOC, and iron) for the first two quarterly post-injection events. Only CVOCs, dissolved gases, and DOC will be analyzed for the subsequent post-injection events. Includes 6 existing performance monitoring wells plus 5 new wells.
- 5. Sampling of 19 existing monitoring wells for CVOCs.
- 6. Assumes that three total injection events are implemented. The first event in year 0 and then subsequent events in years 2 and 4 as O&M activities with optimized performance monitoring and associated costs.
- 7. System monitoring and maintenance, soil vapor and indoor performance monitoring, electricity, condensate disposal.

### Table I-4. Detailed Cost Estimate for Alternative 4

**New City Cleaners** 

Remedial Investigation/Feasibility Study

Well Decommissioning  Install Performance Monitoring Wells Install Injection Wells on New City Cleaners Property Install Injection Wells on RSD Propery Install SVE Wells and Wellhead Assembly IDW disposal  EAB  Mobilization/Demobilization Injection and Subcontractol Reagent³ Misc. (makeup water, permitting, equipment Performance Monitoring⁴  Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractol Reagent³ Misc. (makeup water, permitting, equipment Performance Monitoring⁴  Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractol Reagent³ Misc. (makeup water, permitting, equipment Performance Monitoring⁵  SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE piping SVE piping SVE blower/controls/enclosure/condensate tank and pump	6 10 12 14 9 1 1 1 3,780 1 1 1 2,520 1 1 1 200 1 600 1	Each Each Each Each Each Each LS  LS event pounds LS LS event pounds LS LS Each BCY LS LS LS	\$400 \$2,750 \$2,750 \$2,750 \$3,500 \$16,000 \$5,000 \$4.50 \$10,000 \$44,100 \$44,100 \$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$1,400 \$14,2500	\$2,400 \$27,500 \$33,000 \$38,500 \$11,500 \$16,000 \$5,000 \$62,000 \$17,010 \$10,000 \$44,100 \$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	6 wells: MW-11I, MW-12I, MW-18I, MW-20I, MW 22I, MW24I 2-inch PVC, 34 ft depth, 10-ft screen 2-inch PVC, 34 ft depth, 10-ft screen 2-inch PVC, 34 ft depth, 10-ft screen 4-inch wells, 11-ft depth Soil and water from drilling  3DMe from Regenesis Quarterly for 1 year following injection.  3DMe from Regenesis Quarterly for 1 year following injection
Install Injection Wells on New City Cleaners Property Install Injection Wells on RSD Propery Install SVE Wells and Wellhead Assembly IDW disposal  EAB Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁴ Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	12 14 9 1 1 3,780 1 1 1 2,520 1 1 1 200 1 600	Each Each Each LS  LS event pounds LS LS event pounds LS LS Each BCY LS	\$2,750 \$2,750 \$3,500 \$16,000 \$5,000 \$4.50 \$10,000 \$44,100 \$4,000 \$4,50 \$10,000 \$22,900 \$5,000 \$1,400 \$1,400 \$1,400	\$33,000 \$38,500 \$31,500 \$16,000 \$5,000 \$62,000 \$17,010 \$10,000 \$44,100 \$11,340 \$11,000 \$22,900	2-inch PVC, 34 ft depth, 10-ft screen 2-inch PVC, 34 ft depth, 10-ft screen 2-inch PVC, 34 ft depth, 10-ft screen 4-inch wells, 11-ft depth Soil and water from drilling  3DMe from Regenesis Quarterly for 1 year following injection.  3DMe from Regenesis Quarterly for 1 year following injection
Install Injection Wells on New City Cleaners Property Install Injection Wells on RSD Propery Install SVE Wells and Wellhead Assembly IDW disposal  EAB Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁴ Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	12 14 9 1 1 3,780 1 1 1 2,520 1 1 1 200 1 600	Each Each Each LS  LS event pounds LS LS event pounds LS LS Each BCY LS	\$2,750 \$2,750 \$3,500 \$16,000 \$5,000 \$4.50 \$10,000 \$44,100 \$4,000 \$4,50 \$10,000 \$22,900 \$5,000 \$1,400 \$1,400 \$1,400	\$33,000 \$38,500 \$31,500 \$16,000 \$5,000 \$62,000 \$17,010 \$10,000 \$44,100 \$11,340 \$11,000 \$22,900	2-inch PVC, 34 ft depth, 10-ft screen 2-inch PVC, 34 ft depth, 10-ft screen 4-inch wells, 11-ft depth Soil and water from drilling  3DMe from Regenesis Quarterly for 1 year following injection.  3DMe from Regenesis Quarterly for 1 year following injection
Install Injection Wells on RSD Propery Install SVE Wells and Wellhead Assembly IDW disposal  EAB Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁴ Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	9 1 1 1, 3,780 1 1 1 1 2,520 1 1 1 1 200 1 600	Each LS  LS event pounds LS LS event pounds LS Each BCY LS	\$2,750 \$3,500 \$16,000 \$5,000 \$62,000 \$4.50 \$10,000 \$44,100 \$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$1,400	\$38,500 \$31,500 \$16,000 \$5,000 \$62,000 \$17,010 \$10,000 \$44,100 \$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	2-inch PVC, 34 ft depth, 10-ft screen 4-inch wells, 11-ft depth Soil and water from drilling  3DMe from Regenesis Quarterly for 1 year following injection.  3DMe from Regenesis Quarterly for 1 year following injection valves, gauges, fittings
EAB  Mobilization/Demobilizatior Injection and Subcontractor Reagent³ Misc. (makeup water, permitting, equipment Performance Monitoring⁴  Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractor Reagent³ Misc. (makeup water, permitting, equipment Performance Monitoring⁵  SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	1 1 1,3,780 1,1 1,1 2,520 1,1 1,1 200 1,600	LS event pounds LS LS event pounds LS Each BCY LS	\$16,000 \$5,000 \$62,000 \$4.50 \$10,000 \$44,100 \$5,000 \$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$1,400	\$16,000 \$5,000 \$62,000 \$17,010 \$10,000 \$44,100 \$5,000 \$11,340 \$10,000 \$22,900 \$1,400 \$2,800	Soil and water from drilling  3DMe from Regenesis  Quarterly for 1 year following injection.  3DMe from Regenesis  Quarterly for 1 year following injection  valves, gauges, fittings
EAB  Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁴ Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	1 1 3,780 1 1 1 2,520 1 1 1 200 1 600	LS event pounds LS LS Event pounds LS Es event pounds LS LS LS Each BCY LS	\$5,000 \$62,000 \$4.50 \$10,000 \$44,100 \$5,000 \$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$14	\$5,000 \$62,000 \$17,010 \$10,000 \$44,100 \$5,000 \$44,000 \$11,340 \$10,000 \$22,900	3DMe from Regenesis Quarterly for 1 year following injection.  3DMe from Regenesis Quarterly for 1 year following injection valves, gauges, fittings
Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁴ Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	1 3,780 1 1 1 2,520 1 1 1 200 1 600	event pounds LS LS event pounds LS LS exent pounds LS LS LS LS LS LS Each BCY LS	\$62,000 \$4.50 \$10,000 \$44,100 \$5,000 \$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$14	\$62,000 \$17,010 \$10,000 \$44,100 \$5,000 \$44,000 \$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	Quarterly for 1 year following injection.  3DMe from Regenesis Quarterly for 1 year following injection valves, gauges, fittings
Injection and Subcontractor  Reagent ³ Misc. (makeup water, permitting, equipment  Performance Monitoring ⁴ Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	1 3,780 1 1 1 2,520 1 1 1 200 1 600	event pounds LS LS event pounds LS LS exent pounds LS LS LS LS LS LS Each BCY LS	\$62,000 \$4.50 \$10,000 \$44,100 \$5,000 \$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$14	\$62,000 \$17,010 \$10,000 \$44,100 \$5,000 \$44,000 \$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	Quarterly for 1 year following injection.  3DMe from Regenesis Quarterly for 1 year following injection valves, gauges, fittings
Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁴ Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	3,780 1 1 1 2,520 1 1 1 200 1 600	pounds LS LS event pounds LS LS Each BCY LS	\$4.50 \$10,000 \$44,100 \$5,000 \$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$14	\$17,010 \$10,000 \$44,100 \$5,000 \$44,000 \$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	Quarterly for 1 year following injection.  3DMe from Regenesis Quarterly for 1 year following injection valves, gauges, fittings
Misc. (makeup water, permitting, equipment Performance Monitoring ⁴ Expanded EAB (Downgradient Injection Transect) Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	1 1 1 2,520 1 1 1 200 1 600	LS LS event pounds LS LS  LS Each BCY LS	\$10,000 \$44,100 \$5,000 \$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$14	\$10,000 \$44,100 \$5,000 \$44,000 \$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	Quarterly for 1 year following injection.  3DMe from Regenesis Quarterly for 1 year following injection valves, gauges, fittings
Performance Monitoring ⁴ Expanded EAB (Downgradient Injection Transect)  Mobilization/Demobilizatior Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE  Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE piping SVE blower/controls/enclosure/condensate tank and pump	1 1 1 2,520 1 1 1 200 1 600	LS event pounds LS LS Each BCY LS	\$44,100 \$5,000 \$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$14	\$44,100 \$5,000 \$44,000 \$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	3DMe from Regenesis  Quarterly for 1 year following injection  valves, gauges, fittings
Expanded EAB (Downgradient Injection Transect)  Mobilization/Demobilizatior Injection and Subcontractor  Reagent³ Misc. (makeup water, permitting, equipment Performance Monitoring⁵  SVE  Mobilization/demobilizatior  Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	1 1 2,520 1 1 1 1 200 1 600	LS event pounds LS LS LS Each BCY LS	\$5,000 \$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$14	\$5,000 \$44,000 \$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	3DMe from Regenesis  Quarterly for 1 year following injection  valves, gauges, fittings
Mobilization/Demobilization Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	1 2,520 1 1 1 1 200 1 600	event pounds LS LS LS Each BCY LS	\$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$14	\$44,000 \$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	Quarterly for 1 year following injection valves, gauges, fittings
Injection and Subcontractor Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ <u>SVE</u> Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pum;	1 2,520 1 1 1 1 200 1 600	event pounds LS LS LS Each BCY LS	\$44,000 \$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$14	\$44,000 \$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	Quarterly for 1 year following injection valves, gauges, fittings
Reagent ³ Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pum;	2,520 1 1 1 1 1 200 1 600	pounds LS LS  LS  Each BCY LS	\$4.50 \$10,000 \$22,900 \$5,000 \$1,400 \$14	\$11,340 \$10,000 \$22,900 \$5,000 \$1,400 \$2,800	Quarterly for 1 year following injection valves, gauges, fittings
Misc. (makeup water, permitting, equipment Performance Monitoring ⁵ SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	1 1 1 1 200 1 600	LS LS LS Each BCY LS	\$10,000 \$22,900 \$5,000 \$1,400 \$14	\$10,000 \$22,900 \$5,000 \$1,400 \$2,800	Quarterly for 1 year following injection valves, gauges, fittings
Performance Monitoring ⁵ SVE  Mobilization/demobilizatior  Wellhead fittings  Trenching for pipe runs  Backfill for pipe runs  SVE piping  SVE biping  SVE blower/controls/enclosure/condensate tank and pump	1 1 1 200 1 600	LS LS Each BCY LS	\$22,900 \$5,000 \$1,400 \$14	\$22,900 \$5,000 \$1,400 \$2,800	valves, gauges, fittings
SVE Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pum;	1 1 200 1 600	LS Each BCY LS	\$5,000 \$1,400 \$14	\$5,000 \$1,400 \$2,800	valves, gauges, fittings
Mobilization/demobilizatior Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pump	1 200 1 600	Each BCY LS	\$1,400 \$14	\$1,400 \$2,800	
Wellhead fittings Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pum;	1 200 1 600	Each BCY LS	\$1,400 \$14	\$1,400 \$2,800	
Trenching for pipe runs Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pum;	200 1 600	BCY LS	\$14	\$2,800	
Backfill for pipe runs SVE piping SVE blower/controls/enclosure/condensate tank and pum;	1 600	LS			
SVE piping SVE blower/controls/enclosure/condensate tank and pump	600		\$2,500		550 ft trench x 3 ft x 3 ft
SVE blower/controls/enclosure/condensate tank and pump		LI	\$7	\$2,500 \$4,200	utility bedding, plus compactior 4 inch HDPE pipe
· · · · · · · · · · · · · · · · · · ·	•	ls	\$45,000	\$45,000	4 IIICII FIDEE pipe
	1	LS	\$20,000	\$20,000	plumbing, electrical hookup, and controls
	Dire	ect Installation	Cost (Subtotal)	\$461,000	
			ersight (10% DI):	\$46,000	
<del>-</del>	Total		s Tax (8.6% DI): ation Cost (DI):	\$40,000 <b>\$547,000</b>	<u> </u>
			· <del></del> -	\$347,000	
Indirect Costs	Quantity	Units	Unit Cost	Extension	Description
Engineering Design Report	1	LS	\$20,000	\$20,000	
Draft Cleanup Action Plan	1 1	LS LS	\$15,000 \$5,000	\$15,000 \$5,000	
Construction Bid Package Groundwater Compliance Monitoring Plar	1	LS LS	\$5,000 \$15.000	\$5,000 \$15.000	
Groundwater Compliance Monitoring Fial			lirect Cost (IC):	\$55,000	
	Total		tment (Subtotal)	\$602.000	
	Contingency (20% Subtotal):		\$120,400		
TOTAL CAPITAL INVESTM	ENT (TCI)	[DI + IC+ C	Contingency]:	\$722,000	
Annual Operations and Monitoring Costs	Quantity	Units	Unit Cost	Extension	Description
Groundwater MNA Monitoring ⁶	1	Event	\$15,000	\$15,000	Annual for years 1-10
Reporting	1	Event	\$12,000	\$12,000	Annual for 10 years
EAB Injection and Performance Monitoring Even ⁷	1	Event	\$209,050	\$209,050	Years 2 and 4
SVE Operations ⁸	1	Year	\$40,000	\$40,000	Quarterly for 10 years
Confirmation soil sampling	1	Event	\$25,000	\$25,000	Once after 10 years of SVE operation
Project Management	1	Event	\$7,500	\$7,500	Annual for years 1-15
		TOTAL	O&M COST :	\$1,188,100	
TOTAL ALTERNATIVE	COST (A	ctual Dolla	rs 10 years).	\$1,910,000	٦
TOTAL ALTERNATIVE	0001 (A	ctual Dolla	13, 10 years).	ψ1,310,000	
TOTAL ALTER	RNATIVE C	COST (NPV	/, 10 years) ² :	\$1,770,000	_

Notes:

EAB - Enhanced Anaerobic Bioremediation; SVE - Soil Vapor Extractior

1. The costs presented are preliminary, Feasibility Study-level estimates based on existing information and are estimated to be within +50/-30% of actual cost

2. Net Present Value (NPV) calculated using a real discount rate of 2.0%.