Supplemental Remedial Investigation & Feasibility Study

Riverside HVOC Site
Bothell, Washington
Agreed Order #DE 16541

Prepared For:

City of Bothell
18415 101st Avenue NE
Bothell, Washington

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Project No. 82306-12

Prepared By:

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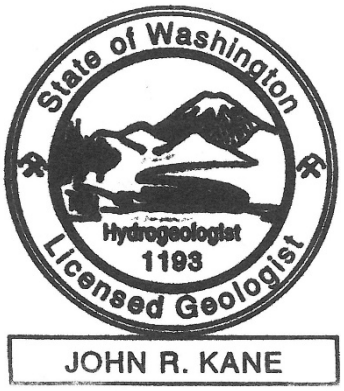

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1.0 INTRODUCTION

This Supplemental Remedial Investigation / Feasibility Study (RI/FS) report was prepared by Kane Environmental, Inc., (Kane Environmental) on behalf of the City of Bothell (the City) for the area of soil and groundwater contamination associated with releases of solvents at the contaminated site known as the Riverside Halogenated Volatile Organic Compounds (HVOC) Site located in Bothell, Washington (herein referred to as Riverside HVOC). A vicinity map is shown on Figure 1. This report was prepared in accordance with Ecology guidance, including the Remedial Investigation Checklist (Ecology Publication No. 16-09-006, Ecology 2016a) and Feasibility Study Checklist (Ecology Publication No. 16-09-007, Ecology 2016b). A Remedial Investigation report was completed by HWA Geosciences (HWA) dated December 18, 2017 and additional site characterization completed by Kane Environmental in February 2020. Riverside characterization activities included sampling soil and groundwater from temporary soil borings and existing groundwater monitoring wells.

1.1 Purpose

The objective of this Supplemental RI/FS report is to meet the requirements of the Model Toxics Control Act (MTCA) Cleanup Regulation (Washington Administrative Code [WAC] 173-340) to characterize the Riverside HVOC Site, evaluate proposed remedial actions to address the HVOC contamination associated with this Site, and based on that evaluation, propose the most appropriate remedial alternative to clean up this HVOC contamination.

The purpose of this Supplemental Remedial Investigation/Feasibility Study (RI/FS) is to investigate and delineate the nature and extent of HVOC impacts to soil and/or groundwater at the Riverside HVOC Site. The RI is designed to characterize site conditions, including site physical characteristics, nature and extent of contaminants of concern, media impacted, source areas, contaminant migration pathways, rates, and directions, and potential receptors and develop a site conceptual model. This was accomplished using existing data as well as conducting site-specific investigations. The RI findings were then used to complete a draft feasibility study (FS), to evaluate remedial alternatives for the Site and select a cleanup action as described in WAC 173-340-360 through 173-340-390.

The primary historical environmental concerns at the Riverside HVOC Site are associated with HVOC released to soil and groundwater from a former machine shop business.

Specific objectives of the Supplemental RI/FS include:

- Determine the lateral and vertical extent of HVOCs impacts to soil and groundwater at the Riverside Site;
- Investigate site geology, hydrogeology, and groundwater flow/transport characteristics;

- Develop a conceptual site model (exposure pathways and receptors);
- Establish cleanup standards and remedial action objectives;
- Identify and screen feasible remedial technologies;
- Assemble and screen remediation alternatives;
- Perform a detailed evaluation of the screened remediation alternatives;
- Propose and describe a preferred cleanup alternative;
- Select a preferred cleanup alternative.

1.2 Authorization / Scope of Work

Kane Environmental work for this project was authorized under an On-Call Hazardous Materials Services Consultant Agreement with the City of Bothell dated February 2019. Kane Environmental's scope of work for this portion of the project included:

- Perform environmental explorations and develop remedial designs for cleanup of the Site;
- Prepare a Draft Supplemental RI/FS report

1.3 Regulatory Framework

The Riverside HVOC Site is presently listed in Ecology's database as Agreed Order site DE 16541. A more detailed discussion of the contaminants of concern (COCs) for the Site as determined in this RI is provided in Section 3.0.

1.4 Site Background

Per MTCA, a "Site" is "any site or area where a hazardous substance…has been deposited, stored, disposed of, or placed, or otherwise come to be located." The RI provides information about the location of HVOC COCs within the Riverside HVOC Site. Figure 2 shows the approximate extent of Riverside HVOC Site COCs in soil and groundwater at concentrations greater than their respective Site-specific cleanup levels.

1.4.1 Site Information

The boundary of the former Riverside HVOC occupies a portion of King County Assessor's parcel 082605-9120, presently owned by the City of Bothell. See Figure 2 for an area Site Plan, showing the Site boundaries with respect to the surrounding properties.

The project consultant for the Site is Mr. John Kane, Principal/President, Kane Environmental Inc. (4015 13th Avenue West, Seattle, Washington 98119; phone 206-691-0476, email jkane@kane-environmental.com). The representative for the City of Bothell (the property owner) is Ms. Nduta Mbuthia, Senior Capital Project Engineer, City of Bothell (18415 101st Avenue NE, Bothell, Washington 98011, phone 425-806-6829, email nduta.mbuthia@bothellwa.gov).

The property is located at 47.760 degrees north, -122.209 degrees west in Section 7 of Township 26 north, Range 5 east. The property is presently vacant of structures. The property is currently occupied by areas of city park and gravel parking area for access to the city park south and adjacent to former State Highway Route 522. The planned future use of parcel 082605-9120 is to remain in parking use and part of the City of Bothell park.

1.4.2 Site History

The City acquired a two-acre property (historical Riverside property; Figure 2) in 1990 which included King County Assessor tax parcels 082605-9120, 082605-0284, and 082605-0031. Following the relocation of SR 522, the area was re-parceled and now consists of a portion of parcel 082605-9120 and is currently utilized as a vacant gravel parking lot and City of Bothell park.

In order to obtain a better understanding of the Site history, as part of an interim action report describing ongoing remedial activities, Kane Environmental conducted supplemental due diligence tasks and reviewed historical records for the Riverside HVOC Site and immediate vicinity at the Puget Sound Regional Branch of the Washington State Archives, Central Branch of the Seattle Public Library, and historical aerial photographs provided by EDR (Kane Environmental, 2019). These materials are included in this report as Attachment A, and the findings from this review are described below.

According to King County Assessor records, the Riverside HVOC Site is currently located on the eastern end of one tax parcel, 082605-9120. However, according to tax lot maps reviewed at the Washington State Archives Puget Sound Regional Branch, the Riverside property historically consisted of portions of three parcels, 082605-9120, 082605-0284, and 082605-0031.

In reviewing historical assessment cards for parcel 082605-0284, a relatively small rectangular structure was constructed on the parcel in 1944 for use as a *"fixit shop".* An attached photograph with a noted date of June 1945 depicted the rectangular structure labeled *"Highway Machine Shop", "All Makes Water Pump Repair*", and *"Fixit Shop".* According to aerial photographs this structure remained on the Riverside HVOC Site through at least 1973, approximately 29 years. Cross referencing these historic aerial photographs with the 1954 *Kroll Atlas of Seattle, East Side Supplement*, the structure on the Riverside HVOC Site was addressed as 10031 Woodinville Drive. The approximate location of this structure determined from aerial photographs and other historical resources is shown in Figure 3.

According to the 1958 *West Coast Telephone Company Yellow Pages, "Lans Water Pump Shop" or "Lans A Pump Repair"* was located on the Riverside HVOC Site at 10031 Woodinville Drive. By 1960, the *West Coast Telephone Company Yellow Pages, "George's Fixit Shop"* was located on the Riverside HVOC Site at 10031 Woodinville Drive. Additionally, a January 14, 1960 copy of the *Bothell Citizen* newspaper contains an advertisement for *"George's Fixit Shop",* located at 10031 ½ Woodinville Drive, noting expertise in *"pumps, bicycles, lawn mowers, and tool sharpening".* The 1969 *Cole's Metropolitan Seattle Directory* contained residential listings for 10031 Woodinville Drive.

Based on the available information, a structure was constructed on the eastern end of Riverside HVOC Site in 1944 for use as a machine shop, pump repair, and *"fixit"* shop, and operated through at least 1960. Due to the operations conducted during that time period, it is possible that halogenated solvents were used on the Riverside HVOC Site and over time, releases may have occurred, adversely impacting the subsurface. The historical presence of a machine shop on the Riverside HVOC Site represents a potential source for the HVOC contamination in both soil and groundwater at the Riverside HVOC Site (Kane Environmental, 2019)

1.5 Previous Site Assessments and Remedial Activities

This section contains summaries of previous environmental investigations conducted at the Riverside HVOC Site. Tables 1 and 2 respectively list relevant soil and groundwater analytical data collected to date.

Years 1990-2009

During initial investigations on the Riverside property conducted in the early 1990s, petroleum contamination was discovered in the northwestern portions of the Riverside property, reportedly associated with historical gas station operations in this area (SEACOR, 1990; SEACOR 1991). Remedial excavations were conducted throughout the early 1990s which removed approximately 4,700 cubic yards of petroleum contaminated soil (RZA AGRA, 1992; GTI, 1993a; GTI, 1993b). Petroleum contaminated soils were treated on property using a bioremediation cell, and post-treatment soils were used to backfill the remedial excavation.

During 2008 site investigation activities, HWA discovered the presence of halogenated volatile organic compounds (HVOCs), specifically tetrachloroethylene (PCE), trichloroethylene (TCE), (cis) 1,2-dichloroethylene ((cis) 1,2-DCE), and vinyl chloride (VC) in groundwater above their respective Model Toxics Control Act (MTCA) Method A or Method B cleanup levels (HWA, 2008).

PCE was also detected in soils from location BC-3 at a concentration of 5.9 parts per million (ppm) and at location R-4 at a concentration of 9 ppm (see Figure 3 for locations of borings). The MTCA Method A cleanup level for PCE in soil is 0.05 ppm. HWA noted that these detections were collected from saturated

soils and attributed the detections to groundwater contamination. HWA also stated that the HVOC contaminated groundwater was most likely migrating from an upgradient source.

An investigation was conducted by CDM in 2009 to assess soil and groundwater conditions along the former State Route (SR) 522, which at the time, bounded the Riverside property to the north-northeast. Groundwater samples collected north and northwest of the Riverside property along the former SR 522 reported concentrations of HVOCs in groundwater above their respective state cleanup levels (MTCA Method A cleanup levels). However, the CDM report noted that these detections were several orders of magnitude less than the HVOC contamination on the Riverside HVOC Site. CDM determined that the source of the HVOC contamination was associated with an unknown source located on-property and not associated with upgradient sources (CDM, 2009).

Supplemental groundwater sampling confirmed the presence of HVOC contamination in groundwater (Parametrix, 2009).

Years 2013-2018

A groundwater extraction/treatment system was installed and activated in January of 2013. The system originally consisted of four groundwater extraction wells (EW-1 through EW-4), screened over intervals ranging from 11 to 35 feet bgs. Two additional extraction wells were added in December 2016 (EW-5 and EW-6). Extraction wells were installed with approximately 40 foot spacing, dedicated submersible pumps, and connected to an enclosure via sub-grade piping within the Riverside HVOC Site. The extracted groundwater was then discharged to sanitary sewer. HWA noted that the total discharge is sampled quarterly prior to entering the sanitary sewer system to ensure that the effluent meets the King County sanitary sewer discharge limits for HVOCs and settleable solids.

Quarterly groundwater monitoring on the Riverside HVOC Site was resumed in 2014 following the installation of the groundwater treatment system and included sampling of the extraction wells in addition to the monitoring wells. Groundwater HVOC concentrations reportedly decreased over time although there were seasonal fluctuations noted as well.

HWA performed a *Remedial Investigation (RI)* report for the Riverside HVOC Site dated December 18, 2017 (HWA, 2017b) in which the original “Riverside Site”, which encompassed the Riverside property, was delineated into two areas: the Riverside TPH Site and the Riverside HVOC Site. The report detailed the supplemental groundwater sampling as well as the implementation of a groundwater extraction system acting as an interim measure to prevent HVOC contaminated groundwater from entering the Sammamish River to the southeast. RI groundwater results are shown in Table 2. HWA also reportedly conducted a passive soil gas survey (HWA, 2016) in which a concentrated area of PCE was detected in the vicinity of RMW-12. The results suggested that there was potentially a source located near RMW-12.

HWA conducted a reconnaissance groundwater sampling study in 2017 to delineate the extent of the Ultra Custom Cleaners (an up-gradient cleanup site) HVOC groundwater plume (HWA, 2017a). One of the goals of the study was to determine if the Ultra Custom Cleaners site was a potential source for HVOC groundwater contamination on the Riverside HVOC Site. Ten borings were reportedly advanced to depths ranging between 40 and 45.5 feet bgs. Groundwater samples were collected from shallow (1-20 feet bgs), intermediate (18-34 feet bgs), and deep (35-45 feet bgs) intervals from each boring. Results indicated that the Ultra Custom Cleaners groundwater HVOC plume extended further southeast than expected, but concluded that it was unlikely to be the source of the HVOC groundwater contamination on the Riverside HVOC Site. The RI concluded that due to the absence of HVOCs detected above their respective cleanup levels in unsaturated soils, that there were no contaminants of concern (COCs) for Riverside HVOC Site soils.

However, the RI report confirmed the presence of PCE, TCE, (cis) 1,2-DCE, and vinyl chloride as COCs in groundwater, and stated that the "*impacts are being addressed by the on-going second interim action (pump and treat)".* While not explicitly explained in the text, the groundwater analytical tables listed Riverside HVOC Site specific cleanup levels for the groundwater COCs. The cleanup levels used were parts per billion (ppb) for PCE, 2.5 ppb for TCE, 16 ppb for (cis) 1,2-DCE, and 0.2 for vinyl chloride.

HWA completed a *Draft Feasibility Study Report* (dFS) for the Riverside HVOC Site dated February 7, 2018 (HWA, 2018a). The report outlined the primary source of contamination as a *"small release of PCE to the ground somewhere at the north (upgradient) end of the Riverside HVOC area".* The report stated that the primary exposure route was HVOC contaminated groundwater migrating into the Sammamish River (surface water), where pathways included dermal contact and ingestion of water or ingestion of aquatic species by both human (recreational users) and ecological (aquatic species) receptors. Soil was not considered as a potential exposure pathway due to the absence of any soils detected above applicable cleanup levels and vapor was not considered due to the absence of present or planned buildings in the area.

According to the dFS report, due to the proximity of the HVOC contaminated groundwater to the Sammamish River, surface water cleanup levels were proposed by HWA. The dFS report also noted that the surface water MTCA Method B cleanup level for human health of 0.69 micrograms per liter (ug/L) was listed for PCE, per the U.S. EPA Clean Water Act §304 Federal Ambient Water Quality Criteria applicable or relevant and appropriate requirements (ARARs). For TCE, the surface water MTCA Method B cleanup level for human health – fresh water of 2.5 ug/L was listed, also per the U.S. EPA Clean Water Act §304 Federal Ambient Water Quality Criteria ARARs. The groundwater MTCA Method B non-carcinogen cleanup level of 16 ug/L was listed for (cis) 1,2-DCE. For vinyl chloride, HWA selected 0.2 ug/L as the cleanup level due to the value being the *"practical quantitation limit / reporting limits achievable by local accredited labs".*

The dFS report also evaluated several remedial alternatives. In-situ groundwater treatment technologies evaluated included chemical oxidation, chemical reduction, bioremediation, air sparging, and soil vapor extraction. Pump and treat alternatives were also considered with various treatment methods including carbon adsorption, air stripping, and discharge to sanitary sewer, and the concepts of recirculating extracted groundwater versus discharge were also considered. Permeable reactive barriers were considered as was monitored natural attenuation. Ultimately, HWA determined that the recommended remedial alternative was to pump and treat groundwater with discharge to sanitary sewer. The proposed final cleanup action would be to continue the interim action which began in 2014.

Additional Soil and Groundwater Sampling - HWA November 9, 2018

Following the RI and Draft FS, HWA completed an *Additional Soil and Groundwater Sampling* report dated November 9, 2018 (HWA, 2018b). In October of 2018, HWA advanced eight borings on the Riverside HVOC Site for collection of soil and groundwater samples. Each boring location was also surveyed so that groundwater elevation could be calculated, and hydraulic control of the groundwater treatment system could be assessed across the Site.

At boring location RB-25, PCE and TCE were detected in a soil sample collected at 13 feet bgs at concentrations (0.46 ppm and 0.052, respectively) above their respective MTCA Method A cleanup levels (0.05 ppm and 0.03 ppm, respectively). The sample was reportedly collected in unsaturated soils which were identified as *"fill material".* Temporary groundwater samples collected from the boring locations reported relatively high concentrations of HVOCs in groundwater with PCE detections ranging between 200 ug/L to 0.56 ug/L. The PCE groundwater cleanup level proposed in by HWA in this report was 0.16 ug/L and the proposed TCE groundwater cleanup level was 2.5 ug/L.

The highest concentration of PCE in groundwater was collected from RB-25 (where soil exceedances were noted) with a reported concentration of 200 ppb. Elevated concentrations of PCE in groundwater were also noted at RB-32 (110 ppb) and the highest concentration of vinyl chloride was reported at RB-31 (13 ppb) both located just down gradient (southeast) of EW-2. Groundwater results are included in Table 2. Boring locations were surveyed, and a groundwater gradient was calculated to flow generally to the southeast. The water elevation survey also noted groundwater drawdown around the extraction wells EW-1 through EW-4, and EW-6. The report stated that this suggested that *"from somewhere east of EW-1 to RMW-6 (west of EW-4), which encompasses the east-west extents of the HVOC plume is effectively captured by pumping wells."*

Groundwater Sampling – Kane Environmental, September 2019 and January-May, 2020

Kane Environmental conducted sampling of a subset of the monitoring and extraction wells present on the Site in September 2019, January-February 2020, and May 2020. Results from these sampling

activities are included in Table 2. The highest concentrations of PCE and TCE at the Site were measured in wells EW-2, RMW-12, and RMW-14, which are located down-gradient from the area where HWA had previously identified contaminated soil in boring RB-25 in November 2018. Elevated concentrations of (cis) 1,2-DCE and vinyl chloride were identified in well RMW-7, located further downgradient from this area.

Supplemental Soil Sampling – Kane Environmental February 2020

Kane Environmental completed supplemental soil sampling on February 24, 2020 in the area of previous HWA boring RB-25 collected in October 2018. Kane Environmental collected vadose and saturated soil samples in the area of the previous HWA boring RB-25 where PCE was found above the MTCA Method A Soil Cleanup Level at 13 feet bgs. Kane Environmental retained the services of Cascade Drilling to provide a limited access Geoprobe drill rig to collect the soil samples. The supplemental soil sampling revealed the presence of PCE and TCE above their respective cleanup levels in the area of RB-25.

2.0 ENVIRONMENTAL SETTING

A discussion of the physical characteristics of the Riverside HVOC Site are discussed in the subsections below.

2.1 Physical Characteristics of the Site

The RI study area is within the Horse Creek valley on the Bothell Upland physiographic subdivision of the Puget Sound Lowland physiographic province. Horse Creek is a southerly flowing tributary to the Sammamish River. .

This area is generally flat with an elevation of approximately 35 feet above mean sea level. The surrounding land is generally flat or slopes to the south towards the Sammamish River (Figure 1). The Riverside HVOC Site includes a gravel-surfaced parking area, the paved 180th Street roadway, and the vegetated north bank of the Sammamish River.

2.1.1 Geology

The Riverside HVOC Site is located within the Puget Sound Lowland, a north-south trending structural and topographic depression bordered on the west by the Olympic Mountains and on the east by the Cascade Mountains. The area is characterized by gently rolling glacial drift plains covered with small ridges, hills, and depressions formed by the continental ice sheet that covered the area during the Pleistocene Epoch and retreated approximately 12,500 years ago. Most of northwestern King County is mantled by glacial deposits (including gravel, sand, silt, clay, boulders), which are commonly up to and over 150 feet thick (Liesch and others, 1963).

A geologic cross-section showing the soils present at depth at the Riverside HVOC Site is included as Figure 4. This location of this cross section is shown by the A-A' line in Figure 3. This cross-section was prepared based on boring logs from recent Kane Environmental field investigations and other previous investigations. Boring logs for the Riverside HVOC Site are included in Attachment B.

The uppermost layer of soils at the Site consist of approximately 10 to 20 feet of fill material. The Site is located within the former Sammamish River flood plain, and dredge and spoil soils are known to have been placed in Site vicinity following realignment of the Sammamish River in the 1960s (HWA, 2017b) in order to raise and level the area for development. These fill soils consist of a mixture of gravel, sand, and silt with trace amounts of brick, cloth, and other manmade materials, as well as organic matter. Below these fill soils, sandy and silty soils identified as native soils are identified. These are identified as alluvial soils. According to previous investigations, peat or silt beds with high organic content up to 2 feet thick are present within the alluvial soil, generally at depths greater than 10 feet below their surface. These organic-rich beds appear to underlie most of the area but may not represent a contiguous layer (HWA, 2017b).

Beneath these alluvial deposits is a stiff to hard clay or silt with a thickness of at least 14 feet. This unit is inferred to be a drift deposit of glacial-lacustrine origin (HWA, 2017b).

2.1.2 Hydrogeology and Groundwater Flow

Groundwater occurs at approximately 8 to 16 feet bgs, with the shallower depths occurring in the wet season. Based on groundwater elevation surveys at and in the vicinity of the sites, groundwater flow is inferred to be to the southeast, toward the Sammamish River.

Figure 5 presents a potentiometric surface developed from groundwater elevation data collected in October 2018. The horizontal hydraulic conductivity was estimated using slug test data collected during the 2009 RIFS prepared for the Riverside TPH and HVOCs Sites (Parametrix, 2009). Based on evaluation of the results from the slug test, the estimated hydraulic conductivity for shallow, unconfined groundwater beneath the Riverside TPH and HVOCs Sites ranged from 4.8 x 10-3 to 1.8 x 10-2 feet per minute (7 to 26 feet/day); the mean hydraulic conductivity determined from the slug test data is 13.1 feet/day.

HWA estimated the travel time of shallow groundwater at both Sites. Groundwater particle velocity is described by the following relationship:

V = K i / P, where: V= particle velocity K= hydraulic conductivity

i = hydraulic gradient P = effective porosity

Based on estimates of horizontal hydraulic conductivity of around 7 to 26 feet/day, an assumed effective porosity of 0.25 (typical of sands), and measured gradients of 0.032 to 0.042 foot/foot, estimated horizontal groundwater particle flow velocity may range from approximately 1 to 4 feet per day in the shallow aquifer.

Other physical characteristics of soil in the shallow, unconfined groundwater zone include an estimated porosity (based on ex-situ analysis) ranging from 0.25 to 0.32, wet density ranging from 123.2 to 139.5 pounds per cubic foot, and dry density ranging from 107.2 to 127.4 pounds per cubic foot (Parametrix, 2009).

In Late April and Early May of 2020, Kane Environmental conducted several rounds of pump testing and performed slug tests on the Site to confirm the results of the 2009 pump testing and assess the effectiveness of the interim action groundwater pump and treat system on the Site.

Short-term, single well pumping tests were completed in monitoring wells BC-3 and RMW-14. Pump test data and outputs from aquifer test data programs (including plots of drawdown vs. time showing type

curve matches) are included in Attachment C. Both BC-3 and RMW-14 are installed to 25 feet bgs, and are screened from 15-25 feet bgs. In each well, all groundwater was removed from each well over a period of approximately 20 minutes using a submersible pump, then the pump was shut off and water level recovery was monitored. Using the Theis (1935) residual method on late-time recovery data collected from these short-term tests, a hydraulic conductivity of 0.3 feet/day (1.1×10^{-4} centimeters/second [cm/s]) was obtained from the BC-3 data, while a hydraulic conductivity of 1.4 feet/day (4.9×10^{-4} cm/s) was obtained from the RMW-14 data.

A long-term (40 hour total pumping duration) pumping test was conducted at EW-6, using RMW-14 and RMW-7 as observation wells. Using the Neuman (1974) solution, an acceptable type curve match to the RMW-14 drawdown curve obtained from this test can be obtained. The results of this match indicate a transmissivity of 55 square feet per day (ft^2/day), or 0.59 cm^2/s. An aquifer thickness of 20 feet, assigned following the screened interval of extraction well EW-6, implies a hydraulic conductivity of 9.7×10^{-4} cm/s, or 2.8 ft/day. This finding is generally consistent with that of the values obtained from the short-term pumping test data conducted above (within one order of magnitude), but are somewhat lower than the values for the Site and nearby Riverside TPH site determined by Parametrix (7 to 26 ft/day; Parametrix, 2009). Groundwater particle velocity estimates calculated using hydraulic conductivity values of 0.3 to 2.8 ft/day, a hydraulic gradient of 0.06 ft/ft (estimated from the gradient shown in Figure 5), and the porosities determined by Parametrix (2009) (0.25-0.32), range from 0.05 to 0.7 ft/day.

Satisfactory type curve matches to the pumping well (EW-6) and observation well RMW-7 time-drawdown data are difficult to obtain. Potential causes for these issues include:

- Variations in pumping rate: the average pumping rate at EW-6 over the duration of the test was determined to be 2.18 gallons per minute, however, this pumping rate may have varied, potentially by as much as 20-25%, over the course of the aquifer test.

- Recharge to the aquifer: During the course of the aquifer test, approximately 0.5 inches of precipitation fell over a period of approximately 12 hours, with 0.4 inches of this precipitation occurring in a period of only six hours. This moderately heavy rainfall event may have contributed recharge to the aquifer, which is unconfined and largely covered by impermeable surfaces. In addition, RMW-7, located nearer to the Sammamish River than the pumping well and other observation well (RMW-14), actually displayed an increase in water level above the initial water level elevation at the beginning of the aquifer test. This increase in water level occurring after an initial drawdown, and coincided with the timing of the precipitation event and a slight increase in the discharge of the Sammamish River (as evidenced by the discharge rate measured at King County gauging station 51T, located approximately 6 miles upstream from the Site; King County Hydrologic Information Center, 2020).

2.1.2.1 Capture Zone Calculation

In order to provide a preliminary assessment of the effectiveness of the existing pump-and-treat system in operation at the Site, an estimate of the horizontal capture zone radius of extraction wells at the Site may be generated. The horizontal capture zone radius, perpendicular to groundwater flow direction, at the well location, is approximated by the following equation, taken from *A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems* (EPA, 2008; Figure 14 therein):

w = Q / 2 x K x b x I, where

- Q = pumping rate from the extraction well. Q is approximated to be 1.5 gpm during typical extraction system operations
- K = hydraulic conductivity. Hydraulic conductivity values determined above (0.3-2.8 ft/day) are used in these calculations.
- b = aquifer thickness. An estimated aquifer thickness of 20 feet is used.
- i = hydraulic gradient. Per the elevations shown in Figure 5 (groundwater gradient), the hydraulic gradient at the Site is estimated to be 0.06 ft/ft.

Using these parameters and a hydraulic conductivity of 0.3 ft/day, a capture zone radius of approximately 400 feet is determined. Using these parameters and a hydraulic conductivity of 2.8 ft/day, a capture radius of approximately 43 feet is determined. This range of capture zone radius values suggest that the extraction wells installed on the site, which are spaced by 40 feet from each other, are appropriately spaced to capture contamination in groundwater.

2.1.3 Surface Water and Sediments

Surface water features in the vicinity include:

Horse Creek, which exits from a culvert beneath the adjacent Bothell Landing property to the west, and runs south along that boundary. It then flows under 180th Street in a culvert and discharges to the Sammamish River. Flow to this drainage will be largely re-routed to a new drainage system (consisting of pipes and open channel segments) constructed some 300 feet west of the old Horse Creek channel, sometime in 2015.

The Sammamish River is south and adjacent to the Riverside HVOC Site. Groundwater from the Riverside HVOC Site discharged to the river prior to installation of the gradient control / pump-and- treat system in 2014.

2.1.4 Surface Features, Drainage, and other Subsurface Utilities

With the exception of small landscaped areas, the Riverside HVOC Site is mostly covered by gravel surfacing and grass. No permanent structures are present at the Riverside HVOC Site, except for a small shed currently housing the extraction pumps for the operating groundwater treatment system.

Drainage of the Riverside HVOC Site surface is achieved by surface sheet flow toward the Sammamish River. There are no storm drains located on the Riverside HVOC Site.

No subsurface utilities are present at the Site, with exception of piping and electrical power utilities associated with the remedial pumping system, and communications and electrical power utility lines beneath the sidewalk running along the south side of State Route 522/Woodinville Drive.

2.2 Current Ecological Conditions

Potential ecological receptors are defined as terrestrial biota (e.g., birds, mammals, and plants) that inhabit or use, or have the potential to inhabit or use, the terrestrial habitats of the Site. Site use by ecological receptors is very limited due to current Riverside HVOC Site conditions, since most of the Site is used as vehicle gravel parking lot with nearby grass.

2.2.1 Terrestrial Ecological Evaluation

A Terrestrial Ecological Evaluation (TEE) is required under MTCA for sites with releases of hazardous substances to soil, unless the site meets one or more exclusions to be exempt from the TEE. Kane Environmental completed the Simplified Evaluation for the Riverside HVOC Site. Based on the results of the Simplified Evaluation (Attachment D), the Riverside HVOC Site does not require a site-specific ecological evaluation.

3.0 REMEDIAL INVESTIGATION (RI)

Based on the results of this Site characterization and interim remedial activities, the chemicals of concern (COCs) in soil and groundwater are:

- HVOC COCs, including:
    - Tetrachloroethene (PCE),
    - Trichloroethene (TCE),
    - (cis) 1,2-Dichloroethene (DCE), and
    - Vinyl Chloride (VC).

The Riverside HVOC characterization was completed by HWA in October 2018 and by Kane Environmental in May 2020. Site characterization activities included sampling soil and groundwater from temporary soil borings and groundwater monitoring wells.

3.1 Kane Environmental Site Assessment Activities

Riverside HVOC Site assessment activities by Kane Environmental were conducted in February through May 2020. Included in this description of site assessment activities are those undertaken in February through May 2020.

3.1.1 Site Assessment Related Activities

Riverside HVOC Site assessment activities by Kane Environmental were supported by the activities detailed in the subsections below.

3.1.1.1 Utility Locate

Kane Environmental contacted the Washington Utilities Underground Location Center prior to starting the fieldwork to conduct a general locating survey for telephone, gas, water, sewer, communication, and electric service for study areas at the existing property. Areas identified as utility corridors by Washington Utilities Underground Location Center were marked.

Private utility locator Mountain View Locating of Bonney Lake, Washington, was retained to perform on-property utility surveys, including ground penetrating radar (GPR) to determine if underground utilities and structures were located in areas of the drilling activity throughout the Riverside HVOC Site.

3.1.1.2 Site Survey

Groundwater well elevations were previously completed by HWA.

3.1.1.3 Health and Safety Briefing

A health and safety briefing was conducted prior to all field activities. Potential contaminants, hazardous activities, and preventative measures were discussed. All field personnel from Kane Environmental and Cascade Drilling, L.P. (Cascade) were properly trained and licensed to perform the work.

3.1.2 Kane Environmental Field Activities

Field activities performed and overseen by Kane Environmental for this RI included:

- In September 2019 and January-February 2020, Kane Environmental collected groundwater samples and groundwater elevation data from ten (10) pre-existing groundwater monitoring wells located on the Riverside HVOC Site. These samples were collected to obtain information on the extent of HVOC contamination in groundwater at the Site prior to further assessment activities.

- In February 2020, Cascade utilized a direct push drill rig to advance temporary soil borings in seven (7) locations at the Riverside HVOC Site. These borings were advanced to collect samples delineating the extent of HVOC contamination in soil at the Site, in the vadose and saturated zones.

- In April of 2020, Kane Environmental contracted Cascade Drilling to install one (1) monitoring well located immediately up-gradient from RMW-7, near the location of the HWA soil boring RB-31. Soil samples were collected during the drilling, in both the vadose and saturated zones.

- In April-May 2020, Kane Environmental conducted pump testing and slug tests at the Site to estimate the hydraulic properties of the unconfined aquifer at the Site and assess the effectiveness of the pump and treat interim action.

These activities are described in greater detail below.

3.1.2.1 Soil Sample Collection Methodology

During the Kane Environmental January-February 2020 soil sampling activities, a private utility located was conducted to ensure that no subsurface utilities were present in the proposed boring or well location.

Soil samples collected using the direct push drilling rig were collected continuously in five (5)-foot intervals, using five (5)-foot long by two (2)-inch inner diameter vinyl sampling liners that were placed inside the direct push sampling rod. All sampling tooling (including hand augers, direct push tooling, and split spoon samplers) was decontaminated with an Alconox® scrub and clean water rinse between after completion of sampling in each boring or well location.

Soil sample material recovered from the soil borings was logged by a Kane Environmental geologist for physical properties such as grain size, color, and moisture. A photo-ionization detector (PID) was used to screen soils from select depths for halogenated volatile organic compounds (HVOCs). Soil samples were collected for laboratory analysis following the field methodology described in EPA Method 5035A for sampling and analysis of volatile organics. The depth of soil sample collection was determined by field indicators such as odor, PID readings, and the depth to groundwater. Soil samples were collected at depths intended to provide constraints on extent of soil contamination in each boring, and to determine the maximum concentrations of contaminants in each boring.

During the monitoring well installation in April of 2020, Kane Environmental collected soil samples using the hollow stem auger drill rip. Sample were collected at approximately 5-foot intervals using a 2.5-inch outer diameter split-spoon sampler driven with a 300-pound hammer on a wireline, to retrieve 1.5-foot long soil columns. Drilling equipment was decontaminated using Alconox® detergent, rinsed with distilled water. Soil columns were logged for physical properties such as grain size, color, and moisture. Soils were also screened for volatiles using a PID. Soil samples were obtained utilizing the collection, preparation and preservation methods outlined in EPA Method 5035c, as required by Ecology.

Each soil sample submitted for laboratory analysis consisted of four (4) unpreserved volatile organic analysis vials and one (1) four (4)-ounce glass jar with Teflon-lined lid. Soil samples were placed into ice-filled coolers and transported under standard chain-of-custody procedures to the OnSite Environmental laboratory location (an Ecology-accredited laboratory) in Redmond, Washington.

Soil sampling nomenclature identified each sample with the boring identification number, followed by a number designating the sample depth. For example, sample “KSB-1:2ft” was a soil sample collected from a depth of two (2) feet bgs in boring KSB-1.

3.1.2.2 Monitoring Well Installation Methodology

For wells previously installed by HWA, soil borings were drilled with an hollow stem auger drill rig and converted to shallow two (2)-inch diameter groundwater monitoring wells. The monitoring wells were installed by Environmental Drilling and Cascade Drilling in accordance with Washington State monitoring well construction standards and under the direction of a licensed driller (ASTM D 5092 and EPA 600-4-89-034).

The monitoring wells were constructed with ten (10) feet of schedule 40 PVC screen and a slot size of 0.010 inches. Most of the well screened intervals were fifteen (15) to twenty-five (25) feet bgs. Groundwater extraction wells were screened deeper to 35 feet bgs, and well RMW-10 was screened from thirty-two (32) to forty-two (42) feet bgs. Two (2)-inch diameter schedule 40 PVC casing was installed above the slotted screen. A sand pack was placed in the annular space from the well bottom to

approximately one (1) foot above the well screen and a bentonite seal from the top of the sand pack to approximately one-and-a-half (1.5) to two (2) feet bgs. The groundwater monitoring wells were completed with flush-mounted monuments surrounded by a concrete surface seal.

In May of 2020, Kane Environmental contracted Cascade Drilling to install one (1) monitoring well on the Site (RMW-14) using a hollow stem auger drill rig. The well was installed using ten (10) feet of four (4)-inch diameter schedule 40 PVC screen with a slot size of 0.020 inches. The well screen was placed from 15 to 25 feet bgs. Four (4)-inch diameter schedule 40 PVC casing was installed above the slotted screen. A sand pack was placed in the annular space from the well bottom to approximately two (2) feet above the well screen and a bentonite seal from the top of the sand pack to approximately three (3) feet bgs. The groundwater monitoring wells were completed with flush-mounted monuments surrounded by a concrete surface seal.

Locations of the monitoring wells are shown in Figure 3 and boring logs with well construction diagrams, installation dates, and other information are included as Attachment B.

3.1.2.3 Monitoring Well Development and Sample Collection Methodology

Select monitoring wells were installed and developed by HWA in 2008, 2009, 2013, and 2016. Kane Environmental installed and developed one well in April of 2020. All well development occurred at least seventy-two (72) hours prior to well sampling activities. By the end of development pumping, each well produced clear water.

Existing groundwater monitoring wells were most recently sampled by Kane Environmental between January 31 and February 5, 2020. Prior to collecting groundwater samples from the monitoring wells, depth to groundwater in each well was measured with a decontaminated electric water interface probe. The probe was cleaned with Alconox® detergent and rinsed with distilled water between sampling activities.

Prior to collecting groundwater samples, the depth to groundwater in each well on the Property was measured with a decontaminated electric water interface probe. Groundwater collected from the well was sampled using a peristaltic pump with new polyethylene tubing. The tubing were lowered to approximately one (1) foot above the bottom of the well screen and the well was purged a low flow rate. Field parameters (pH, temperature, conductivity, total dissolved solids, and dissolved oxygen) were recorded in purged groundwater and allowed to stabilize prior to collection of the groundwater sample. Groundwater was placed into appropriate laboratory-supplied, pre-cleaned and preserved containers for analysis. All sampled groundwater was unfiltered. Groundwater samples were placed into ice-filled coolers and transported under standard chain-of-custody procedures to the to the OnSite Environmental laboratory location in Redmond, Washington.

Groundwater monitoring well sampling nomenclature identified each sample with the well identification number, followed by a “W”.

3.1.3 Field Screening Methods

Following collection, soil columns were inspected visually for any indication of contamination (discoloration and/or odor). Kane Environmental also used a photoionization detector (PID) to screen all soil columns for volatile organic compounds prior to sample collection practices.

3.1.4 Analytical Methods

Based on the contaminants suspected to be present at the Riverside HVOC Site, select soil and groundwater samples were submitted to the analytical laboratories and analyzed for the following:

- PCE and breakdown products analyzed by EPA Method 8260.

3.2 Kane Environmental Site Assessment Results

The following subsections describe the results of Kane Environmental Site Assessment activities at the Riverside HVOC Site, which were undertaken from February through May 2020. Analytical results for soil and groundwater samples collected during Kane Environmental site assessment activities for this RI are summarized in Tables 1 and 2, respectively, along with analytical results from previous investigations. Copies of the laboratory analytical reports for samples collected and submitted for analysis by Kane Environmental are included in Attachment E.

3.2.1 Site Assessment Results

3.2.1.1 Quality Assurance/Quality Control

Internal test methods run by the laboratory to ensure data accuracy and reproducibility include method blanks (MB), laboratory control standards (LCS), sample duplicates, matrix spikes (MS), and matrix spike duplicates (MSD). All analyses were performed in accordance with OnSite Environmental’s in-house Quality Assurance (QA)/Quality Control (QC) Plans. Sample analyses were performed in compliance with EPA analytical methods and Ecology guidelines. All analyses were completed within method-specified holding times, and adhered to accepted QA/QC guidelines. No data qualifiers or data quality issues in the analytical data gathered as part of this Site Assessment have a potential to impact the findings of the Kane Environmental site assessment activities.

Data included in Tables 1 and 2 were subjected to an internal data quality review and validation included with this previous report. All data were found to be acceptable for use. Kane Environmental reviewed this report and concurs with this assessment.

3.2.1.2 Soil Results

HWA soil samples were analyzed for HVOCs during both the 2008 Phase II Environmental Site Assessment (ESA) (HWA, 2008) and the 2009 RI/FS (Parametrix, 2009). While some HVOC compounds were present in the groundwater, none were detected at concentrations greater than the MTCA Method A cleanup levels in soil.

During HWA's 2008 Phase II ESA, PCE and TCE were detected in the soil sample from boring BC-3 at 17.5 feet bgs at 5.9 milligrams per kilogram (mg/kg). PCE was detected in the soil sample from boring R-4 at 8 feet bgs at 9 mg/kg. Both of these samples were collected from within the water-bearing zone. For the 2009 RI/FS, minimal HVOC concentrations were detected in collected soil samples. In RMW-6 (cis) 1,2-dichloroethene (DCE) was detected at 4.5 mg/kg at 15 feet bgs. During the 2009 CDM Phase II ESA (CDM, 2009), three borings (B14 through B16) were advanced just north of the former property. PCE was detected in B15 (0.027 mg/kg) at 10 feet bgs and B16 (0.0041 mg/kg) at 13 feet bgs. These concentrations did not exceed MTCA Method A cleanup levels.

The findings of Kane Environmental soil sampling undertaken in February 2020 obtained from shallow vadose zone and saturated soil samples collected indicate the presence of HVOC contaminants at concentrations above MTCA Method A Soil Cleanup Levels. Results from soil samples collected during this investigation, and selected results of previous soil sampling investigations, are summarized in Table 1 and displayed in Figures 6 and 7. Concentrations of PCE above the MTCA Method A Soil Cleanup Level were found in borings KSB-2, KSB-3, KSB-4, KSB-6, and KSB-7. All of the soil samples with PCE above its' CUL were found at the soil/water interface or in the saturated zone. One concentration of TCE was found above its' CUL at KSB-6 at 15.5 feet bgs, near the soil/water interface. No concentrations of (cis) 1,2-DCE or Vinyl Chloride were found above their respective CULs.

Results from soil samples provide additional information regarding concentrations and extents of HVOCs in saturated and unsaturated zone soils. Contaminants detected in these soil samples were consistent with those identified in previous investigations of the Site.

3.2.1.3 Groundwater Results

HWA Remedial Investigation (HWA, 2017b)

HWA reported that Tetrachloroethene (PCE) and its degradation products such as trichloroethene (TCE), (cis) 1,2-dichloroethene (DCE), and vinyl chloride (VC) were first detected in groundwater at the Riverside HVOC Site in borings R-2, R-3, R-4, R-5, and R-10 during the 2008 Phase II investigation. These borings were completed between 12 and 20 feet bgs. Concentrations of PCE ranged from 3.9 µg/L in R-10 to 320 µg/L in R-4. TCE was detected at several locations with a maximum concentration of 140 µg/L at R-4. This concentration exceeded the MTCA Method A cleanup level of 5 µg/L for TCE.

VC exceeding the MTCA Method A cleanup level of 0.2 µg/L was detected in R-5. Monitoring wells BC-3 and BC-5 were also sampled during the 2008 Phase II investigation. PCE (110 µg/L) and TCE (120 µg/L) were detected in BC-3 at concentrations exceeding their respective MTCA Method A cleanup levels for groundwater. No HVOCs were detected above laboratory reporting limits in the sample collected from BC-5.

During the 2009 RI/FS investigation, eight new monitoring wells were installed to better assess the nature and extent of the HVOC contamination previously identified at the Riverside HVOC Site. The wells were installed at depths ranging from approximately 22 to 42 feet bgs. RMW-10 was completed to approximately 42 feet bgs and was completed in the lower portion of the water-bearing zone. Monitoring wells RMW-7, RMW-8, and RMW-9 were installed to better assess migration of the HVOC plume.

Monitoring well RMW-7 is located southeast of the former property boundary. PCE (50 µg/L) and TCE (120 µg/L) were detected in RMW-7 at concentrations exceeding their respective MTCA Method A cleanup levels in 2009. At this time, VC was also detected in RMW-7 at 22 µg/L, which exceeded the MTCA Method A cleanup level. In RMW-7, (cis) 1,2-DCE was also detected at a concentration of 190 µg/L. RMW-8 is located east of the former property boundary. PCE and TCE were detected in RMW-8, but at concentrations below their MTCA Method A cleanup level; (cis) 1,2-DCE and trans-1,2-DCE were also detected at this location.

No HVOCs were detected in RMW-9, located north of the former property boundary. Only PCE was detected in RMW-10 (0.24 µg/L), but was below the MTCA Method A cleanup level. All other HVOCs were below laboratory reporting limits. Existing well BC-3 was also sampled during the 2009 RI/FS investigation. This well is located roughly 25 feet east of RMW-10. PCE (130 µg/L), TCE (120 µg/L), and (cis) 1,2-DCE (49 µg/L) were detected in the sample collected from BC-3. PCE and TCE exceeded their respective MTCA Method A cleanup levels. The HVOC concentrations at BC-3 and RMW-10 varied significantly possibly indicating that these wells were completed in different water-bearing zones or that the HVOCs detected in BC-3 have not migrated vertically (downward) to reach the screened interval in RMW-10.

During the 2009 CDM investigation, three borings (B14 through B16) were installed just north of the former property boundary. PCE was detected in groundwater from B14 (5.9 µg/L) at concentrations exceeding MTCA Method A cleanup levels. PCE was also detected in B15 (3.9 µg/L) and B16 (0.21 µg/L), but at concentrations that did not exceed MTCA Method A cleanup levels. TCE and (cis) 1,2-DCE were also detected in B14 and B15.

The data up to that time suggested the source of HVOCs in groundwater at the Riverside HVOC Site may have been the Ultra Custom Care Cleaners site, located up-gradient approximately 200 feet north, due to

the identical contaminant suite, absence of any known PCE source at or near the Riverside HVOC Site, and no known use of PCE in automotive or fueling facilities.

Further studies by CDM in 2011 and 2013 (CDM 2011, CDM 2013) included numerous direct push borings and one-time groundwater samples between the Ultra Custom Care Cleaners site and the Riverside HVOC Site, in order to delineate the Ultra Custom Care Cleaners HVOC plume. The CDM 2009 study included borings and groundwater samples on private properties south of the Ultra site. Two of the borings were located down-gradient of a former cleaners, although records do not indicate if it was a dry cleaning facility. The facility was called Bothell Cleaners, located at 10029 Main Street, and operated from the 1940s to the 1960's. CDM's results did not indicate any HVOCs down-gradient of the former Bothell Cleaners location.

The CDM 2011 study included similar sampling along the former SR522 roadway north of the former Riverside property, including several borings and groundwater samples within deep (below groundwater) utility trench backfill. The CDM findings did not show a continuous pattern of HVOC detections in groundwater between the Ultra and the Riverside HVOC Site, nor in the utility trenches. (Recent historical research due diligence completed by Kane Environmental found the historic machine shop located in the area of the HVOC contaminated soil and groundwater).

Groundwater monitoring was resumed in 2014 after installation of the groundwater pump-and-treat system installed at the Riverside HVOC Site to address HVOC impacts to groundwater and surface water. Quarterly sampling of the extraction wells indicates generally decreasing HVOC concentrations with other variations in concentration which may be seasonal. Examination of data from RMW-7 shows a similar pattern, with elevated HVOC concentrations generally in fall or winter, corresponding with a decrease in groundwater levels.

A soil gas investigation was conducted in January and February 2016, which included installation and analysis of 35 passive soil gas samplers at the south part of the Riverside HVOC Site. Results of this study indicated the predominant HVOC detected was PCE, which is the main contaminant of concern at the Riverside HVOC Site. The pattern of PCE detections suggest the highest relative concentrations at the northeast end of the study area, upgradient of the groundwater treatment system and near RMW-12 (HWA, 2016).

A reconnaissance groundwater sampling study targeting deeper groundwater zones was conducted in 2017. Groundwater samples were collected from areas between the known extents of the Ultra and Riverside HVOC plumes to address data gaps regarding the extent of HVOCs in deeper portions of the aquifer. The objectives of this study included delineating the southern end of the Ultra plume, determining if there is any potential upgradient source of the Riverside HVOC plume, and characterizing HVOCs at depths of 25 feet bgs or deeper.

Reconnaissance groundwater sampling was conducted from March 20 to April 5, 2017. Ten borings were advanced to depths ranging between 40 and 45.5 feet bgs utilizing a truck mounted hollow stem auger drill rig. Reconnaissance groundwater samples were collected via temporary wells installed at three separate depth intervals in each boring, a shallow (1-20 feet bgs), an intermediate (18-34 feet bgs), and a deep (35-45 feet bgs) groundwater interval depth. Sampling intervals within these general ranges were selected based on occurrence of groundwater, filed screening indications, and lithology (i.e., preference given to sandier, more permeable layers).

Based on the groundwater analytical results obtained from this investigation, the downgradient, southern end of the HVOC plume from the Ultra Site extends further south and southeast than previously estimated, with low HVOC detections in the intermediate and deeper portions of the aquifer. The PCE concentrations decrease with distance traveled to the southeast, and with depth from the intermediate to the deeper zone. It appears that the Ultra Site HVOC plume is not likely a potential upgradient source of HVOC groundwater impacts to the Riverside Site. The highest HVOC concentrations south of Main Street were detected at RMW-12 and some of the Riverside extraction wells. RMW-12 is located adjacent to the strongest anomaly detected by the soil gas survey conducted in this area, suggesting a possible HVOC source of the Riverside plume in this area.

Kane Environmental Groundwater Sampling (2019 – 2020)

Kane Environmental groundwater sampling confirmed the presence of HVOCs above MTCA Cleanup Levels at RMW-4, RMW-6, RMW-7, RMW-8, RMW-12, and BC-3. Due to the elevated concentrations of vinyl chloride detected in groundwater collected from RMW-7, Kane Environmental installed an additional monitoring well (RMW-14) located upgradient of RMW-7, near the soil boring location RB-31. Cascade Drilling of Woodinville, WA was contracted to install RMW-14 using a hollow stem auger rig in April of 2020. RMW-14 was screened from 15 to 25 feet to mirror the construction of RMW-7.

Results of recent sampling, conducted in September 2019, January-February 2020, and May 2020 are illustrated in Figure 8.

Based on analytical results obtained by HWA (2018b) and Kane Environmental, PCE and breakdown products are present in groundwater throughout the Riverside HVOC Site. This contamination has been identified as a result of releases on the Riverside HVOC site. Reviewing the groundwater analytical data results from Kane Environmental January-February and May 2020 sampling, the highest HVOC groundwater concentrations are found at wells EW-2, RMW-12, and RMW-14. RMW-12 is closest to the former machine shop. Well EW-2 is downgradient from RMW-12. BC-3 is also downgradient from RMW-2. Wells EW-6 and RMW-7 are downgradient from EW-2 and BC-3. Lower HVOC concentrations are found at wells RMW-4 and RMW-8, at the western and eastern extent of the HVOC plume, respectively. RMW-6 appears to be downgradient from RMW-4.

3.3 Evaluation of Interim Action Pump and Treat System

As noted in Section 1.5, a groundwater extraction/treatment system was installed and activated in January of 2013. The system originally consisted of four groundwater extraction wells (EW-1 through EW-4), screened over intervals ranging from 11 to 35 feet bgs. Two additional extraction wells were added in December 2016 (EW-5 and EW-6). Currently only three of the original six extraction wells are functioning (EW-2, EW-3, and EW-6), with location EW-5 in an irreparable state. Based on the results of the 2020 pump testing at the Site (Section 2.1.2), when pumping from EW-6, a maximum drawdown of up to 0.43 feet was observed at RMW-14, located approximately 34 feet away from EW-6. This suggests that when active, the interim action groundwater extraction system has at least 34 feet of horizontal influence. The calculated capture zone radius ranged between 400 feet and 43 feet. This range of capture zone radius values suggest that the extraction wells installed on the site, which are spaced by 40 feet from each other, are appropriately spaced to capture contamination in groundwater.

Based on the long-term trends in groundwater analytical data, the system does not appear to be effectively remediating soil and groundwater contamination at the Site. However, the system does appear to provide hydraulic control over contaminant migration towards the Sammamish River. Kane Environmental recommends repairing the two well locations (EW-1 and EW-4) which are currently not functioning but appear to be repairable, and continuing the interim action pump and treat up until the time when a more effective remedial strategy can be implemented.

4.0 NATURE AND EXTENT OF CONTAMINATION

Based on the results of the site assessment activities completed by Kane Environmental, the nature and extent of all contamination at the Riverside HVOC Site has been fully characterized. The results of this characterization are discussed in greater detail in the subsections below.

4.1 Chemicals of Concern

As stated in Section 3.0, the chemicals of concern (COCs) in Riverside HVOC Site soil and groundwater are:

- Tetrachloroethene (PCE),
- Trichloroethene (TCE),
- (cis) 1,2-Dichloroethene (DCE), and
- Vinyl Chloride (VC).

4.2 Impacts to Soil

In order to assess impacts to the Site and determine their extents requiring remedial action, sample analytical results were evaluated with respect to the following cleanup criteria

- MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses (MTCA Table 740-1);

HVOC COCs (which include PCE, TCE, (cis) 1,2-DCE, and/or VC) are present in soil throughout the Riverside HVOC Site. Based on results obtained by HWA (2018b) and Kane Environmental (2020), PCE is present in vadose zone soils (12 feet bgs) at concentrations exceeding the MTCA Method A Cleanup Level. Soil contamination with PCE extends to depths ranging between 30 and 21.5 feet bgs and is located northern and south-central portions of the Riverside HVOC Site. The extent of soil contamination on the Site is depicted in Figure 6.

4.3 Impacts to Groundwater

To assess impacts to the Site and determine the extent of impacts requiring remedial action, groundwater sample analytical results were evaluated with respect to the following criteria:

- MTCA Surface Water Human Health – Fresh Water WAC 173-201A
- MTCA Method B for (cis) 1,2-DCE

Of the HVOC COCs identified in Section 4.1 above, PCE is present in groundwater throughout the Riverside HVOC Site. PCE was documented at concentrations exceeding the MTCA Surface Water

Cleanup Levels in shallow groundwater (<15 feet bgs). TCE and (cis) 1,2-DCE are also present in shallow groundwater in select locations on the Riverside HVOC Site. The extent of groundwater contamination with HVOC COCs at concentrations exceeding MTCA Surface Water Cleanup Levels is shown in Figure 8.

4.4 Potential Impacts to Soil Vapor and Indoor Air Quality

Per MTCA, RIs must include evaluation of vapor intrusion (VI) impacts to indoor air quality when volatile hazardous substances are present in the subsurface. The Ecology *Guidance for Evaluating Soil Vapor Intrusion in Washington State* (Ecology, 2009, revised 2018) provides a process for evaluating the VI pathway during an RI/FS (WAC 173-340-350) and subsurface media cleanup levels protective of indoor air quality. This process applies to buildings currently on a site, or future buildings, i.e., cleanup standards and actions must be protective of current and potential future site uses.

The guidance employs a tiered approach, starting with a preliminary assessment, and moving to Tier I and II assessments, if warranted. Initial screening steps in the preliminary assessment include the consideration of the following questions:

- Are chemicals of sufficient volatility and toxicity known or reasonably suspected to be present?
- Are occupied buildings present (or could they be constructed in the future) above or near site contamination?

For the Riverside HVOC Site, soil vapor intrusion is not a concern because the current and future use of the Site is as a city park. In particular, the vapor intrusion screening level for TCE is 1.55 ug/L in groundwater, and the February 2020 groundwater analytical result at RMW-8, which is in proximity to a commercial building at 180th St. and Hwy 522, was 0.4 ug/L.

5.0 PRELIMINARY CONCEPTUAL SITE MODEL

5.1 Conceptual Site Model

The Conceptual Site Model (CSM) for the Site identifies the primary contaminant sources, release mechanisms, transport mechanisms, secondary contaminant sources, potential pathways, and exposure routes. Existing chemical data, site characterization data, and identification of potential human and ecological receptors were used to develop the model, presented in Figures 9-10. The CSM is discussed further below.

5.1.1 Primary Sources of Contamination and Release Mechanisms

The primary source of HVOCs contamination on the Riverside HVOC Site is releases of chlorinated cleaning solvent from a historic machine shop. This release likely occurred via spills, leaks, and/or improper disposal of solvent, which impacted soil and groundwater on the Site. This contamination migrated in groundwater from the area of the release. The HVOC COCs on the Riverside HVOC Site include PCE, TCE, (cis) 1,2-DCE, and vinyl chloride.

5.1.2 Secondary Sources and Release Mechanisms

When a released contaminant is retained in an environmental medium, such as soil or groundwater, the medium functions as a secondary source for further chemical release and distribution. Secondary release mechanisms for COCs present at the Site include leaching from near-surface contaminated soils to deep soils and to groundwater. Following leaching, further spread of COCs at the Site occurred by mobilization of contaminated groundwater, as well as volatilization from contaminated soil and groundwater to soil vapor.

The degree of leaching and degree of mobilization is controlled by the physical properties of the aquifer (including the groundwater gradient and hydraulic conductivity), chemical properties of the groundwater, properties of the soil, and the geochemical interactions (such as solubility) between the groundwater and the various contaminants. Volatilization is controlled by the concentration and chemical properties of the contaminant and the physical properties of the soil and groundwater.

5.1.3 Pathways and Potential Receptors

An exposure pathway is a mechanism by which receptors are assumed to contact Contaminants of Potential Concern (COPCs). The U.S. Environmental Protection Agency describes a complete exposure pathway in terms of four components:

- A source and mechanism of chemical release (e.g., a release of COPCs to the subsurface)
- A retention or transport medium (e.g., groundwater)

- A receptor at a point of potential exposure to a contaminated medium (e.g., commercial worker in an on-site building located above the groundwater plume)
- An exposure route at the exposure point (e.g., inhalation of vapors)

If any of these components is not present, then a potential exposure pathway is considered incomplete and is not evaluated further in a risk assessment. If all four (4) components are present, a pathway is considered complete.

Potential exposure routes for human and ecological receptors may include the following:

- **Dermal Absorption and Ingestion:** Exposure to chemicals in soil, groundwater, and surface water may occur through direct contact with these media. For human receptors, this type of exposure may lead to dermal absorption of chemicals and ingestion via incidental ingestion of small amounts of contaminated media. Ingestion of contaminated groundwater may also occur if groundwater is used as a drinking water supply, but groundwater is not used for drinking water at the Riverside HVOC Site. Construction workers, recreational users, as well as surface and aquatic-dwelling ecological receptors (plants and animals) at the Site may be susceptible to these exposure pathways. Burrowing or in-ground-dwelling mammals and invertebrates (soil biota) may be exposed directly to the soil and groundwater contaminants by dermal absorption and ingestion.
- **Inhalation:** In areas where unpaved or uncovered surficial soil exists, particulates from soil can be transported by air and inhaled by all surface dwelling human and ecological receptors. Volatile chemicals may move from contaminated soil and groundwater into soil vapor, which utility and construction workers may be exposed to during groundbreaking activities. Soil biota may also be exposed to particulates and soil vapor in underground stagnant air.

When considering potential exposure pathways at the Site, we consider both its current state (vacant, paved with concrete, asphalt, and gravel) and its planned future state. The most likely future redevelopment scenario is continued use as a city park. In its current state, the only likely human receptors are utility workers that excavate soil at the Site, and recreational users who utilize the adjacent Sammamish River. The absence of structures eliminates risks for exposure to soil vapor via indoor air. Groundwater at the Site and vicinity is not used for drinking water.

According to WAC 173-340-720 (2), groundwater is defined as potable unless several conditions can be proven, including that the groundwater is not a current source of drinking water and is not a potential source of drinking water. WAC 173-340-720 (2) (d) notes that “even if groundwater is classified as a potential future source of drinking water under (b) of this subsection, the department recognizes that there may be sites where there is an extremely low probability that the groundwater will be used for that

purpose because of the site's proximity to surface water that is not suitable as a domestic water supply." The Site is in fact immediately adjacent to the Sammamish River, and groundwater on the Site has a "known or projected" entry into the surface water (Section 2.1.2). According to the King County Stream Report for the Sammamish River (Section 10), "The Sammamish River is now categorized as "Core Summer Salmonid Habitat" for aquatic life use and "Extraordinary Contact" for recreational use". Furthermore, according to the King County Stream Report and the Washington State Water Quality Assessment (Section 10), the Sammamish River is currently on the 303(d) list for several Category 5 violations of Clean Water Act standards, including fecal coliform. Due to the Site's proximity and hydrogeologic connection to the Sammamish River, groundwater on the Site is not viewed as a current or potentially viable source as potable water.

Potentially complete exposure pathways for current and future receptors established for the Site include the following (shown in a schematic diagram in Figures 9-10):

- **Current/future Recreational User**
    - Incidental surface water ingestion;
    - Dermal contact with surface water;
    - Ingestion of aquatic biota.
- **Current/future Construction/Utility Worker:**
    - Incidental soil ingestion;
    - Dermal contact with soil, including in a trench or excavation;
    - Inhalation of particulates and/or vapors from the groundwater and subsurface soil, such as may occur in a trench or excavation.
- **Current/Future Terrestrial Biota:**
    - Incidental soil, groundwater, and surface water ingestion;
    - Inhalation of particulates and/or vapor from the soil in a burrow;
    - Dermal contact with soil and groundwater in a burrow;
    - Direct contact with surface water;
    - Ingestion of aquatic biota.
- **Current/Future Aquatic Biota:**
    - Dermal contact with surface water;
    - Direct intake of surface water;

- Ingestion of aquatic biota.

5.2 Assessment of Risk

5.2.1 Human Health Baseline Risk Assessment

Exposure to identified COCs could occur via exposure pathways previously discussed. Based on the nature and the extent of contamination, the likely greatest potential risk to human receptors is dermal contact of soil and/or groundwater during soil-disturbing activities.

These risks can be mitigated under a cleanup action that either removes the contaminants to levels that are protective to receptors or that places institutional or engineering controls to prevent exposure. Risk mitigation is a primary factor used in evaluating cleanup action alternatives under the Feasibility Study.

5.2.1.1 Exposure Pathways

Soil remediation and source control are expected to decrease the potential exposure to contaminated soil and groundwater. Personnel performing remediation activities are at an increased risk of contaminated soil and groundwater exposure. All appropriate regulations and guidelines should be followed during cleanup to minimize the risks associated with these exposures.

Reported concentrations in groundwater collected on the Riverside HVOC Site exceeded various MTCA Surface Water Cleanup Levels. A review of Ecology's online database of well logs indicated no drinking water wells located potentially cross-gradient or down-gradient within approximately one-half mile of the Site, therefore, the ingestion of contaminated groundwater as drinking water is not currently considered a complete pathway. Groundwater cleanup regulations require that groundwater cleanup standards be protective of the potential future use of groundwater as a drinking water source. However, as noted in Section 5.1.3, groundwater on the Site is not a viable source of drinking water due to the proximity to the Sammamish River. Therefore, the drinking water pathway is not considered a potentially complete future exposure pathway (WAC 173-3470-720(1)(a)).

5.2.2 Ecological Baseline Risk Assessment

Based on the nature and extent of contamination, the likely greatest potential risk to ecological receptors include incidental soil ingestion and dermal contact, as well as ingestion and direct contact with surface water. Based on the exposure pathways analysis, the land use on the Site and the surrounding area make wildlife exposure possible, so a Simplified TEE was completed for the Riverside HVOC Site.

5.2.2.1 Ecological Risk

Since a release of a hazardous substance was discovered in soil, the MTCA Cleanup Regulations under WAC 173-340-7490 require that the Riverside HVOC Site be screened to determine if a Terrestrial

Ecological Evaluation (TEE) needs to be completed, since a release of hazardous substances to soil may pose a threat to the terrestrial environment. The regulation requires that one of the following actions be taken:

- Document an exclusion (WAC 173-340-7491);
- Conduct a Simplified TEE (WAC 173-340-7492); or
- Conduct a Site-Specific TEE (WAC 173-340-7493).

A Simplified TEE was completed for the Riverside HVOC Site. The Simplified TEE form is included as Attachment D. No further consideration of ecological impacts is required under MTCA.

5.3 Applicable or Relevant and Appropriate Requirements

Cleanup actions under MTCA (WAC 173-340-710) require the identification of all Applicable or Relevant and Appropriate Requirements (ARARs). These requirements are defined as:

> "Applicable" requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a site.
>
> "Relevant and appropriate" requirements means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a site, address problems or situations sufficiently similar to those encountered at the site that their use is well suited to the particular site.

Potential ARARs were identified for each medium of potential concern. The primary ARARs relating to the cleanup action include:

- MTCA, Chapter 70.105D of the Revised Code of Washington (RCW);
- Cleanup Regulations, WAC 173-340;
- Dangerous Waste Regulations, WAC 173-303;
- State Environmental Policy Act (SEPA) Checklist [RCW 43.21C.030(2)(a) and (2)(b)];
- Safe Drinking Water regulations, 40 CFR 141;
- Department of Health Standards for Public Water Supplies, WAC 246-290; and,

- Washington Underground Injection Control Program, WAC 173-218.

These primary ARARs are anticipated to be the most applicable to the cleanup action because they provide the framework for the cleanup action, including applicable and relevant regulatory guidelines, cleanup standards, waste disposal criteria, references for additional ARARs, and standards for documentation of the cleanup action.

Other applicable ARARs and guidance documents for cleanup of the Site may include:

- Washington Clean Air Act and Implementing Regulations, WAC 173-400; WAC 173-460; WAC 173-490;
- Occupational Safety and Health Act, Part 1910 of Title 29 of the Code of Federal Regulations;
- Safety Standards for Construction Work, WAC 296-155;
- Minimum Functional Standards for Solid Waste Handling, WAC 173-304;
- Solid Waste Handling Standards, WAC 173-350
- Accreditation of Environmental Laboratories, WAC 173-50.
- Water Well Construction Act Regulations, WAC 173-160

5.3.1 Cleanup Criteria

Based on the findings detailed in the Remedial Investigation (Section 2.0), the selected cleanup levels for impacted media are Method A Soil and Groundwater Cleanup Levels. The specific cleanup levels for each COC are discussed below.

5.3.1.1 Soil Cleanup Levels

The selected cleanup levels for the identified Contaminants of Concern in soil are described below.

- MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses and MTCA Method B (WAC 173-340-900, Table 740-1)
    - o PCE 0.05 mg/kg
    - o TCE 0.03 mg/kg
    - o (cis) 1,2-DCE 160 mg/kg (Method B)
    - o VC 0.67 mg/kg (Method B)

5.3.1.2 Groundwater Cleanup Levels

- MTCA Groundwater Cleanup Levels for Surface Water – Human Health Fresh Water (WAC 173-201A)
    - o PCE 4.9 ug/L
    - o TCE 0.38 ug/L
    - o (cis) 1,2-DCE 16 ug/L (Method B, no surface water cleanup level)
    - o VC 0.02 ug/L

Due to the proximity of the Site to the Sammamish River, the groundwater cleanup levels selected for Site COCs are protective of surface water, where applicable. The cleanup level selected for PCE is from the Water Quality Standards for Surface Waters in the State of Washington (WAC 173-201A) for the protection of human health (0.49 ug/L). The cleanup level selected for TCE is from the Water Quality Standards for Surface Waters in the State of Washington (WAC 173-201A) for protection of human health (0.38 ug/L). The cleanup level for (cis) 1,2-DCE was selected using the MTCA Method B groundwater cleanup level (16 ug/L) as there are no applicable surface water cleanup levels. The cleanup level for VC was selected using the Water Quality Standards for Surface Waters in the State of Washington (WAC 173-201A) for the protection of human health (0.02 ug/L).

5.3.2 Groundwater Screening Levels for Vapor Intrusion

Ecology has developed groundwater screening levels for assessing the potential for volatilization of COCs from groundwater to soil vapor to pose a threat of vapor intrusion into existing or future structures on a Site. Screening levels are provided in the *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action,* Review Draft, Revised February 2016 and April 2018. However, since the Riverside HVOC Site is a City of Bothell park, no structures will be constructed on the Riverside HVOC Site.

5.3.3 Point of Compliance

The points of compliance are the locations at which cleanup levels for the Contaminants of Concern (COCs) must be attained to meet the requirements of MTCA and support issuance of an NFA determination for the Site. In accordance with WAC 173-340-740(6), the point of compliance for soil is all vadose zone soil within the boundaries of the Site. In accordance with WAC 173-340-720(8), the point of compliance for groundwater is all groundwater within the boundaries of the Site. The point of compliance for saturated soils is all groundwater within the boundaries of the site.

6.0 FEASIBILITY STUDY (FS)

6.1 Screening of Remedial Technologies and Alternatives

This Feasibility Study (FS) is completed following the MTCA regulation WAC 173-340-350(8). The purpose of a Feasibility Study is to develop and evaluate cleanup action alternatives to enable a cleanup action to be selected for a site.

Under MTCA, the development of a cleanup plan requires that technologies capable of meeting cleanup objectives are screened and then assembled into a list of remedial alternatives. These alternatives are then evaluated, compared, and preferred alternatives identified.

This section includes review of available cleanup technologies, initial screening of the technologies, and selection of technologies to be further evaluated. The initial screening of preliminary remedial alternatives is based on technical feasibility, i.e., available site data and knowledge of design parameters for potential treatment technologies. The selected cleanup technologies are then screened for overall effectiveness, implementability, and relative cost to identify a short-list of potentially applicable technologies, that are then assembled into cleanup alternatives.

The initial technologies screened for the Site include:

- Source Soil Excavation/Bioremediation
- Bioremediation with Groundwater Recirculation
- Air Sparging/Soil Vapor Extraction
- Excavation Monitored Natural Attenuation

Section 6.2 describes each of the technologies evaluated during screening, including information on the technology effectiveness, implementability, and cost. Technologies retained to be carried forward in development of remedial alternatives are summarized in Section 7.

MTCA regulations place a preference on the use of permanent cleanup methods such as removal, disposal, or treatment relative to those that manage contaminants in place using institutional controls, natural attenuation and/or containment. The discussion of the benefits and disadvantages of each candidate technology is described but not weighted in this section. The MTCA preferences for selection of remedy are reflected in regulatory evaluation criteria which will be described and applied in the Draft Cleanup Action Plan.

6.2 Remediation Alternatives

Remediation alternatives are developed from treatment technologies, to meet the goals of the cleanup in accordance with MTCA requirements and guidelines. The process of developing remediation alternatives begins with a broad overview of all types of treatment technologies. A comprehensive list of technologies relevant to the Site was developed using professional knowledge and judgment, experience, and screening information prepared by EPA for use across the United States (USEPA, 2007).

The list of treatment technologies was given a cursory screening to eliminate any technologies that do not apply to the observed contamination and/or Site-specific conditions. The following applicable treatment technologies were considered for use in development of remediation alternatives:

- Excavation and Off-site Disposal
- Bioremediation (EOS©)
- Remediation with Carbstrate© with Groundwater Recirculation
- Soil Vapor Extraction
- Soil Excavation
- Monitored Natural Attenuation (MNA)

These six treatment technologies have been combined and incorporated into the four remediation alternatives which are considered for evaluation in this FS. For all four remediation alternatives, potential vapor intrusion, associated with future development, is not a concern because the Riverside HVOC Site is a City of Bothell park and buildings will not be constructed on the Site.

Remediation alternatives are presented below.

6.2.1 Alternative 1 - Limited Source Soil Excavation and EOS© Bioremediation

Excavation and off-site disposal of contaminated soils is a common remedial approach for source removal. Excavation would remove the source of contamination and is typically followed by various off-site soil treatment and/or disposal alternatives. The proposed excavation area for Alternative 1, which is the contaminant source area, is shown in Figure 11. Prior to excavation, a geotechnical soldier pile wall, or similar, will be installed on the Riverside HVOC Site along the sidewalk of Highway 522 to provide structural support on the northern side of the excavation. Excavation to the east, south and west can be completed using a 1:1 excavation slope. For the source area soil removal meant to achieve compliance based on exposure via direct contact, this excavation depth is consistent with WAC 173-340-740 (6)(d).

Clean, compacted imported fill material will replace the excavated contaminated soil. PCE and TCE are listed dangerous wastes under the state Dangerous Waste regulations (WAC 173-303). Soils with any detectable concentrations of these listed wastes require special handling and disposal when excavated. If PCE and TCE concentrations are less than RCRA land disposal restrictions, and less than Method B direct contact levels, Ecology may issue a "Contained In" determination, allowing disposal of the soils at a Subtitle D landfill. Soils with higher concentrations will designate as Dangerous Wastes and must be sent to a Subtitle C facility for treatment, stabilization, and/or disposal.

Following source soil removal activity, an array of groundwater injection wells at varying depths from 10 feet to 30 feet bgs, will be installed on the Riverside HVOC Site. Actual locations and injection well depths will be determined in the Cleanup Action Plan, if this alternative is selected as the Preferred Alternative. The injection network would be designed to address the entire plume if this alternative was selected.

An emulsified oil product, EOS©, which is an emulsion of lactate, soybean oil and nutrients that stimulates the growth of anaerobic bacteria to treat the groundwater plume through reductive dechlorination, will be injected into the groundwater. EOS© will be injected into wells at the source area and in downgradient wells. During bacterial respiration, electrons from the EOS® are transferred to the chlorinated compounds via the bacteria, releasing chlorine ions and eventually degrading to ethane and hydrogen gas. The application of EOS® will result in concentrations of vinyl chloride increasing in the groundwater at the Site.

Emulsified oil essentially behaves like a dilute milk solution during injection, allowing the normally immiscible oil to be transported with water. Implementation is possible through wells and coverage can be very complete.

The emulsion "breaks" due to bacterial action, and the oil droplets adhere to the soil particles, leaving a barrier of electron donor in place. The oil droplets then dissolve slowly into groundwater at a rate that is compatible with maintaining anaerobic conditions and supplying electrons to the microorganisms. The duration of release will in part be dependent on the initial oil concentration injected. Emulsified oil has been used at hundreds of locations and donor release has been observed to last for many years after injection (AFCEE 2007).

The emulsified oil will initially drift down gradient with groundwater flow, creating a fairly long barrier or treatment zone (in the direction of flow).

Injection protocol for each location will include the following elements:

- Inject small volume of anaerobic water (50 -100 gallons) with oil
- Inject bioaugmentation culture (approximately 20 liters/well)

- Inject emulsified oil
- Short water flush, no donor solution

The first step must be repeated each day when there will be an injection the following day. The final two steps will be repeated each day until the desired volume is achieved. The water flush after each injection is to minimize fouling of the well screen, sand pack and nearby formation.

Injection quantities will be determined after initial injection and tracer testing to measure and estimate injection flow rates, pressures, reagent travel times and distances. This testing will occur in several selected wells.

The tracer testing will be conducted by monitoring groundwater field parameters (specific conductivity, ORP, DO, etc.) in selected monitoring wells nearest to selected injection wells, using either 1) datalogging probes/pressure transducers, or 2) manually collected field measurements at regular (e.g., semi daily) intervals during injection, and for a day or two after if necessary.

A higher percentage of emulsified oil will be injected into the source area wells. This is due to the higher contaminant concentrations that will require longer treatment, and because it is the most up gradient area, and will receive a continuous influx of electron acceptors (i.e., oxygen). Electron acceptors will decrease along the flow path after the injections.

The in-situ reductive dechlorination process results in removal of chlorine atoms within the solvent molecules one at a time, i.e., each PCE molecule is reduced to TCE, which is then reduced (cis) 1,2-DCE, which is reduced VC, which is reduced to ethene. Removal of chlorine atoms in PCE and its breakdown products may occur concurrently (although not necessarily at the same rates) such that short term increases in concentrations of TCE, 1,2-DCE and VC are likely (and typically observed), until the process is completed. The estimated timeframe for Alternative 1 is 10 years.

The advantages of Alternative 1 - Source Soil Excavation and Bioremediation include:

- Contaminants to 15 feet bgs are permanently removed from the source area through excavation
- Less site disruption than mass excavation methods throughout the Site
- Contaminants can break down into harmless by-products using emulsified oil

The disadvantages of Alternative 1 - Source Soil Excavation and Bioremediation include:

- Proximity to Highway 522 and significant underground utilities beneath sidewalk and south side of Highway 522

- Off-site transport for treatment or disposal of HVOC contaminated soils characterized as both dangerous and hazardous waste
- Requires importing and compacting clean import backfill to replace removed soils
- Additional soil source remains at depth, which would continue to release HVOCs into groundwater
- Disruptive activity with significant noise and potential dust
- Injection of materials may cause plugging of wells and/or the aquifer by chemical precipitation or biofouling
- PCE breaks down via reductive dechlorination into TCE, DCE, and vinyl chloride. Complete breakdown into ethenes throughout the plume is likely not achievable throughout the Site.

6.2.2 Alternative 2 - Bioremediation with Carbstrate© and Groundwater Recirculation

This alternative involves the pumping of groundwater from existing and new extraction wells at the Site, treatment of this water with a bioremediation product, and reinjection of this treated groundwater into the Site subsurface via injection wells. Proposed well locations associated with this alternative are shown in Figure 12.

Currently, an array of six (6) 4-inch diameter groundwater extraction wells, are currently present at the Riverside HVOC Site. Several of these wells will be utilized to continue extraction while at least two new extraction wells will be installed on the site. These extraction wells will provide hydraulic control of the contaminant plume.

Extracted groundwater pumped from the extraction wells will be amended with a bioremediation product, Carbstrate©, or similar bioremediation product, a nutrient-amended electron donor substrate, pH adjusted if necessary, and then re-injected into the aquifer through vertical injection wells, to stimulate anaerobic bioremediation of PCE and its' breakdown products.

Injection wells would need to be placed at different depths, and over a large area to cover the entire plume. Injection wells would be installed with a rotosonic drill rig to reduce smearing of fine grained material if possible. This will reduce the chance of the injection wells being biofouled. Two of the existing extraction wells and one existing monitoring well will be converted to injection wells.

Weekly visits to the Site to monitor flow rates, pump operation, and chemical mixing will be required. The estimated restoration timeframe for Alternative 2 is 5 to 6 years.

The advantages of Alternative 2 - Bioremediation with Carbstrate© and Groundwater Recirculation include:

- Rapid time frame compared to other in situ methods
- Less site disruption than mass excavation methods
- Contaminants break down into harmless by-products
- Contaminants are removed from the source area
- Maintains groundwater balance and pre-existing gradient
- Eliminates need for other discharge options (e.g., storm drain, sanitary sewer)
- The main advantages of groundwater recirculation are increased flushing through contaminated soils, due to higher groundwater velocities, more mixing, dispersion, and mass transfer, all of which promote higher contaminant degradation rates.
- Higher efficacy than in situ methods solely relying on injections, due to:
  i) electron donor delivery throughout the plume is more uniform and can be addressed with fewer wells than a passive configuration in which electron donors such as edible oils are directly injected into the aquifer at many locations;
  ii) Active pumping will induce higher hydraulic gradients, resulting in increased groundwater velocities and improved mixing and mass transfer, which will increase the degradation rates in comparison to ambient conditions;
  iii) Monitoring is facilitated because the impact of heterogeneity is reduced. Monitoring at the extraction wells can be used to monitor system performance;
  iv) Transport and dispersion of added microorganisms throughout the treatment area is enhanced;
  v) Biomass produced within the aquitard from lactate metabolism will serve as an electron donor as it decays potentially allowing the interval between injections to be increased over time;
  vi) Excessive production of sulfides and methane gas can be minimized by optimizing the amount of electron donor added to degrade the TCE;
  vii) Plume containment, preventing further migration of original plume or possible daughter product plumes.

The disadvantages of Alternative 2 - Bioremediation with Carbstrate© and Groundwater Recirculation

- A need for active groundwater extraction/injection system which requires ongoing maintenance;
- Aboveground equipment including groundwater extraction wells with pumps, underground piping from the extraction wells to a fenced enclosure with storage/mixing tanks, underground piping

from the tanks to injection wells, tankage for injection chemicals, electric and pump controls, meters, freeze protection/heaters, alarms/auto dialers, sampling ports, could result in unexpected Operation and Maintenance impacts

- Biofouling and clogging can be common problems with these type of systems that require frequent attention.
- Injection of materials may cause plugging of wells and/or the aquifer by chemical precipitation or biofouling
- PCE breaks down via reductive dechlorination into TCE, DCE, and vinyl chloride. Complete breakdown into harmless ethenes may not be achievable

6.2.3 Alternative 3 - Air Sparging and Soil Vapor Extraction (AS/SVE)

Air sparging involves introducing compressed air into the groundwater. The introduction of air below the groundwater table enhances volatilization of contaminants dissolved in groundwater and sorbed onto saturated soils. Volatilized contaminants are then recovered via vapor extraction of the overlying vadose zone. Low molecular weight, volatile compounds such as PCE, TCE, DCE and vinyl chloride are generally amenable to air sparging. Air sparging would be combined with soil vapor extraction to remove the contaminants. Soil vapor extraction is the process of removing contaminants from the soil in the vapor phase, usually by applying a vacuum to the subsurface. This is done through the use of a series of wells which are placed throughout the area of contamination and screened above the groundwater table. The wells are connected to an air blower, which draws a vacuum. With the reduced pressure, air begins to move through the subsurface drawing out the contaminant vapors. The withdrawn air will likely require treatment, depending on contaminant concentrations. Common processes for remediating this air include vapor phase carbon adsorption, catalytic converters, or thermal converters (oxidizers).

The vapors are run through a remediation system, and then discharged into the atmosphere under state and local permit requirements. This action is enhanced when the surface is covered by a cap of asphalt and/or concrete, minimizing the amount of ambient air drawn into the system.

Proposed locations of soil vapor extraction and air sparging wells associated with this alternative are shown in Figure 13. Well spacings for an AS/SVE system are typically 15-25 feet for the subsurface conditions found at the Site. The systems are often pulsed (turned on and off) to minimize channeling of air and encourage mixing of groundwater in the subsurface. Although permeable soils exist at the Site, the presence of silt layers suggests a heterogeneous subsurface environment, which may not be amenable to AS/SVE. Furthermore, the depth of contamination to thirty (30) feet bgs is also a potential drawback since contamination at that depth may not reach the vadose (unsaturated) zone for SVE removal.

Vapor extraction systems are most effective remediating contaminants having fairly high vapor pressures. Low molecular weight, volatile compounds such as PCE, TCE, DCE and vinyl chloride are generally amenable to vapor extraction.

Increased soil permeability facilitates vapor extraction. As the average permeability of the contaminated soil decreases the cost of vapor extraction system increases due to the need for more wells and larger blowers. Proper spacing of injection and extraction wells requires some preliminary site work to determine the soil air permeability. The estimated timeframe for Alternative 3 is 10 years.

Advantages of Alternative 3 - Air Sparging and Soil Vapor Extraction include:

- Lower capital costs
- Less site disruption than mass excavation methods
- Minimal site disruption
- Because the process involves the continuous flow of air through the soil, it often promotes in situ biodegradation of low volatility organic compounds

Disadvantages of Alternative 3 - Air Sparging and Soil Vapor Extraction include:

- Requires electricity and some land area for the wells and treatment system components.
- Requires significant pilot testing to establish design parameters (i.e., pressure, well spacings, SVE vacuum, discharge gas concentrations)
- Low injection radius of influence both horizontally and vertically
- Inability to access lower permeability zones in mixed (heterogeneous) subsurface conditions, i.e., air may preferentially flow through more permeable channels
- Potential upwelling of groundwater and modification of existing gradients
- Performance monitoring may be biased, as air may preferentially flow into the monitoring well filter packs, potentially biasing the results
- Long restoration timeframe
- Site would need to be capped to maintain subsurface negative pressures
- Contaminants are not destroyed if no off-gas treatment is used
- Contaminated off-gas may require treatment
- Operation and maintenance requirements, long-term on-site equipment required
- Treatment times may be slower than other more aggressive remediation methods

- Inability to access lower permeability zones in mixed (heterogeneous) subsurface
- Depth of groundwater contamination may not be amenable to treatment

6.2.4 Alternative 4 - Excavation and Monitored Natural Attenuation (MNA)

Excavation would remove the source of contamination and is typically followed by various off-site treatment or disposal alternatives. The proposed excavation areas are the contaminant source areas in the northern and southern portions of the Site down to its furthest vertical extent of 30 feet near RMW-12 and 25 feet near RMW-14 (see Figure 14). Prior to excavation, a geotechnical soldier pile wall, or similar, will be installed on the on the entire excavation boundary due to the depth of excavation.

Soil will be excavated up to thirty (30) feet bgs. Clean, compacted imported fill material will replace the excavated contaminated soil. Following source soil removal activity, monitored natural attenuation (MNA) would be implemented. MNA is the practice of allowing natural (physical, chemical and biological) processes in soil and groundwater to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in those media. MNA requires first establishing that conditions are favorable for those processes, and monitoring to ensure they are occurring.

MNA processes include biodegradation, dispersion, dilution, adsorption, volatilization, and chemical or biological stabilization or destruction of contaminants. MNA is a viable approach where dissolved contaminant concentrations in groundwater are low, potential receptors are not in danger of being affected, and natural attenuation of contaminants is known or likely.

Under MTCA (WAC 173-340-370) natural attenuation is considered appropriate at sites where:

- Source control has been conducted to the maximum extent practicable
- The remaining contaminants do not pose an unacceptable threat to human health or the environment
- There is evidence that natural processes are occurring at a reasonable rate
- Monitoring is conducted to ensure that the attenuation is occurring and human health and the environment are protected

HVOCs are generally suited to monitored natural attenuation, as they are amenable to biodegradation and volatilization under a wide range of subsurface conditions. However, due to the numerous previous remedial activities conducted at the Site, and the responding fluctuation of HVOC concentrations, the rate of MNA has been inconclusive. The estimated timeframe for Alternative 4 is 10 or more years.

Advantages of Alternative 4 - Excavation to Depth and Monitored Natural Attenuation include:

- Low impact to site (for MNA)
- Low cost (for MNA)
- Permanent source removal (by excavation)

Disadvantages of Alternative 4 - Excavation to Depth of Glacial Till and Monitored Natural Attenuation include:

- High Cost (excavation and disposal)
- Extensive engineering requirements due to proximity to Highway 522
- Long restoration time frame / ongoing monitoring particularly for HVOCs

Monitored natural attenuation is not identified as a potentially applicable primary cleanup method, but may be used after some period of time after successful source removal, if contaminant levels decrease to acceptable levels.

6.2.5 Alternative 5 - Bioremediation with Carbstrate© and Groundwater Recirculation Combined with Soil Vapor Extraction

This alternative combines elements of Alternative 2 and Alternative 3. Soil vapor extraction (SVE) is the process of removing contaminants from the soil in the vapor phase, by applying a vacuum to the subsurface. This is done through the use of a series of wells which are placed throughout the area of contamination and screened above the groundwater table. The SVE system will specifically target the vadose zone soil contamination in the northern portion of the Site.

The wells are connected to an air blower, which draws a vacuum. With the reduced pressure, air begins to move through the subsurface drawing out the contaminant vapors. The withdrawn air will likely require treatment, depending on contaminant concentrations. Common processes for remediating this air include vapor phase carbon adsorption, catalytic converters, or thermal converters (oxidizers). The vapors are run through a remediation system, and then discharged into the atmosphere under state and local permit requirements. This action is enhanced when the surface is covered by a cap of asphalt and/or concrete, minimizing the amount of ambient air drawn into the system. Proposed locations of soil vapor extraction wells associated with this alternative are shown in Figure 15. Well spacings for an SVE system are typically 15-25 feet for the subsurface conditions found at the Site

Groundwater treatment will be accomplished through bioremediation with Carbstrate© or similar bioremediation product, and groundwater recirculation. This alternative involves the pumping of groundwater from existing and new extraction wells at the Site, treatment of this water with a bioremediation product, and reinjection of this treated groundwater into the Site subsurface via injection wells. This method will also serve as the treatment of saturated soils which extend down to a depth of

approximately 30 feet bgs. Proposed well locations associated with this alternative are shown in Figure 15.

Extracted groundwater pumped from the extraction wells will be amended with a bioremediation product, Carbstrate©, a nutrient-amended electron donor substrate, pH adjusted if necessary, and then re-injected into the aquifer through vertical injection wells, to stimulate anaerobic bioremediation of PCE and its' breakdown products. Quantification of *Dehalococcoides*, the only known bacterial group capable of complete reductive dechlorination of PCE to ethene, is an important component of assessment, remedy selection, and performance monitoring at sites impacted by chlorinated solvents. Kane Environmental proposes to sample up to 5 wells using the QuantArray®-Chlor prepared by Microbial Insights of Knoxville, Tennessee. Quantifying *Dehalococcoides* will determine the amount of Carbstrate product needed, instead of applying the same amount of product in each cell, resulting in a focused and cost-savings approach to our remedial strategy. Other not currently known bacteria may also be found at the Site from these analyses, which will assist in the remediation design.

Injection wells would need to be placed at different depths, and over a large area to cover the entire plume. Injection wells would be installed with a rotosonic drill rig to reduce smearing of fine grained material if possible. This will reduce the chance of the injection wells being biofouled. Two of the existing extraction wells and one existing monitoring well will be converted to injection wells.

Weekly visits to the Site to monitor flow rates, pump operation, and chemical mixing will be required. The estimated restoration timeframe for Alternative 5 is 5 years.

The advantages of Alternative 5 - Bioremediation with Carbstrate© and Groundwater Recirculation Combined with Soil Vapor Extraction include:

- Rapid time frame compared to other in situ methods
- Less site disruption than mass excavation methods
- Contaminants break down into harmless by-products
- Contaminants are removed from the source area
- Maintains groundwater balance and pre-existing gradient
- Eliminates need for other discharge options (e.g., storm drain, sanitary sewer)
- The main advantages of groundwater recirculation are increased flushing through contaminated soils, due to higher groundwater velocities, more mixing, dispersion, and mass transfer, all of which promote higher contaminant degradation rates.
- Higher efficacy than in situ methods solely relying on injections, due to:

viii) electron donor delivery throughout the plume is more uniform and can be addressed with fewer wells than a passive configuration in which electron donors such as edible oils are directly injected into the aquifer at many locations;

ix) Active pumping will induce higher hydraulic gradients, resulting in increased groundwater velocities and improved mixing and mass transfer, which will increase the degradation rates in comparison to ambient conditions;

x) Monitoring is facilitated because the impact of heterogeneity is reduced. Monitoring at the extraction wells can be used to monitor system performance;

xi) Transport and dispersion of added microorganisms throughout the treatment area is enhanced;

xii) Biomass produced within the aquitard from lactate metabolism will serve as an electron donor as it decays potentially allowing the interval between injections to be increased over time;

xiii) Excessive production of sulfides and methane gas can be minimized by optimizing the amount of electron donor added to degrade the TCE;

xiv) Plume containment, preventing further migration of original plume or possible daughter product plumes.

- Lower capital costs
- Less site disruption than mass excavation methods
- Minimal site disruption

The disadvantages of Alternative 5 - Bioremediation with Carbstrate© and Groundwater Recirculation Combined with Soil Vapor Extraction

- A need for active groundwater extraction/injection system and SVE system which require ongoing maintenance;
- Aboveground equipment including groundwater extraction wells with pumps, underground piping from the extraction wells to a fenced enclosure with storage/mixing tanks, underground piping from the tanks to injection wells, tankage for injection chemicals, electric and pump controls, meters, freeze protection/heaters, alarms/auto dialers, sampling ports, could result in unexpected Operation and Maintenance impacts
- Biofouling and clogging can be common problems with these type of systems that require frequent attention.
- Injection of materials may cause plugging of wells and/or the aquifer by chemical precipitation or biofouling

- PCE breaks down via reductive dechlorination into TCE, DCE, and vinyl chloride. Complete breakdown into harmless ethenes may not be achievable
- Requires electricity and some land area for the wells and treatment system components.
- Requires significant pilot testing to establish design parameters (i.e., pressure, well spacings, SVE vacuum, discharge gas concentrations)
- Inability to access lower permeability zones in mixed (heterogeneous) subsurface conditions, i.e., air may preferentially flow through more permeable channels
- Potential upwelling of groundwater and modification of existing gradients
- Site would need to be capped to maintain subsurface negative pressures
- Contaminants are not destroyed if no off-gas treatment is used
- Contaminated off-gas may require treatment
- Treatment times may be slower than other more aggressive remediation methods

7.0 DETAILED EVALUATION AND SELECTION OF REMEDIATION ALTERNATIVES

This section evaluates the cleanup alternatives selected in the previous section in accordance with the selection of remedy requirements under MTCA (WAC 173-340 through 370). The proposed alternatives for the Site are:

- Alternative 1 – Limited Source Soil Excavation/Bioremediation with EOS© Bioremediation.
- Alternative 2 - Bioremediation with Carbstrate© and Groundwater Recirculation
- Alternative 3 - Air Sparging/Soil Vapor Extraction
- Alternative 4 - Excavation/Monitored Natural Attenuation
- Alternative 5 - Bioremediation with Carbstrate© and Groundwater Recirculation Combined with Soil Vapor Extraction

7.1 MTCA Threshold Requirements

The FS considered the requirements under WAC 173-340-350 and the criteria defined in WAC 173-340-360 for the screening of potentially feasible cleanup alternatives for the Site. A cleanup alternative must satisfy the following threshold criteria as specified in WAC 173-340-360(2)(a):

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

In addition to meeting the threshold criteria, cleanup actions under MTCA must meet the following additional requirements specified in WAC 173-340-360(2)(b):

- Use permanent solutions to the maximum extent practicable based on the criteria defined in WAC 173-340-360(3)(f); and
- Consider public concerns raised during public comment on the Cleanup Action Plan (WAC 173-340-600).

The factors used to evaluate the reasonableness of the restoration time frame per WAC 173-340-360(4)(b) include:

- Potential risks to human health and the environment posed by the Site;
- Practicability of achieving a shorter restoration time frame;

- Current use of the Site, surrounding areas, and associated resources that are or may be affected by releases from the Site;
- Availability of alternative water supplies;
- Likely effectiveness and reliability of institutional controls;
- Ability to control and monitor migration of hazardous substances from the Site;
- Toxicity of the hazardous substances at the Site; and
- Natural processes that reduce concentrations of hazardous substances and have been
- Documented to occur at the Site or under similar Site conditions.

The criteria used to evaluate the degree of permanence to the maximum extent practicable per WAC 173-340-360(3)(f) include:

Protectiveness: This criterion considers overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, risks at the Site resulting from implementing the alternative, and improvement of overall environmental quality.

Permanence: Permanence addresses the degree to which the alternative permanently reduces the toxicity, mobility, or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of the waste-treatment process, and the characteristics and quantity of treatment residuals generated.

Effectiveness over the long term: Long-term effectiveness includes the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time that hazardous substances are expected to remain on the Site at concentrations that exceed cleanup levels, and the magnitude of residual risk with the alternative in place. The following types of cleanup action components may be used as a guide, in descending order, when assessing the relative degree of long-term effectiveness: reuse or recycling; destruction or detoxification; immobilization or solidification; disposal on or off the Site in an engineered, lined, and monitored facility; isolation or containment with attendant engineering controls on the Site; and institutional controls and monitoring.

Management of short-term risks: This criterion pertains to the risk to human health and the environment associated with the alternative during construction and implementation, and the effectiveness of

measures that will be taken to manage such risks. This criterion also includes risks to workers resulting from implementation of the cleanup alternative.

Technical and administrative implementability: Implementability includes consideration of whether the alternative is technically feasible, administrative and regulatory requirements, permitting, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with business operations in nearby buildings.

Cost: This criterion addresses the cost to implement the alternative, including the cost of construction and anticipated long-term costs. Long-term costs include operation and maintenance, monitoring, and reporting costs.

Consideration of public concerns: This criterion considers whether the community has concerns regarding the alternative and, if so, the extent to which the alternative addresses those concerns. This process includes concerns from individuals, community groups, local governments, federal and state agencies, or any other organization that may have an interest in or knowledge of the Site.

The following sections evaluate the alternatives against the threshold criteria. Attachment F summarizes the cleanup alternatives evaluation, including the costs of the remediation alternatives.

7.1.1 Protect Human Health and the Environment

The two types of exposure risk associated with the presence of COCs are terrestrial ecological risk and human health risk. Because the Site TEE concluded that a Site-specific ecological evaluation is not required (Attachment D), mitigating the potential human health risk associated with exposure to COCs in indoor air, soil, and groundwater will be the primary objective of the cleanup action. Alternatives 1, 2, and 3 satisfy the requirements for protection of human health and the environmental. Either source removal by excavation and disposal will remediate approximately 90% of the mass of PCE found on the Site. Any potential exposure from residual PCE vapors is not a concern due to the use of the Site as a public city park. Alternative 4 is considered a permanent remedy (excavation of the source area), however, per the Disproportionate Cost Analysis (included as Attachment F), the alternative is not considered feasible.

7.1.2 Comply with Cleanup Standards

According to WAC 173-340-700(3), “cleanup standards” consist of the following:

- Cleanup levels for hazardous substances present at the Site;
- The location where these cleanup levels must be met (the “point of compliance”);

- Other regulatory requirements that apply to the Site because of the type of action and/or location of the Site ("applicable state and federal laws", as defined in WAC 173-340-710).

In the RI, the nature and extent of contamination at the Riverside HVOC Site was characterized (see Section 4 above), a Conceptual Site Model (CSM) for potential human and ecological exposures to contamination at the Site was developed (Section 5), and cleanup levels and points of compliance for each media (soil and groundwater) were selected based on the nature and extent of contamination and the CSM (Section 5.3). All remedial alternatives assessed in this FS are considered "routine" cleanup actions as defined in WAC 173-340-200, therefore, the selected cleanup levels (MTCA Method A Soil Cleanup Levels and Surface Water WAC 173-201A for Groundwater) are applicable to the Riverside HVOC Site (WAC 173-340-704(1)).

All remedial alternatives are expected to bring the Site into compliance with these cleanup standards with respect to COCs, though this compliance will be achieved over varying timeframes. Alternative 3 is expected to have the shortest time to compliance. Effectiveness of Alternatives 2 and 3 throughout the Site may be impacted by heterogeneities in subsurface soil that cause variations in the success of the treatment technologies at addressing contamination at the Site.

7.1.3 Comply with Applicable State and Federal Laws

Compliance with State and Federal Laws includes legally applicable, relevant and appropriate requirements (ARARs). All alternative remedies meet ARARs for this Site.

7.1.4 Provide for Compliance Monitoring

Compliance monitoring requirements (specified in WAC 173-340-410) include the following elements:

- Protection monitoring to confirm that human health and the environment are adequately protected during implementation of an alternative.
- Performance monitoring to confirm that cleanup standards or other performance standards are met.
- Compliance monitoring to monitor the short and long-term effectiveness of the remedy after completion of the alternative and if protection is being achieved in accordance with cleanup objectives.

A Compliance Monitoring Plan (CMP) describing standard operating procedures and laboratory analytical methods will be provided with the Cleanup Action Plan for the selected alternative. Assessment of each of the remedial alternatives includes consideration of comprehensive compliance monitoring programs for fulfillment of this requirement.

7.1.5 Reasonable Restoration Time Frame

A reasonable restoration time frame is another requirement for evaluating alternatives. MTCA prefers alternatives that can be implemented in a shorter period of time while equivalent in other respects (e.g., permanence, implementation risks to the community, environment, cost). Restoration time frame is the time required to meet cleanup standards (i.e., to meet cleanup levels in all media at all points of compliance). Under MTCA, nine factors are used to determine whether a cleanup action provides for a reasonable restoration time frame. The shortest restoration timeframe for COCs will be achieved by Alternative 4, due to the removal of all HVOC-contaminated soils and groundwater at the Riverside HVOC Site. Alternatives 2 and 3 will take longer due to the time needed for the processes of in-situ chemical and biological remediation and air sparging and soil vapor extraction to remove HVOC contaminants from Riverside HVOC Site soil and groundwater by physical and biological processes. Alternative 5 is estimated at 5 years.

7.2 MTCA Other Requirements

Other requirements specified in MTCA include:

- **Use permanent solutions to the maximum extent practicable –** The requirement to use permanent solutions to the maximum extent practicable includes a preference approach to evaluate alternatives and cost. Cleanup technologies in order of decreasing preference include reuse / recycling, destruction, detoxification, and separation / volume reduction. Under MTCA these preferences may be weighed using a "disproportionate cost analysis" (WAC 173-340-360(3)(e)) that evaluates disproportionate costs compared to benefits of the remedial action.

- **Consider public concerns –** MTCA specifies public notice and participation requirements for cleanups conducted by Ecology, conducted under an order or decree, where site-specific risk assessment is used to establish cleanup levels, or where cleanup would restrict future site use.

7.3 Evaluation of Alternatives

The alternatives carried forward for evaluation include:

- Limited Source Soil Excavation/Bioremediation
- Bioremediation with Carbstrate© and Groundwater Recirculation
- Air Sparging/Soil Vapor Extraction
- Excavation/Monitored Natural Attenuation
- Bioremediation with Carbstrate© and Groundwater Recirculation Combined with Soil Vapor Extraction

Attachment F compares each of the remedial alternatives to the minimum requirements for remedial actions listed in WAC 173-340-360(2). The alternatives are evaluated under all of the requirements, including determining whether the action uses permanent solutions to the maximum extent practicable.

8.0 PREFERRED REMEDIAL ALTERNATIVE

This section presents proposed remedial actions to be conducted at the Site.

8.1 Description of Recommended Primary Remedial Alternative

Based on the results of the remedial investigation and feasibility study conducted under MTCA and the application of the selection of remedy criteria, the Preferred Alternative is Alternative 5, developed in accordance with WAC 173-340-350 through 173-340-390.

- **Alternative 5 - Bioremediation with Carbstrate© and Groundwater Recirculation Combined with Soil Vapor Extraction.** See Figure 16 for the proposed locations of remedial injection and extraction wells associated with the Preferred Alternative.

Use of engineering controls and institutional controls are included on a contingency basis and may be used after the remedial action has been completed. Potential vapor intrusion is not a concern due to the current and future use of the Site as a city park.

The estimated cost of the Preferred Alternative is $1,600,000.

8.2 Rationale for Selecting Proposed Alternative

The proposed alternative was selected in accordance with remedy selection requirements under MTCA, and meet all threshold and other requirements specified in WAC 173-340-360. Alternative 5 was selected as it offers the highest overall benefit score (Attachment F).

8.3 Cleanup Standards

Determination of cleanup standards is detailed in Section 5.2, and included the following process, per MTCA:

- Evaluate beneficial use of land, groundwater, and surface water
- Develop conceptual site model (i.e., contaminant source, affected media, exposure pathways, and receptors)
- Select COCs
- Select ARARs
- Choose cleanup levels
- Identify points of compliance

The cleanup standards are then based on the calculated cleanup levels measured at the points of compliance. Cleanup levels selected for the Riverside HVOC Site for soil are MTCA Method A and for groundwater are the surface water cleanup levels of WAC 173-201A, where applicable. Points of compliance are as follows:

Soil

- From the ground surface to the top of the groundwater surface based on direct contact exposure on the Riverside HVOC Site.

Groundwater

- For the Riverside HVOC Site, the standard groundwater point of compliance is proposed, i.e., groundwater throughout the Site.

8.4 Schedule for Implementation

Schedule for implementation will be detailed in the Cleanup Action Plan, and is anticipated to be begun in 2020. The relative order of cleanup elements is as follows:

- Concurrent placement of bioremediation product and groundwater extraction along with soil vapor extraction
- Quarterly groundwater compliance monitoring
- Engineering controls – depends on building construction schedule
- Institutional controls, if necessary.

8.5 Applicable State and Federal Laws

All applicable state and federal laws, for the proposed cleanup action will be followed. Regulatory compliance will be addressed during the permitting phase of the project, and may include grading, storm water, and other permitting issues.

8.6 Compliance with Threshold and Other MTCA Requirements

As stated in Section 8.1, the Preferred Alternative complies with threshold and other MTCA requirements specified in WAC 173-340-360.

9.0 SUMMARY & CONCLUSIONS

The Riverside HVOC Site previously contained a historic machine shop operation which caused a release of solvents into the soil and groundwater. Remedial investigation activities have defined the nature and extent of soil and groundwater impacts, which include PCE and its breakdown products TCE, (cis) 1,2-DCE, and vinyl chloride.

Site cleanup levels for soil are selected as MTCA Method A and Surface Water WAC 173-201A and MTCA Method B for Groundwater.

Points of compliance are as follows:

- Soil
    - From the ground surface to the top of the groundwater surface based on direct contact exposure
- Groundwater
    - The standard groundwater point of compliance is proposed, i.e., groundwater throughout the Site

Based on the results of the remedial investigation and feasibility study conducted under MTCA and the application of the selection of remedy criteria, the preferred alternative at the Site, Alternative 5, Bioremediation with Carbstrate© and Groundwater Recirculation Combined with Soil Vapor Extraction (developed in accordance with WAC 173-340-350 through 173-340-390) is designed to remediate HVOC contamination in soil and groundwater. This preferred alternative and includes:

- Design and Installation of Bioremediation/Groundwater Recirculation
- Installation of SVE system
- Engineering controls – depends on building construction schedule
- Institutional controls, if necessary.

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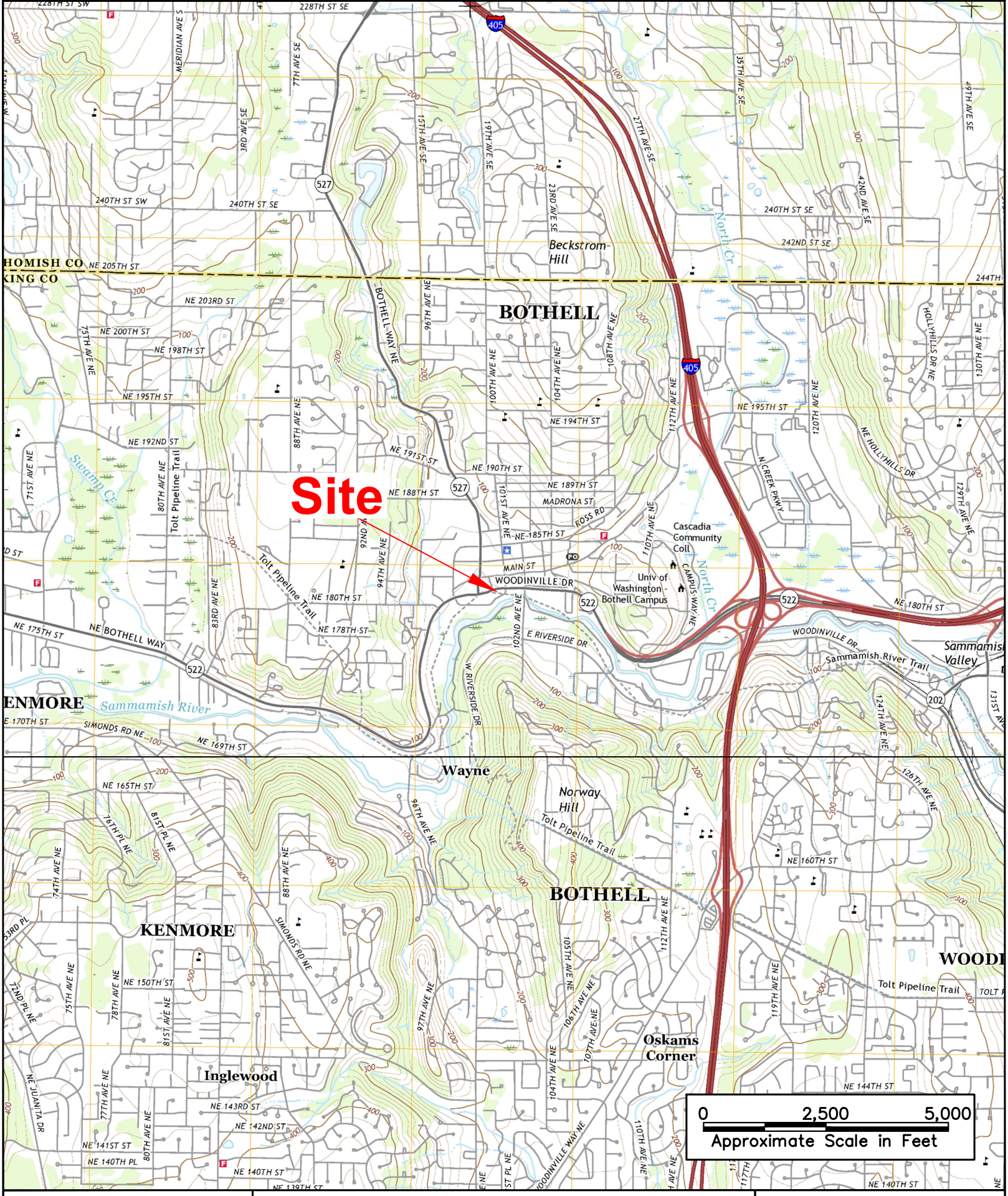
Figures



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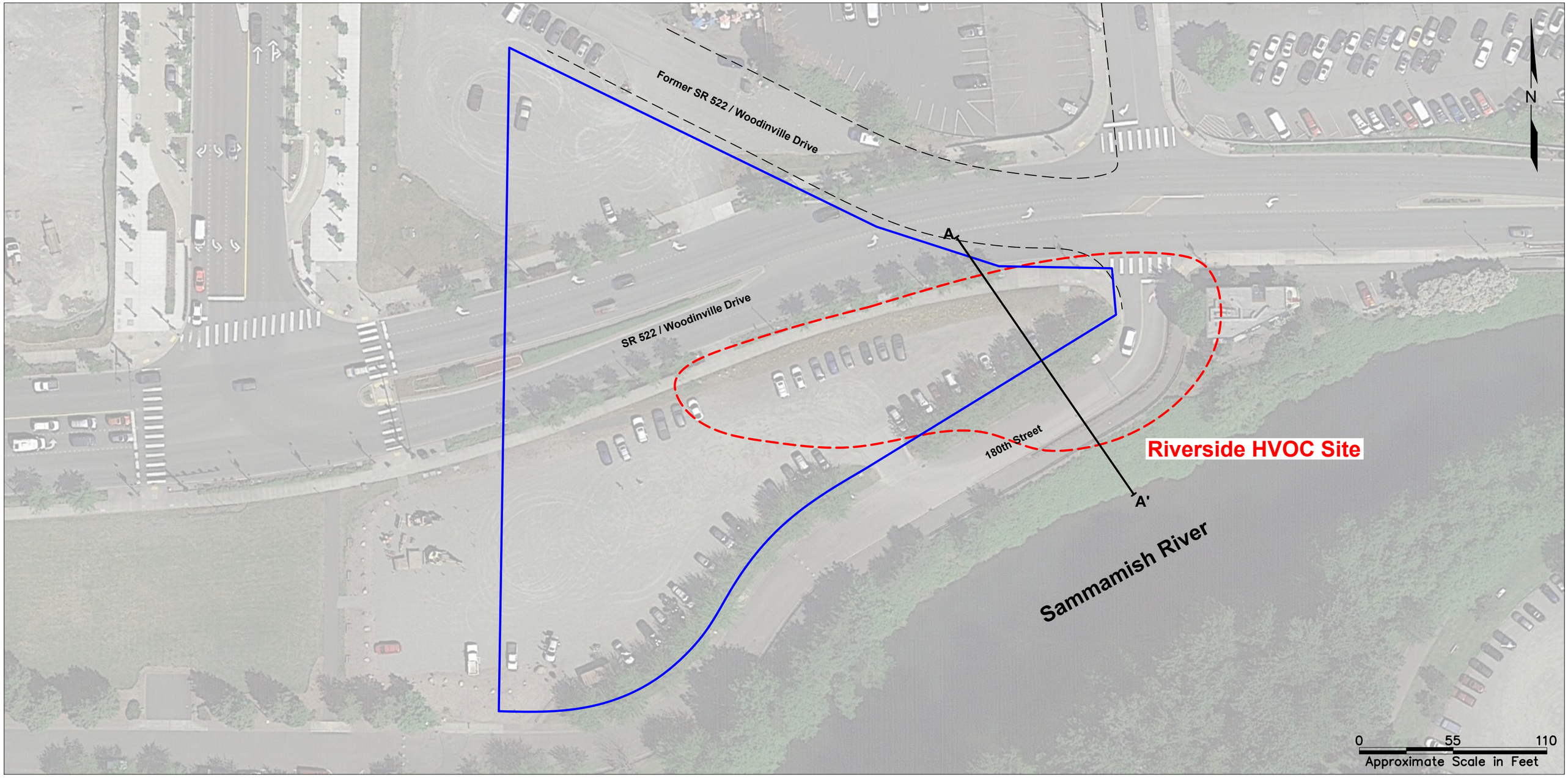
Supplemental Remedial Investigation / Feasibility Study
Riverside HVOC Site
Bothell, Washington 98011

Figure 1
Vicinity Map



LEGEND

- Approximate location of historical Riverside property
- Approximate location of Riverside HVOC Site Boundary

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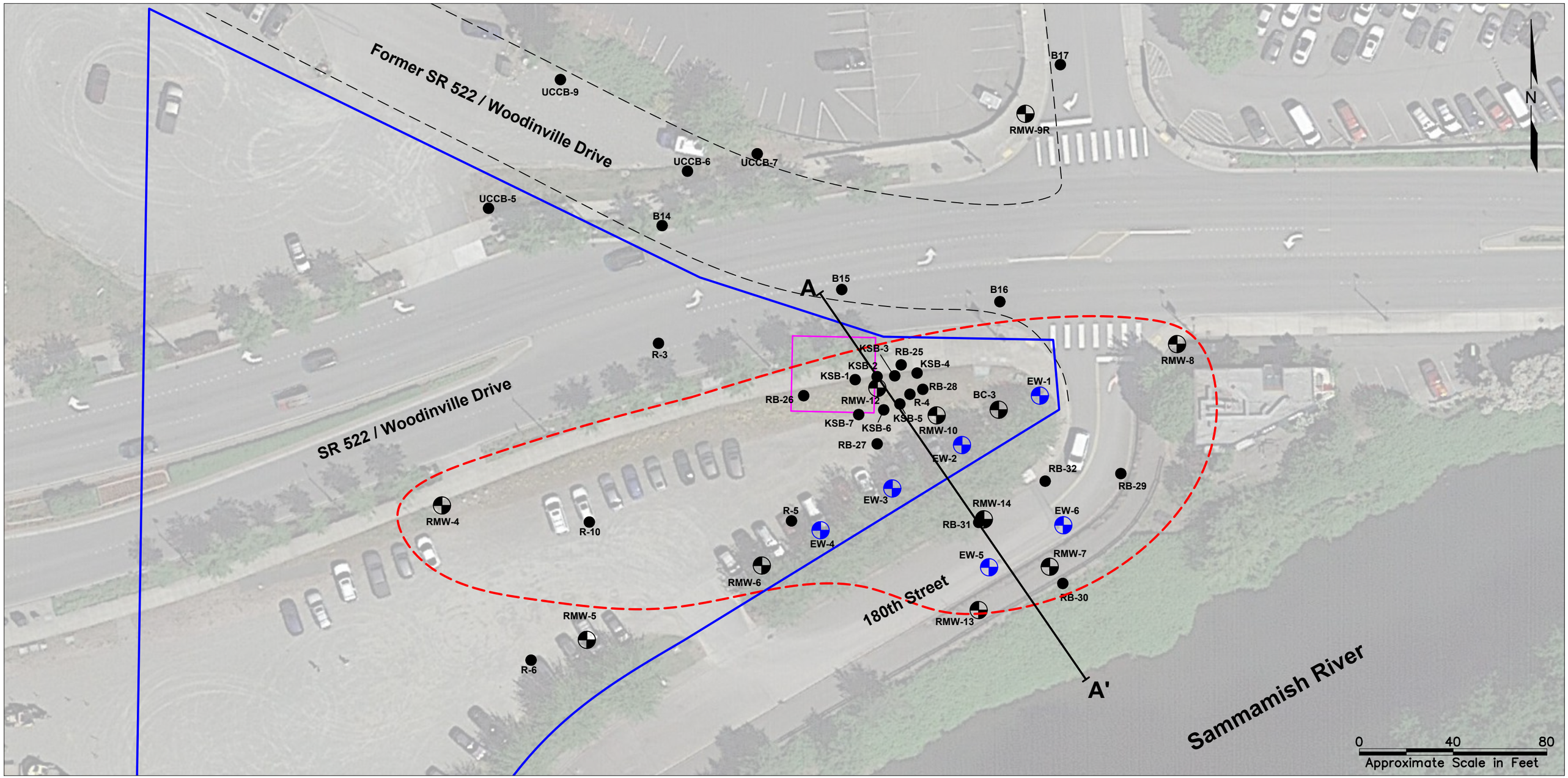
Riverside HVOC Site
Bothell, Washington 98011

Figure 2
Area Site Plan



LEGEND

- Approximate location of monitoring well
- Approximate location of extraction well
- Approximate location of soil boring
- Approximate location of historical machine shop
- Approximate location of historical Riverside property
- Approximate location of Riverside HVOC Site Boundary

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Riverside HVOC Site
Bothell, Washington 98011

Figure 3
Site Plan

A

A'

elevation, in feet

45
40
35
30
25
20
15
10
5
0
-5
-10
-15

B-15
KSB-1
KSB-2
RB-25
RMW-12
KSB-4
KSB-6
KSB-5
RB-27
RMW-10
EW-2
RB-31
RMW-14
EW-5
RMW-7
RB-30

SM
(SILTY SAND)

ML
(CLAYEY SILT)

GP/SM/SP
(FILL MATERIAL)

SP/SM/ML
(SILTY SAND/
SANDY SILT)

GP/SM/SP
(FILL MATERIAL)

SP/SM/ML
(SILTY SAND/
SANDY SILT)

GP/SM/SP
(FILL MATERIAL)

SP/SM/ML
(SILTY SAND/
SANDY SILT)

GP/SM/SP
(FILL MATERIAL)

GP/SM/SP
(FILL MATERIAL)

GP/SM/SP
(FILL MATERIAL)

ML
(SILT)

ML
(SILT)

Groundwater
Table,
October 2018

0 13 26
Approximate Horizontal Scale in Feet
Vertical Exaggeration = 1.5x

LEGEND

Temporary soil boring

Soil type
boundary

USCS
soil type — SP

Well casing

Well screen

Groundwater
elevation,
October
2018

Groundwater
table, October
2018

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Riverside HVOC Site
Bothell, Washington 98011

Figure 4
Geologic Cross Section
A-A'

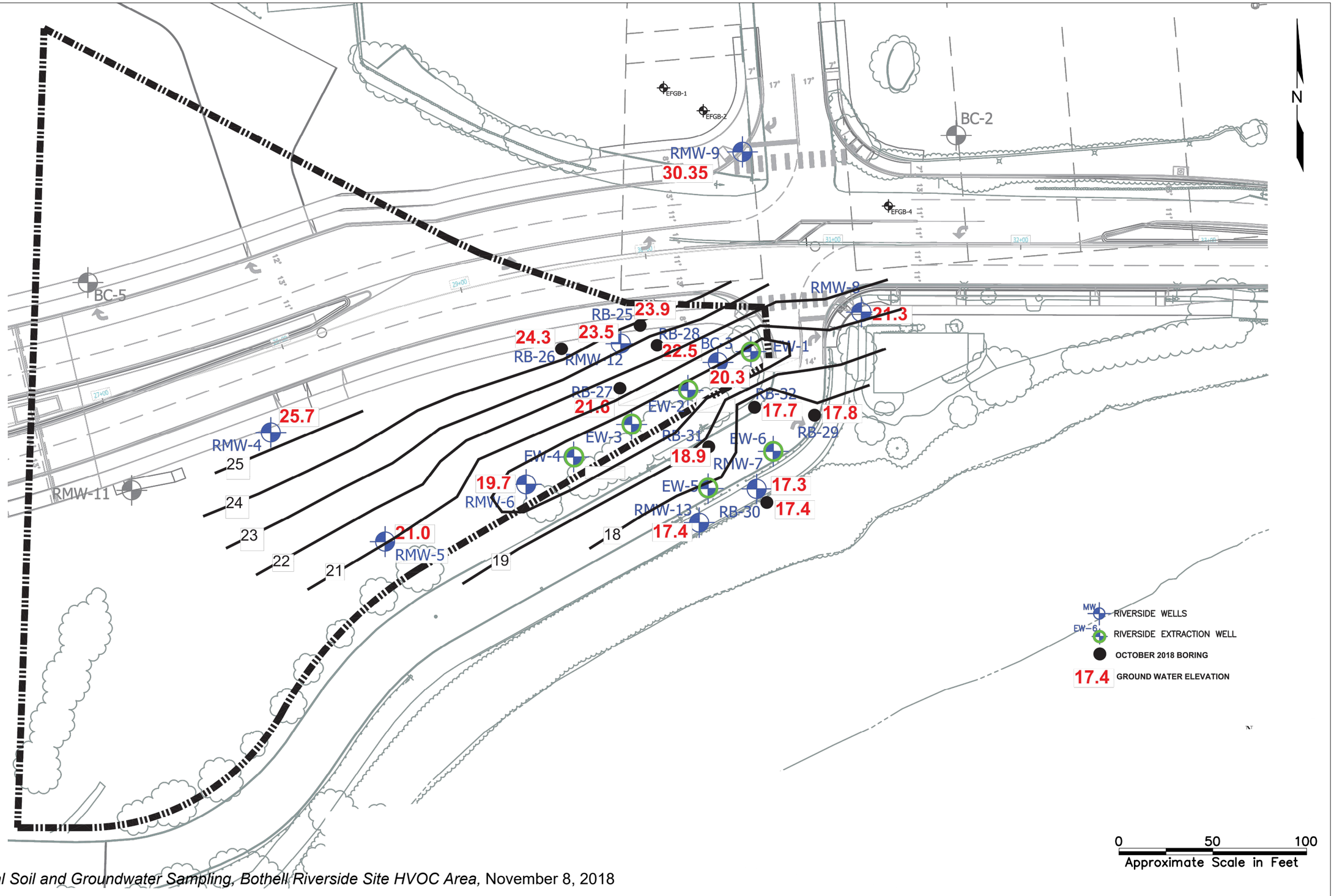

Image Source: HWA, *Additional Soil and Groundwater Sampling, Bothell Riverside Site HVOC Area,* November 8, 2018

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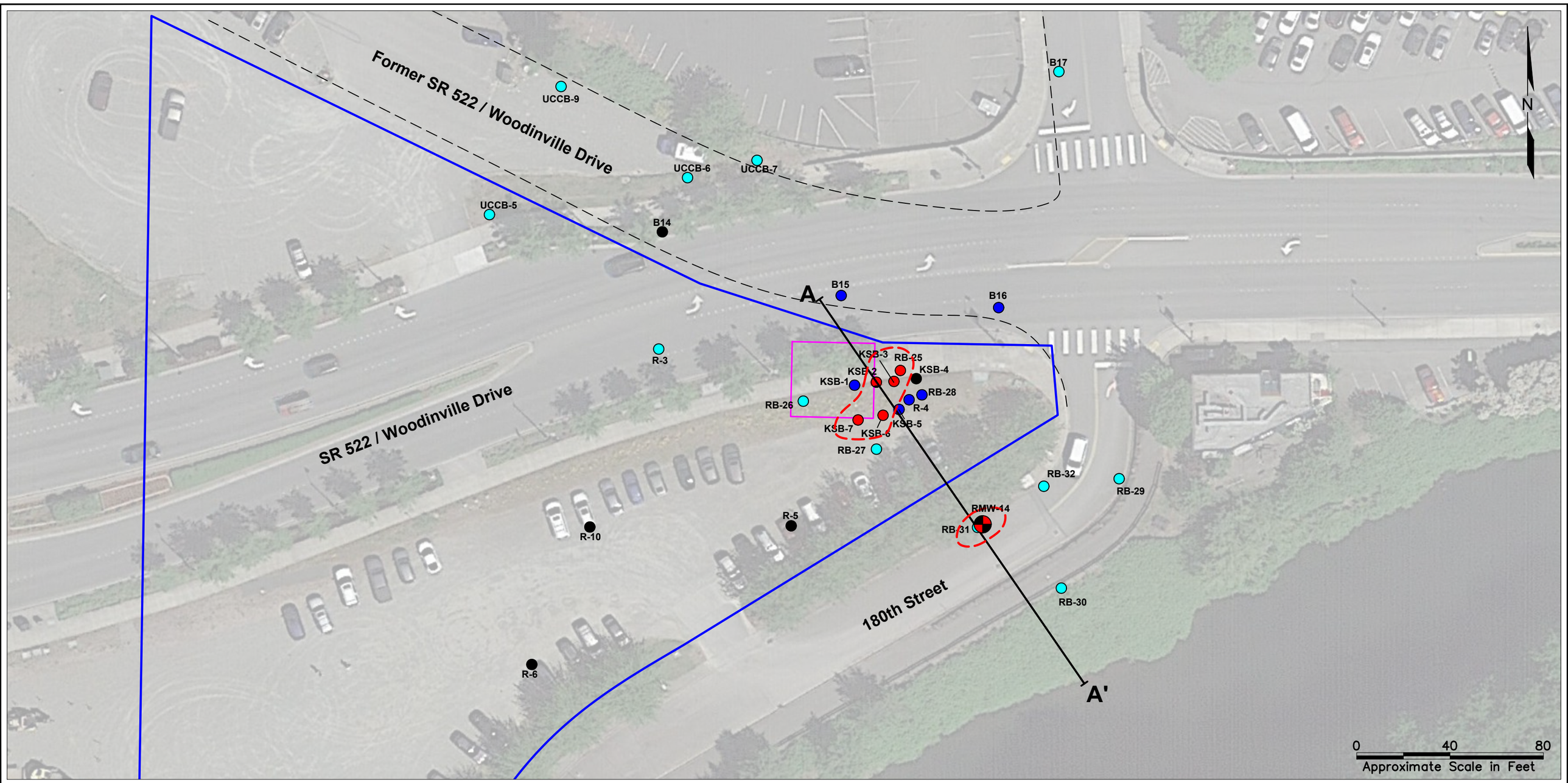
Riverside HVOC Site
Bothell, Washington 98011

Figure 5
Groundwater Gradient - October 2018



LEGEND

- Approximate location of soil boring
- Approximate location of historical machine shop
- Approximate location of historical Riverside property
- Approximate extent of soil containing HVOC contaminants at concentrations exceeding MTCA Method A/B Cleanup Levels

Soil boring fill color indicates analytical results of soil sample analysis:

Red fill indicates HVOC contaminants detected above MTCA Method A/B Cleanup Level in soil sample
Blue fill indicates HVOC contaminants detected below MTCA Method A/B Cleanup Level in soil sample
Cyan fill indicates HVOC contaminants not detected above reporting limits in soil sample.
Black fill indicates no HVOC soil data available.

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Riverside HVOC Site
Bothell, Washington 98011

Figure 6
Soil HVOCs Results and Extent

A

A'

elevation, in feet

45
40
35
30
25
20
15
10
5
0
-5
-10
-15

B-15
KSB-1
KSB-2
RB-25
RMW-12
KSB-4
KSB-6
KSB-5
RB-27
RMW-10
EW-2
RB-31
RMW-14
EW-5
RMW-7
RB-30

SM
(SILTY SAND)

ML
(CLAYEY SILT)

GP/SM/SP
(FILL MATERIAL)

SP/SM/ML
(SILTY SAND/
SANDY SILT)

13ft:
PCE = 0.46
TCE = 0.052

25ft:
PCE = 0.055

30ft:
PCE = 0.13

15.5ft:
PCE = 1.5
TCE = 0.3

21.5ft:
PCE = 0.13
TCE = 0.27

Groundwater
Table,
October 2018

ML
(SILT)

0 13 26
Approximate Horizontal Scale in Feet
Vertical Exaggeration = 1.5x

LEGEND

Temporary soil boring

Soil type boundary

Soil Sample

USCS soil type — SP

Well casing

Well screen

Groundwater elevation, October 2018

Groundwater table, October 2018

Soil analytical results listed in milligrams per kilogram (mg/kg).

Red text/fill indicates HVOC contaminant detected above MTCA Method A/B Cleanup Level (see table to right) in soil sample
Blue text/fill indicates HVOC contaminant detected below MTCA Method A/B Cleanup Level (see table to right) in soil sample
Black text indicates HVOC contaminants not detected above reporting limits in soil sample.

Approximate extent of soil containing HVOC contaminants at concentrations exceeding the the MTCA Method A/B cleanup level

MTCA Method A/B Soil Cleanup Levels
"PCE" = Tetrachloroethene (0.05 mg/kg)
"TCE" = Trichloroethene (0.03 mg/kg)
"DCE" = (cis) 1,2-Dichloroethene (160 mg/kg) - Method B
"VC" = Vinyl Chloride (0.67 mg/kg) - Method B

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Supplemental Remedial Investigation / Feasibility Study
Riverside HVOC Site
Bothell, Washington 98011

Figure 7
Cross Section A-A'
with Soil Analytical Results
and Extent

Former SR 522 / Woodinville Drive

SR 522 / Woodinville Drive

180th Street

N

RMW-9R				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/27/19	ND	ND	ND	ND
2/4/20	ND	ND	ND	ND
5/7/20	ND	ND	ND	ND

RMW-10				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/27/19	ND	ND	ND	ND
2/4/20	ND	ND	ND	ND
5/5/20	ND	ND	ND	ND

RMW-8				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/27/19	ND	ND	ND	ND
2/3/20	ND	0.40	0.28	ND
5/6/20	ND	ND	ND	ND

RMW-12				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/27/19	15	3.1	6.5	0.87
2/4/20	13	3.7	6.1	2.8
5/6/20	19	4.6	5.4	0.50

BC-3				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/27/19	4.3	1.0	0.34	ND
2/4/20	5.2	1.3	0.43	ND
5/6/20	6.7	1.7	0.52	ND

RMW-6				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/26/19	ND	1.7	3.8	0.57
1/31/20	ND	0.52	3.8	0.70
5/4/20	ND	0.45	1.5	0.21

EW-3				
Date	PCE	TCE	(cis) 1,2-DCE	VC
5/7/20	25	23	11	0.023

RMW-14				
Date	PCE	TCE	(cis) 1,2-DCE	VC
5/5/20	15	5.6	4.0	2.8

RMW-4				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/26/19	2.5	0.45	ND	ND
1/31/20	3.7	0.54	ND	ND
5/4/20	3.2	0.82	ND	ND

EW-6				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/27/19	4.7	1.4	4.2	ND
2/5/20	3.1	1.0	4.0	ND
5/7/20	12	5.3	7.6	0.36

RMW-7				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/27/19	0.51	4.1	33	27
2/3/20	ND	0.22	16	26
5/5/20	ND	0.88	20	28

EW-2				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/27/19	16	4.7	3.2	ND
2/5/20	26	7.9	6.2	0.39

RMW-13				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/27/19	ND	ND	0.97	ND
2/3/20	ND	ND	0.31	ND
5/5/20	ND	ND	0.30	0.06

RMW-5				
Date	PCE	TCE	(cis) 1,2-DCE	VC
9/26/19	2.1	0.39	0.22	ND
1/31/20	2.5	0.21	ND	ND
5/4/20	2.3	ND	ND	ND

0 40 80

Approximate Scale in Feet

LEGEND

- Approximate location of monitoring well
- Approximate location of extraction well
- Approximate location of soil boring
- Approximate location of historical machine shop
- Approximate location of HWA Riverside HVOC Site Boundary and extent of HVOCs contamination above Site specific cleanup levels in groundwater

Red concentrations are above the Site specific cleanup levels

Blue concentrations are below the Site specific cleanup levels

All concentrations reported in ug/L, equivalent to parts per million (ppb)
ND = No analytes detected above laboratory reporting limit. See Attachment E for laboratory reporting limit

Site Specific Cleanup Levels
"PCE" = Tetrachloroethylene (4.9 ppb)
"TCE" = Trichloroethylene (0.38 ppb)
"(cis) 1,2-DCE" = (cis) 1,2-Dichloroethylene (16 ppb)
"VC" = Vinyl chloride (0.02 ppb)

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Figure 8
Groundwater Results - HVOCs -
May 2020

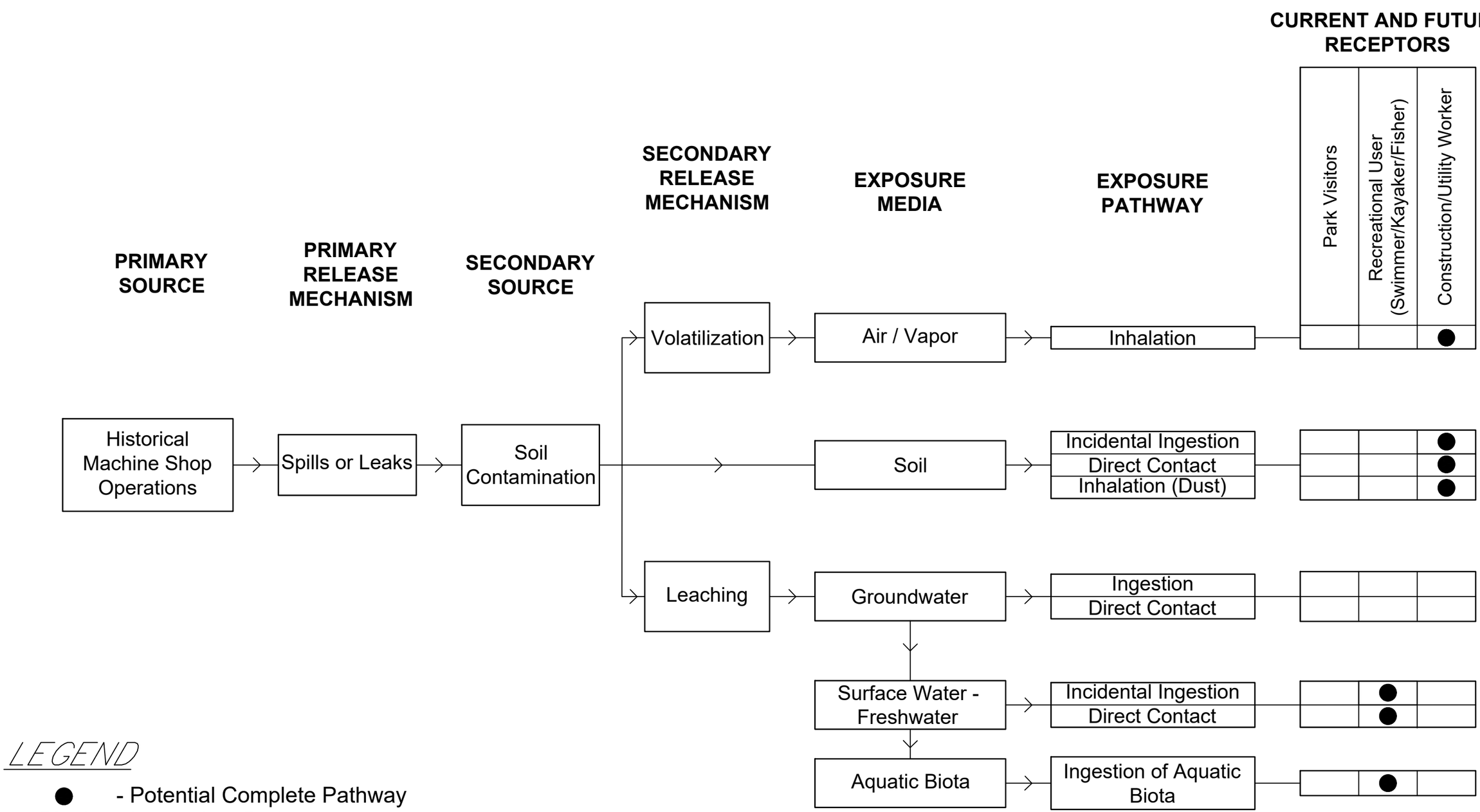

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Figure 9
Conceptual Site Model
For Human Exposures

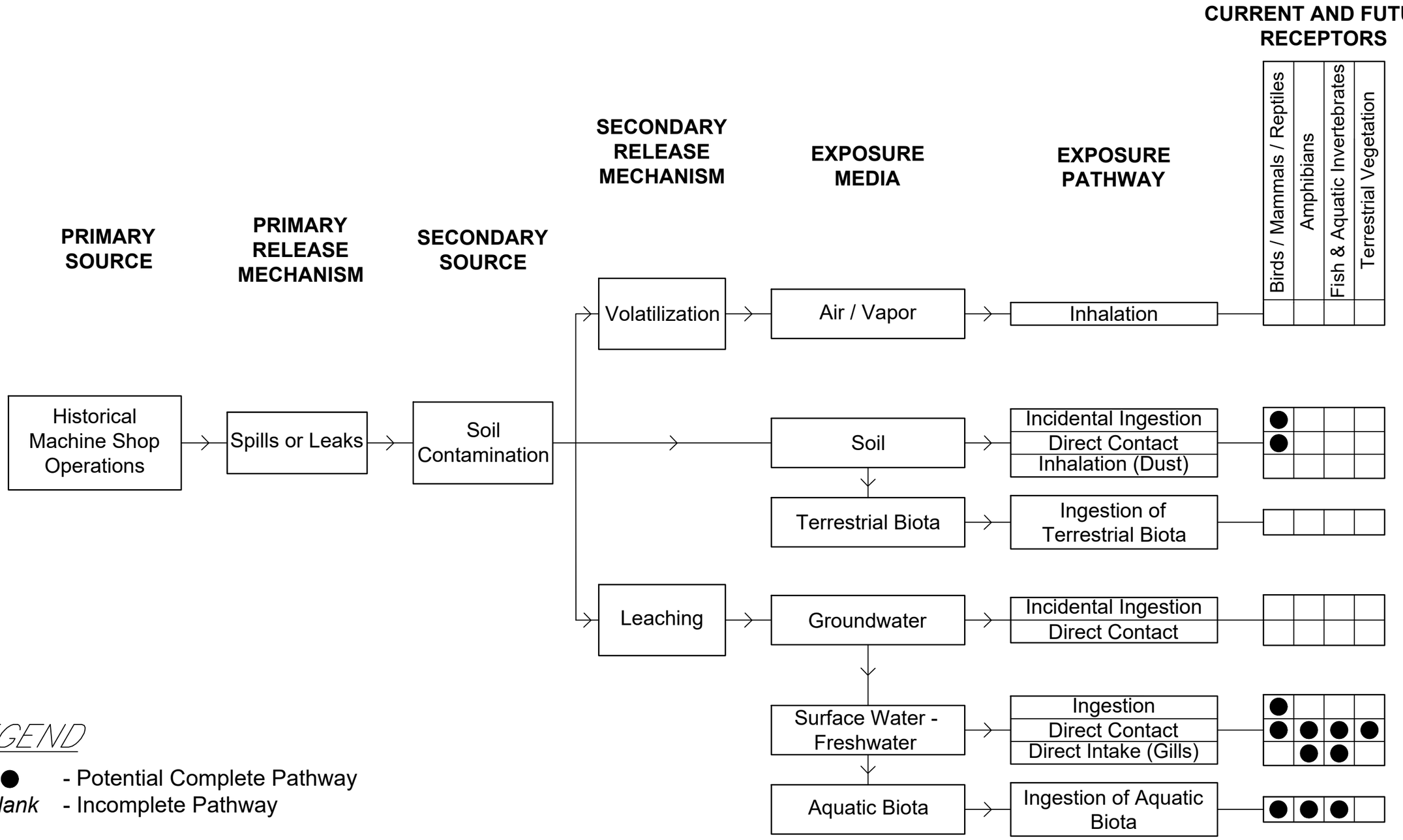

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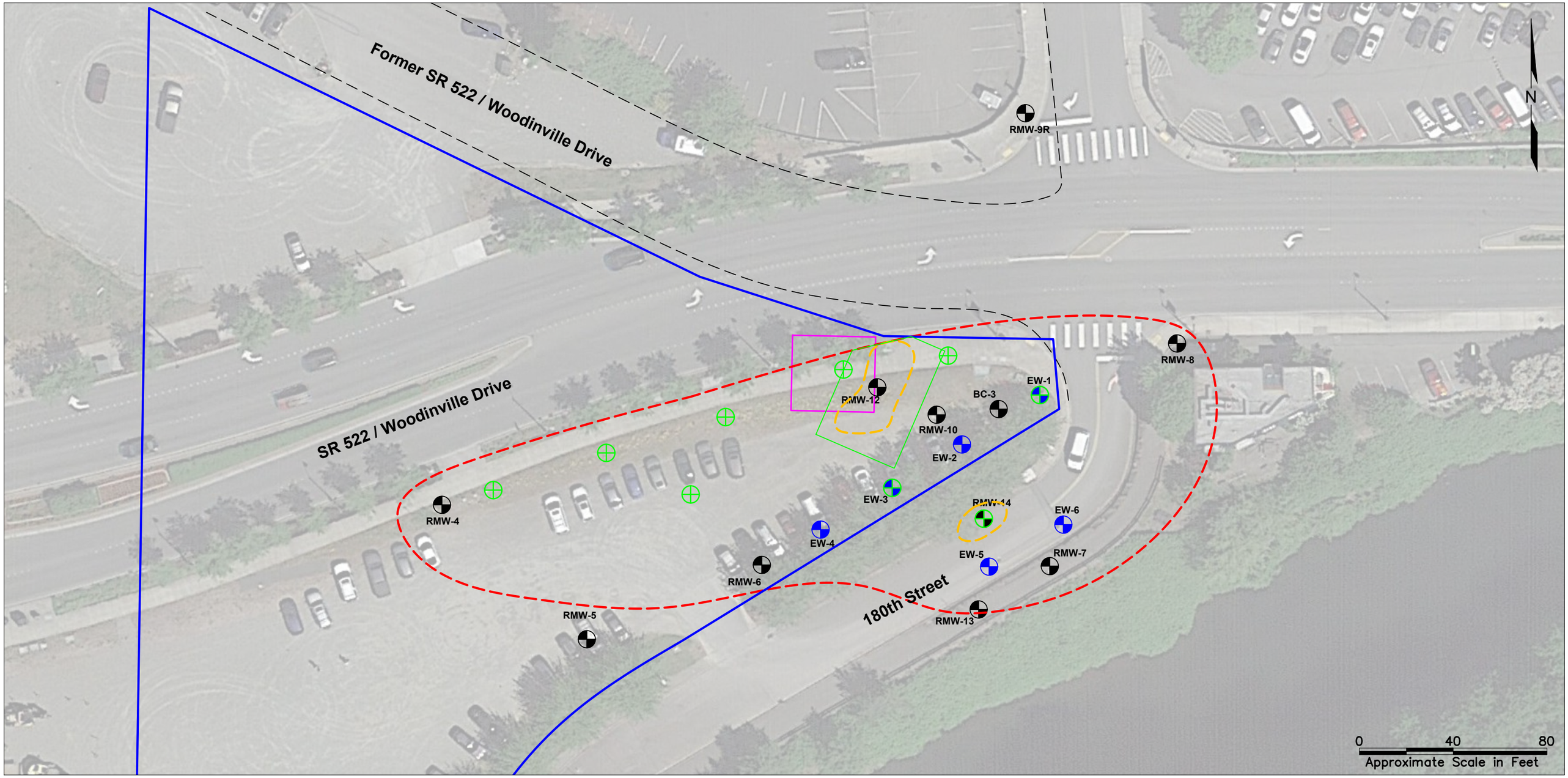
Figure 10
Conceptual Site Model For Ecological Exposures



LEGEND

- Approximate location of monitoring well
- Approximate location of extraction well
- Approximate location of historical machine shop
- Approximate location of historical Riverside property
- Approximate location of Riverside HVOC Site Boundary and approximate extent of groundwater containing HVOCs contaminants above Site-specific cleanup levels
- Approximate extent of soil containing HVOC contaminants at concentrations exceeding MTCA Method A/B Cleanup Levels
- Approximate extent of limited source soil excavation (to 15 feet below ground surface)
- Approximate location of new bioremediation injection well
- Approximate location of existing extraction/monitoring well to be converted to bioremediation injection well

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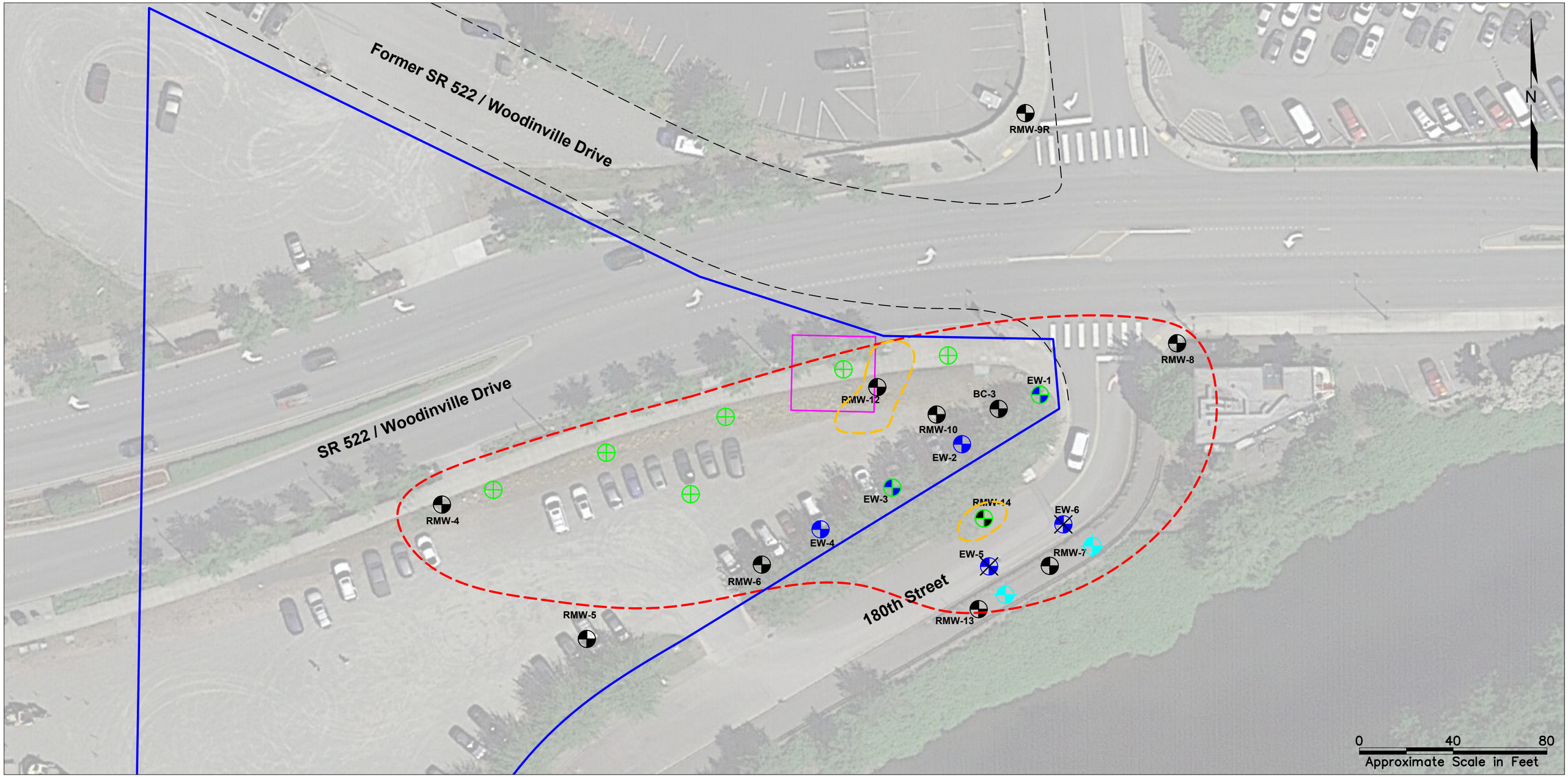
Figure 11
Alternative 1 - Limited Source Soil Excavation and EOS Bioremediation



LEGEND

- Approximate location of monitoring well
- Approximate location of extraction well
- Approximate location of historical machine shop
- Approximate location of historical Riverside property
- Approximate location of Riverside HVOC Site Boundary and approximate extent of groundwater containing HVOCs contaminants above Site-specific cleanup levels
- Approximate extent of soil containing HVOC contaminants at concentrations exceeding MTCA Method A/B Cleanup Levels
- Approximate location of new bioremediation injection well
- Approximate location of existing monitoring/extraction well to be converted to bioremediation injection well
- Approximate location of existing extraction well to be decommissioned
- Approximate location of new extraction well

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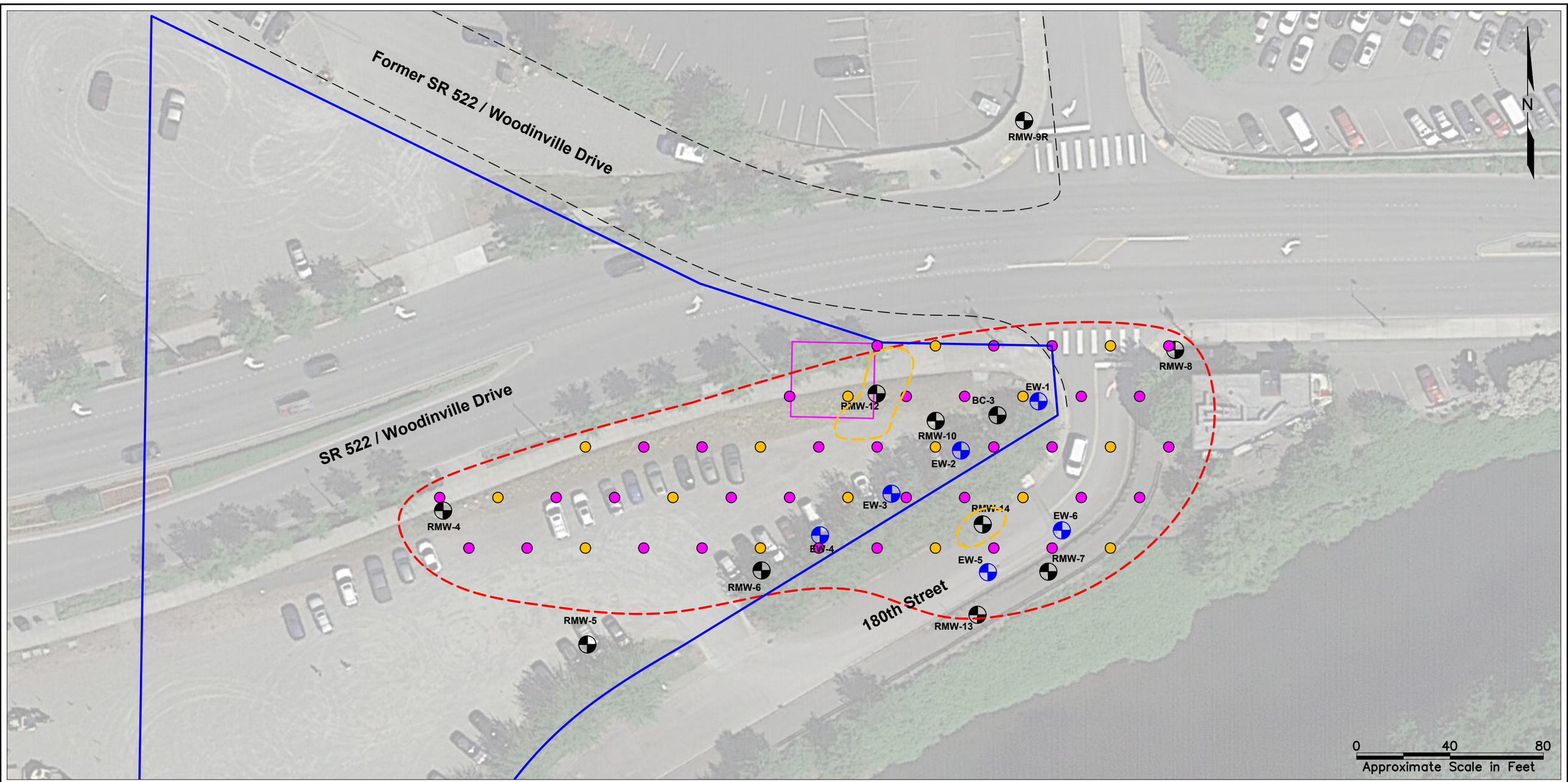
Figure 12
Alternative 2 - Bioremediation with CarbStrate and Groundwater Recirculation



LEGEND

- Approximate location of monitoring well
- Approximate location of extraction well
- Approximate location of historical machine shop
- Approximate location of historical Riverside property
- Approximate location of Riverside HVOC Site Boundary and approximate extent of groundwater containing HVOCs contaminants above Site-specific cleanup levels
- Approximate extent of soil containing HVOC contaminants at concentrations exceeding MTCA Method A/B Cleanup Levels
- Approximate location of soil vapor extraction well
- Approximate location of air sparging well

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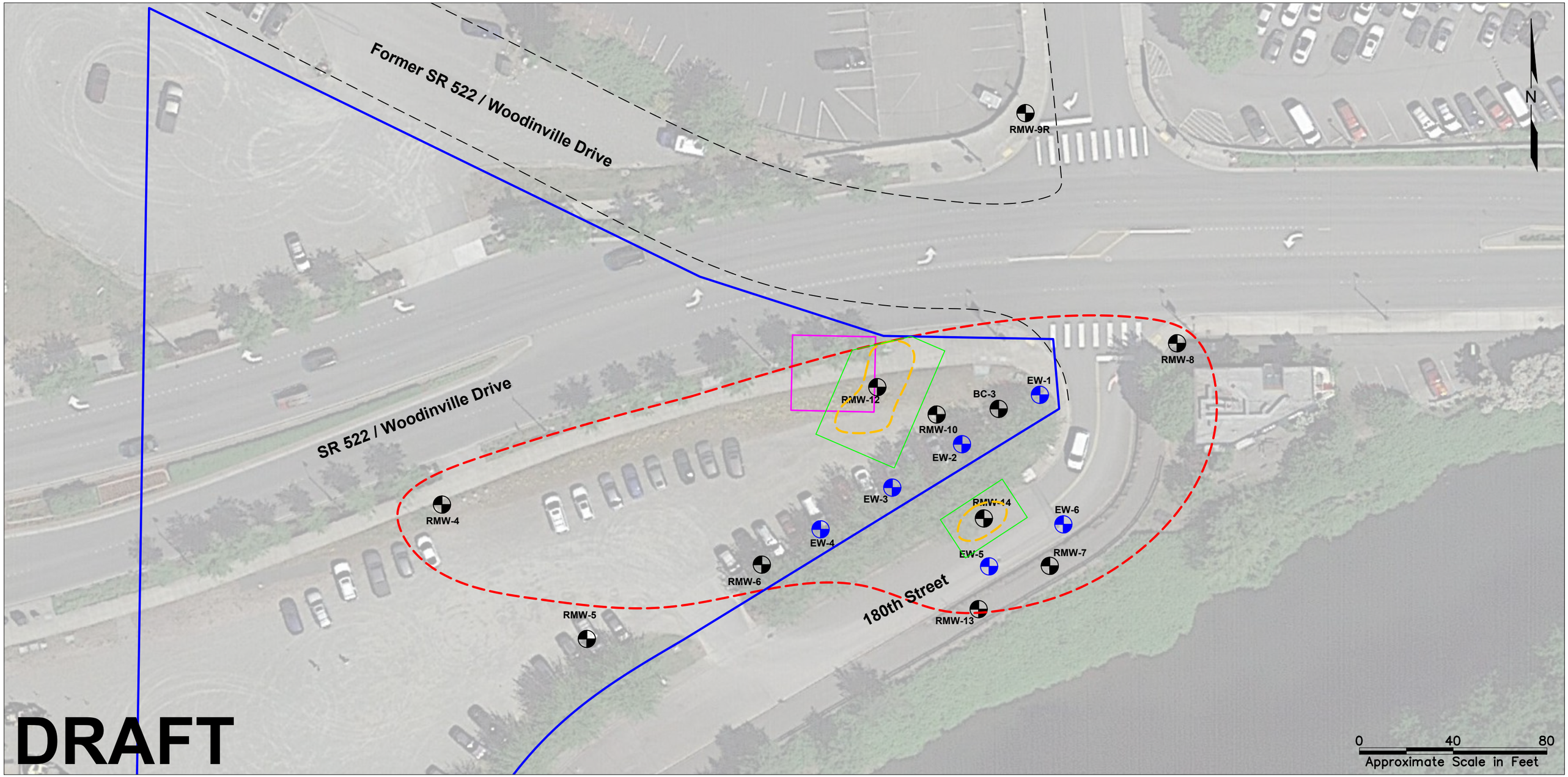
Figure 13
Alternative 3 -
Air Sparging and Soil
Vapor Extraction



LEGEND

- Approximate location of monitoring well
- Approximate location of extraction well
- Approximate location of historical machine shop
- Approximate location of historical Riverside property
- Approximate location of Riverside HVOC Site Boundary and approximate extent of groundwater containing HVOCs contaminants above Site-specific cleanup levels
- Approximate extent of soil containing HVOC contaminants at concentrations exceeding MTCA Method A/B Cleanup Levels
- Approximate extent of remedial excavation, to maximum vertical extent of contaminated soil (approximately 30 feet below ground surface)

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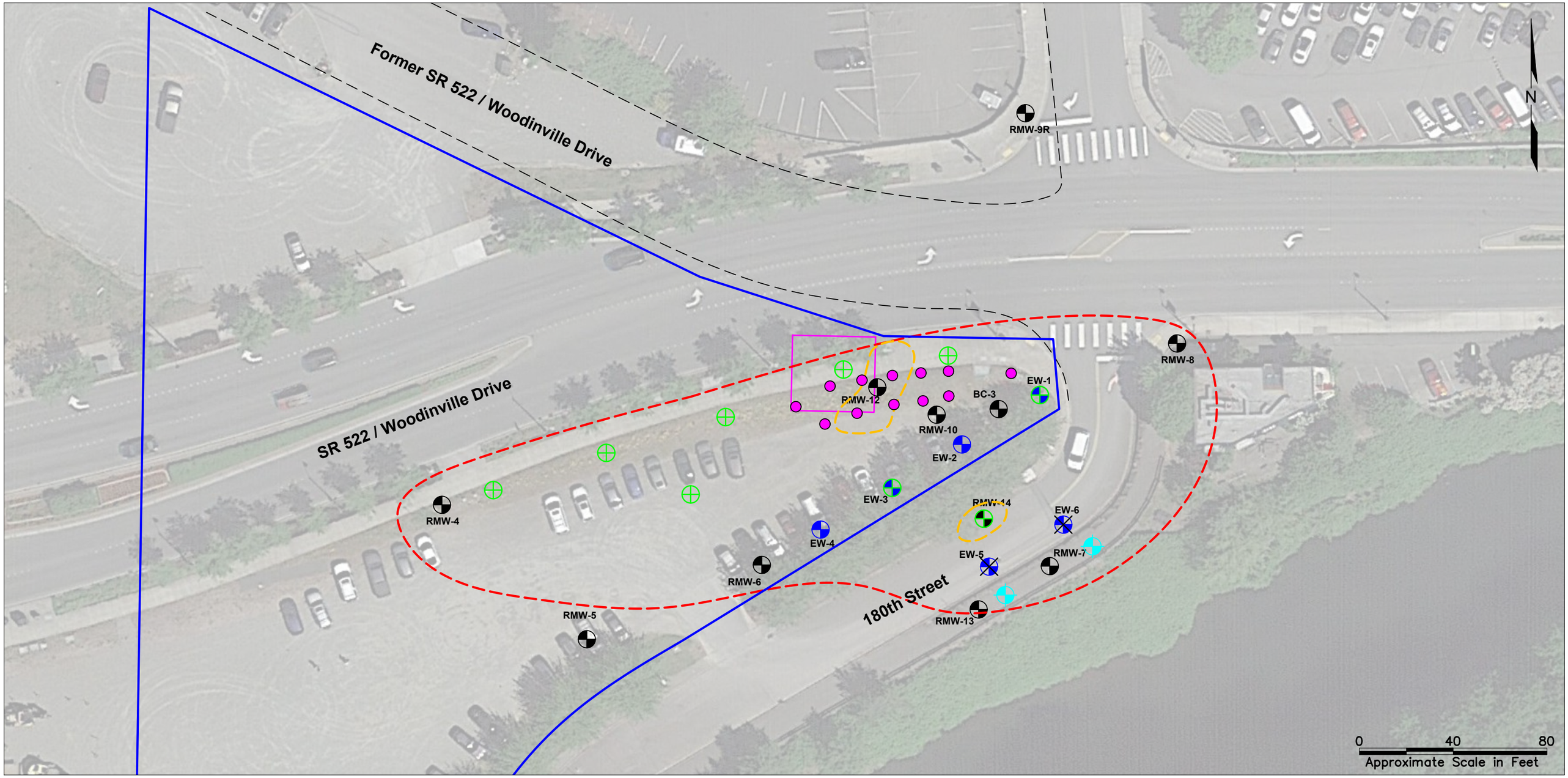
Figure 14
Alternative 4 - Source Soil Excavation and Monitored Natural Attenuation



LEGEND

- Approximate location of monitoring well
- Approximate location of extraction well
- Approximate location of historical machine shop
- Approximate location of historical Riverside property
- Approximate location of Riverside HVOC Site Boundary and approximate extent of groundwater containing HVOCs contaminants above Site-specific cleanup levels
- Approximate extent of soil containing HVOC contaminants at concentrations exceeding MTCA Method A/B Cleanup Levels
- Approximate location of new bioremediation injection well
- Approximate location of existing monitoring/extraction well to be converted to bioremediation injection well
- Approximate location of existing extraction well to be decommissioned
- Approximate location of new extraction well
- Approximate location of soil vapor extraction well

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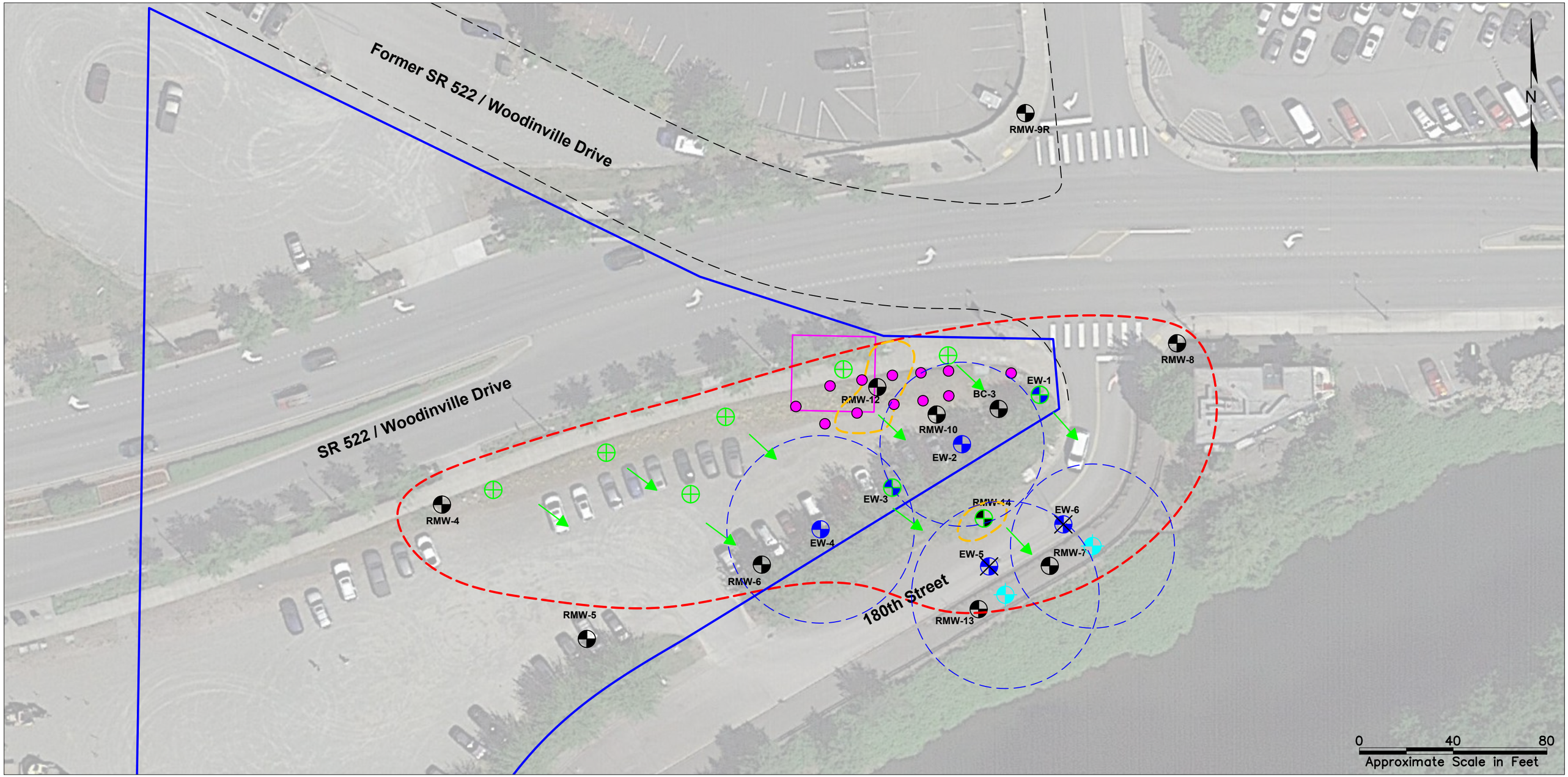
Figure 15
Alternative 5 - Bioremediation with CarBstrate and Groundwater Recirculation Combined with SVE



LEGEND

- Approximate location of monitoring well
- Approximate location of extraction well
- Approximate location of historical machine shop
- Approximate location of historical Riverside property
- Approximate location of Riverside HVOC Site Boundary and approximate extent of groundwater containing HVOCs contaminants above Site-specific cleanup levels
- Approximate extent of soil containing HVOC contaminants at concentrations exceeding MTCA Method A/B Cleanup Levels
- Approximate location of new bioremediation injection well
- Approximate location of existing monitoring/extraction well to be converted to bioremediation injection well
- Approximate location of existing extraction well to be used as monitoring well
- Approximate location of new extraction well
- Approximate location of soil vapor extraction well
- Simulated groundwater injection product path
- Simulated groundwater extraction radius of influence

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Supplemental Remedial Investigation / Feasibility Study
Riverside HVOC Site
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Figure 16
Preferred Remedial Alternative

Tables

Table 1
Soil Analytical Results
Riverside HVOC Site
Bothell, Washington

Sample Location	Sample Identifier	Date	Sampled By	Sample Depth (feet bgs)	PCE (mg/kg)	TCE (mg/kg)	(cis) 1,2- DCE (mg/kg)	Vinyl Chloride (mg/kg)
R-3	R-3-8	2/12/08	HWA	8	<0.0057	-	-	-
R-4	R-4-8	2/12/08	HWA	12	**0.009**	-	-	-
B15	B15-10	4/3/09	CDM	10	**0.027**	<0.0017	<0.0017	<0.0017
B16	B16-13	4/3/09	CDM	13	**0.0041**	<0.0010	<0.0010	<0.0010
B17	B17-11	4/2/09	CDM	11	<0.0011	<0.0011	<0.0011	<0.0011
UCCB-5	UCCB-5-36.0	3/22/17	HWA	36	<0.0011	<0.0011	<0.0011	<0.0011
UCCB-6	UCCB-6-25.5	3/23/17	HWA	26	<0.0012	<0.0012	<0.0012	<0.0012
UCCB-7	UCCB-7-20.0	3/23/17	HWA	20	<0.0012	<0.0012	<0.0012	<0.0012
UCCB-9	UCCB-9-35.5	3/22/17	HWA	36	<0.0012	<0.0012	<0.0012	<0.0012
RB-25	RB-25-13	10/24/18	HWA	13	**0.46**	**0.052**	<0.0016	<0.0016
RB-26	RB-26-8.5	10/24/18	HWA	9	<0.00094	<0.00094	<0.00094	<0.00094
RB-27	RB-27-10	10/24/18	HWA	10	<0.0011	<0.0011	<0.0011	<0.0011
RB-28	RB-28-10	10/24/18	HWA	10	**0.0017**	<0.00078	<0.00078	<0.00078
RB-29	RB-29-8	10/24/18	HWA	8	<0.00082	<0.00082	<0.00082	<0.00082
RB-30	RB-30-9	10/24/18	HWA	9	<0.00077	<0.00077	<0.00077	<0.00077
RB-31	RB-31-7.75	10/24/18	HWA	7.75	<0.001	<0.001	<0.001	<0.001
RB-32	RB-32-15	10/24/18	HWA	15	<0.0008	<0.0008	<0.0008	<0.0008
KSB-1	KSB-1: 12ft	2/24/20	Kane	12	<0.00099	<0.00099	<0.00099	<0.0014
	KSB-1:15ft	2/24/20	Kane	15	<0.0013	<0.0013	**0.0014**	<0.0018
	KSB-1:23ft	2/24/20	Kane	23	**0.0052**	<0.00094	<0.00094	<0.0013
KSB-2	KSB-2:12ft	2/24/20	Kane	12	**0.0017**	<0.00096	<0.00096	<0.0013
	KSB-2:18.75ft	2/24/20	Kane	18.75	**0.0051**	**0.0012**	<0.00093	<0.00093
	KSB-2:25ft	2/24/20	Kane	25	**0.055**	**0.002**	<0.00088	<0.00088
KSB-3	KSB-3:11.5ft	2/24/20	Kane	11.5	**0.0074**	<0.00095	<0.00095	<0.0013
	KSB-3:19ft	2/24/20	Kane	19	**0.058**	**0.029**	**0.033**	**0.0048**
	KSB-3:25.5ft	2/24/20	Kane	25.5	**1.0**	**0.0061**	<0.0009	<0.0013
KSB-4	KSB-4:12ft	2/24/20	Kane	12	**0.021**	<0.00089	<0.00089	<0.0013
	KSB-4:23.5ft	2/24/20	Kane	23.5	**0.0028**	<0.00085	<0.00085	<0.0012
	KSB-4:30ft	2/24/20	Kane	30	**0.13**	**0.0018**	<0.00096	<0.0013
KSB-5	KSB-5:8ft	2/24/20	Kane	8	**0.0011**	<0.00085	<0.00085	<0.0012
	KSB-5:11.5ft	2/24/20	Kane	11.5	<0.0025	<0.0025	<0.0025	**0.0046**
	KSB-5:13ft	2/24/20	Kane	13	<0.00097	<0.00097	**0.0012**	<0.00097
KSB-6	KSB-6:15.5ft	2/24/20	Kane	15.5	**1.5**	**0.3**	**0.02**	<0.0014
	KSB-6:24ft	2/24/20	Kane	24	<0.001	<0.001	<0.001	<0.001
KSB-7	KSB-7:11ft	2/24/20	Kane	11	<0.0045	<0.0045	<0.0045	<0.0045
	KSB-7:17ft	2/24/20	Kane	17	**0.17**	**0.011**	<0.00095	<0.00095
	KSB-7:22ft	2/24/20	Kane	22	<0.00081	<0.00081	<0.00081	<0.00081
RMW-14	RMW-14:6ft	4/27/20	Kane	6	<0.00077	<0.00077	<0.00077	<0.00077
	RMW-14:11.5ft	4/27/20	Kane	11.5	**0.0073**	<0.00080	<0.00080	<0.00080
	RMW-14:15ft	4/27/20	Kane	15	**0.00093**	<0.00075	<0.00075	<0.00075
	RMW-14:20ft	4/27/20	Kane	20	**0.0012**	<0.00074	<0.00074	<0.00074
	RMW-14:21.5ft	4/27/20	Kane	21.5	**0.13**	**0.27**	**0.029**	**0.0017**
	RMW-14:26ft	4/27/20	Kane	26	**0.0014**	**0.00087**	<0.00086	<0.00086
MTCA Method A Cleanup Levels[1]					0.05	0.03	N/A	N/A
MTCA Method B Cleanup Levels[1]					N/A	N/A	160	0.67

Notes:
PCE – Tetrachloroethene
TCE – Trichloroethene
cis 1,2-DCE - cis 1,2-Dichloroethene
Blank – Not analyzed or not reported
Bold – Analyte detected
Bold / Shaded – Analyte exceeds MTCA Method A or B cleanup level
mg/kg – milligrams per kilogram
ND – Analyte not detected at laboratory's reporting limit, which was not available
N/A – Not applicable
1 – Table 740-1, WAC 173-340-900

Table 2
Riverside HVOC Site
Groundwater Analytical Results

Well	Screened Interval, (ft bgs)	Date Sampled	Depth to Water (ft below TOC)	Sampled By	PCE (µg/L)	TCE (µg/L)	(cis) 1,2-DCE (µg/L)	Vinyl Chloride (µg/L)	pH (units)	Temp (° C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Comments
RMW-4	15 to 25	12/19/14	12.20	HWA	**0.79**	**0.33**	<0.20	*<0.20*	6.59	14.6	1183	1.70	-	
		6/23/15	13.09	HWA	**0.52**	**0.72**	<0.20	*<0.20*	5.76	17.67	987	0.00	-125.7	
		12/8/15	11.95	HWA	**2.2**	**0.56**	<0.20	*<0.20*	5.99	14.90	510	0.00	-69.9	
		6/29/16	12.22	HWA	**3.6**	**0.46**	<0.20	*<0.20*	5.17	15.31	400	4.22	91.5	
		12/21/16	11.48	HWA	**4.3**	**0.51**	<0.20	*<0.20*	6.20	14.5	293.5	0.43	0	
		6/28/17	11.48	HWA	**3.9**	**0.49**	<0.20	*<0.20*	6.41	14.65	225	1.57	65.3	
		9/26/19	12.24	Kane	**2.5**	**0.45**	<0.20	*<0.20*	5.71	16.0	365.2	0.29	67.4	
		1/31/2020	10.72	Kane	**3.7**	**0.54**	<0.20	*<0.20*	6.37	13.9	330.4	0.28	4.9	
		5/4/2020	11.09	Kane	**3.2**	**0.82**	<0.20	<0.02	6.23	15.4	365.2	0.16	-94.1	
RMW-5	12 to 22	5/24/13	11.51	HWA	**1.7**	<0.20	<0.20	*<0.20*	6.70	13.9	932	1.00	-	
		6/24/14	14.51	HWA	**1.4**	**0.40**	<0.20	*<0.20*	6.48	14.5	740	0.15	-	
		12/19/14	13.61	HWA	**1.3**	**0.32**	**0.22**	*<0.20*	6.28	13.3	1226	0.55	-	
		6/23/15	14.26	HWA	**0.66**	**0.36**	<0.20	*<0.20*	6.28	16.1	953	0.00	-127.1	
		12/8/15	13.29	HWA	**1.6**	<0.20	<0.20	*<0.20*	5.83	14.54	318	18.61	-90.4	
		6/29/16	13.41	HWA	**1.1**	**0.31**	<0.20	*<0.20*	6.18	14.43	356	1.71	-2.0	
		12/22/16	13.01	HWA	**1.0**	<0.20	**0.23**	*<0.20*	6.48	13.7	483.9	0.27	-106.2	
		6/29/17	13.26	HWA	**2.0**	<0.20	<0.20	*<0.20*	6.65	13.85	438	0.46	-89.3	
		9/26/19	13.53	Kane	**2.1**	**0.39**	**0.22**	*<0.20*	6.10	15.5	450.1	0.14	-29.2	
		1/31/20	9.82	Kane	**2.5**	**0.21**	<0.20	*<0.20*	6.66	13.4	554.7	0.05	-109.5	
		5/4/20	12.34	Kane	**2.3**	<0.20	<0.20	<0.02	6.38	13.6	474.6	0.22	-110.1	
RMW-6	15 to 25	9/14/09		HWA	<0.20	**0.27**	**3.6**	**5.3**	-	-	-	-	-	
		5/24/13	10.42	HWA	<0.20	<0.20	**2.7**	**3.4**	6.68	14.3	467	1.40	-	
		6/24/14	14.79	HWA	**0.34**	**0.60**	**0.42**	<0.20	6.47	14.2	407	0.13	-	
		12/19/14	13.31	HWA	**0.47**	<0.20	<0.20	<0.20	6.09	14.3	294	0.82	-	
		6/23/15	13.65	HWA	<0.20	**1.4**	**0.88**	<0.20	6.12	15.2	283	0.00	8.0	
		12/8/15	12.46	HWA	<0.20	**2.7**	**1.0**	<0.20	6.00	14.99	232	0.00	-40.1	
		6/29/16	13.14	HWA	<0.20	**2.5**	**1.3**	<0.20	6.39	15.34	194	1.64	35.5	
		12/21/16	12.21	HWA	<0.20	**0.39**	**0.5**	<0.20	6.47	14.8	179.8	0.57	88.2	
		6/29/17	12.68	HWA	<0.20	**0.41**	**0.3**	<0.20	6.60	14.21	171	1.11	140.5	
		9/26/19	12.67	Kane	<0.20	**1.7**	**3.8**	**0.57**	6.07	15.4	412.9	0.16	28.8	
		1/31/20	10.85	Kane	<0.20	**0.52**	**2.5**	**0.7**	6.57	14.0	512.1	0.07	-18.9	
		5/4/20	11.11	Kane	<0.20	**0.45**	**1.5**	**0.21**	6.46	13.9	455.2	0.08	-91.9	
RMW-7	15 to 25	9/14/09		HWA	**50**	**120**	**190**	**22**	-	-	-	-	-	
		5/24/13	16.31	HWA	**9.0**	**33**	**65**	**9.3**	6.80	16.2	447	0.30	-	
		4/4/14	16.65	HWA	**0.75**	**3.8**	**35**	**8.3**	6.50	12.9	1969	0.55	-	
		6/25/14	16.55	HWA	**5.2**	**24**	**80**	**9.9**	6.48	15.2	865	0.03	-	
		9/22/14	17.54	HWA	*<1.0*	**3.2**	**170**	**47**	6.96	18.2	386	5.25	-	
		12/19/14	17.49	HWA	**2.9**	**8.9**	**150**	**34**	6.06	15.4	683	0.73	-	
		3/18/15	16.66	HWA	<0.40	**1.5**	**57**	**20**	6.35	14.9	1127	1.87	-	
		6/23/15	17.41	HWA	<0.40	**3.1**	**95**	**9.6**	5.97	17.96	508	0.00	-70.3	
		9/11/15	18.50	HWA	**4.2**	**23**	**110**	**14**	6.22	21.54	464	3.23	-	
		12/8/15	15.97	HWA	**3.5**	**8.7**	**85**	**9.0**	5.96	15.92	274	0.00	-12.3	
		3/31/16	16.94	HWA	**1.5**	**6.8**	**84**	**35**	6.40	14.63	403	2.00	38.9	
		6/29/16	17.11	HWA	**2.3**	**14**	**65**	**12**	6.28	16.57	297	1.20	30.3	
		9/30/16	18.28	HWA	**2.4**	**7.8**	**89**	**13**	6.12	16.81	419	0.69	31.3	
		12/22/16	15.89	HWA	**1.1**	**4.1**	**88**	**24**	6.34	15.8	368.4	0.19	-34.1	
		4/5/17	16.43	HWA	**1.2**	**2.4**	**12**	**0.86**	6.26	13.00	318.9	0.30	19.5	
		6/28/17	16.65	HWA	**1.3**	**1.9**	**33**	**1.9**	6.50	15.49	283	0.78	5.9	
		10/10/17	18.26	HWA	**1.0**	**2.3**	**47**	**25**	6.33	17.38	438	3.18	176.6	
		9/27/19	17.60	Kane	**0.51**	**4.1**	**33**	**27**	6.29	16.6	579.2	0.09	-17.7	
		2/3/20	16.27	Kane	<0.20	**0.22**	**16**	**26**	6.44	13.3	682.0	0.12	-21.6	
		5/5/20	16.49	Kane	**0.32**	**0.88**	**20**	**28**	6.48	14.3	595.4	0.12	-109.2	
RMW-8	20 to 30	9/15/09		HWA	**0.46**	**2.6**	**1.3**	*<0.20*	-	-	-	-	-	
		5/24/13	18.81	HWA	**0.50**	**0.85**	**0.44**	*<0.20*	6.42	16.4	494	0.10	-	
		6/24/14	19.62	HWA	<0.20	<0.20	<0.20	*<0.20*	6.27	15.7	650	0.20	-	
		12/19/14	20.63	HWA	**0.70**	<0.20	<0.20	*<0.20*	6.18	14.5	431	0.84	-	
		6/23/15	20.87	HWA	<0.20	<0.20	<0.20	*<0.20*	5.74	26.9	333	0.27	-61.2	
		12/8/15	19.42	HWA	<0.20	**0.39**	**0.47**	*<0.20*	5.83	15.15	344	1.51	44.3	
		6/29/16	20.50	HWA	<0.20	<0.20	<0.20	*<0.20*	6.27	17.47	216	2.05	32.0	
		12/22/16	20.58	HWA	**0.31**	**0.66**	**0.37**	*<0.20*	6.13	14.6	297.3	0.31	32.8	
		6/28/17	19.73	HWA	<0.20	<0.20	<0.20	*<0.20*	6.21	16.03	213	0.84	120.9	
		9/27/19	21.10	Kane	<0.20	<0.20	<0.20	*<0.20*	6.01	16.1	433.7	0.33	-18.4	
		2/3/20	19.56	Kane	<0.20	**0.40**	**0.28**	*<0.20*	6.21	13.6	428.9	0.03	-20.2	
		5/6/20	19.52	Kane	<0.20	<0.20	<0.20	<0.02	6.19	15.3	372.7	0.37	-136.5	
RMW-9 / RMW-9R	20 to 30	9/15/09		HWA	<0.20	<0.20	<0.20	*<0.20*	-	-	-	-	-	
		5/24/13	13.65	HWA	<0.20	<0.20	<0.20	*<0.20*	6.38	15.7	247	4.00	-	
		12/19/14	15.31	HWA	**0.79**	<0.20	<0.20	*<0.20*	6.16	15.7	182	2.92	-	
		6/23/15	4.00	HWA	<0.20	<0.20	<0.20	*<0.20*	5.93	18.7	139	4.20	70.4	
		12/8/15	15.92	HWA	<0.20	<0.20	<0.20	*<0.20*	5.75	15.61	163	3.29	94.3	
		6/29/16	15.31	HWA	<0.20	<0.20	<0.20	*<0.20*	6.53	15.91	132	11.20	94.9	
		12/22/16	14.78	HWA	<0.20	<0.20	<0.20	*<0.20*	6.19	16.0	151	7.68	85.3	
		6/29/17	13.55	HWA	<0.20	<0.20	<0.20	*<0.20*	6.06	16.75	103	7.95	122.1	
		9/27/19	16.61	Kane	<0.20	<0.20	<0.20	*<0.20*	5.75	15.9	225.9	3.91	126.1	
		2/4/20	15.10	Kane	<0.20	<0.20	<0.20	*<0.20*	6.11	12.5	184.5	7.13	95.1	
		5/7/20	14.48	Kane	<0.20	<0.20	<0.20	<0.02	5.91	14.8	270.3	6.99	-43.2	
RMW-10	32 to 42	5/24/13	11.85	HWA	<0.20	<0.20	<0.20	*<0.20*	6.52	13.3	247	6.60	-	
		6/24/14	15.00	HWA	<0.20	<0.20	<0.20	*<0.20*	6.19	15.4	361	1.08	-	
		12/19/14	14.80	HWA	**0.69**	<0.20	<0.20	*<0.20*	6.08	15.0	284	2.03	-	
		6/23/15	20.40	HWA	<0.20	<0.20	<0.20	*<0.20*	6.43	17.3	233	7.28	37.0	
		12/8/15	19.69	HWA	<0.20	<0.20	<0.20	*<0.20*	5.94	14.69	134	5.41	50.0	
		6/29/16	13.60	HWA	<0.20	<0.20	<0.20	*<0.20*	6.68	15.83	166	8.35	29.2	
		12/21/16	13.63	HWA	<0.20	<0.20	<0.20	*<0.20*	6.31	14.3	152.4	3.25	133.8	
		6/28/17	14.05	HWA	<0.20	<0.20	<0.20	*<0.20*	6.60	15.4	207	2.83	112.6	
		9/27/19	15.99	Kane	<0.20	<0.20	<0.20	*<0.20*	5.66	14.8	261.5	2.86	132.2	
		2/4/20	15.56	Kane	<0.20	<0.20	<0.20	*<0.20*	6.34	12.5	237.1	2.49	55.2	
		5/5/20	12.48	Kane	<0.20	<0.20	<0.20	<0.02	6.29	16.4	242.9	2.87	-66.3	
RMW-12	15 to 25	7/25/16	16.25	HWA	**120**	**19**	**14**	*<1.0*	6.30	17.68	442	1.53	21.7	
		12/21/16	13.10	HWA	**61**	**14**	**21**	**1.6**	5.90	15.0	305	0.25	103.3	
		6/28/17	13.10	HWA	**130**	**27**	**29**	*<1.0*	6.09	14.54	368	1.87	144.8	
		9/27/19	14.52	Kane	**15**	**3.1**	**6.5**	**0.87**	5.69	15.8	418.4	0.31	76.4	
		2/4/20	12.47	Kane	**13**	**3.7**	**6.1**	**2.8**	6.12	12.9	438.6	0.13	74.1	
		5/6/20	12.24	Kane	**19**	**4.6**	**5.4**	**0.50**	5.91	13.3	387.1	0.23	-72.4	
RMW-13	15 to 25	7/25/16	14.95	HWA	<0.20	<0.20	1.8	**0.24**	5.19	17.4	333.0	2.50	183.5	
		12/22/16	16.61	HWA	<0.20	<0.20	1.2	*<0.20*	6.36	16.0	351.4	0.16	-8.2	
		6/28/17	15.23	HWA	<0.20	<0.20	0.50	*<0.20*	6.42	14.7	448.0	0.71	25.3	
		9/27/19	16.20	Kane	<0.20	<0.20	**0.97**	*<0.20*	6.30	18.9	525.3	0.11	17.3	
		2/3/20	14.94	Kane	<0.20	<0.20	**0.31**	*<0.20*	6.43	12.7	662.0	0.11	-54.8	
		5/5/20	15.22	Kane	<0.20	<0.20	**0.3**	**0.06**	6.41	15.0	722.0	0.10	-148.5	
RMW-14	15 to 25	5/5/20	12.36	Kane	**15**	**5.6**	**4.0**	**0.15**	6.33	13.8	590.2	1.49	-66.0	
BC-3	15 to 25	9/5/08		HWA	**110**	**120**	**46**	*<1.0*	-	-	-	-	-	
		5/24/13	12.95	HWA	**25**	**11**	**4.0**	*<0.20*	6.55	15.1	342	4.00	-	
		6/24/14	14.41	HWA	**11**	**4.0**	**0.75**	*<0.20*	6.06	14.8	426	2.40	-	
		12/19/14	15.61	HWA	**7.7**	**2.1**	**0.44**	*<0.20*	6.07	14.8	298	1.82	-	
		6/23/15	18.30	HWA	**3.8**	**0.90**	<0.20	*<0.20*	5.68	21.2	161	364	123.4	
		12/8/15	15.30	HWA	**5.3**	**1.3**	**0.29**	*<0.20*	5.59	15.17	248	6.05	120.8	
		6/29/16	16.95	HWA	**3.7**	**0.93**	<0.20	*<0.20*	5.90	15.84	167	6.97	52.2	
		12/21/16	14.25	HWA	**5.9**	**1.5**	**0.57**	*<0.20*	5.90	14.6	245.6	1.48	175.8	
		6/28/17	16.43	HWA	**6.8**	**1.9**	**0.80**	*<0.20*	6.04	14.86	265	3.67	147.6	
		9/27/19	16.08	Kane	**4.3**	**1.0**	**0.34**	*<0.20*	5.73	14.6	279.7	3.15	94.2	
		2/4/20	15.05	Kane	**5.2**	**1.3**	**0.43**	*<0.20*	6.04	12.9	338.2	2.37	64.7	
		5/6/20	13.81	Kane	**6.7**	**1.7**	**0.52**	<0.02	6.01	13.9	554.9	1.67	-67.9	
RB-25	15 to 25	10/24/18	17.50	HWA	**200**	**88**	**92**	**1.0**	-	-	-	-	-	
RB-26	15 to 25	10/24/18	16.60	HWA	**2.4**	**1.6**	**3.5**	<0.02	-	-	-	-	-	
RB-27	15 to 25	10/24/18	14.80	HWA	**29**	**19**	**7.1**	**1.0**	-	-	-	-	-	
RB-28	10 to 20	10/24/18	15.30	HWA	**15**	**6.4**	**4.7**	**0.34**	-	-	-	-	-	
RB-29	15 to 25	10/24/18	19.70	HWA	**2.6**	**1.0**	**1.4**	<0.02	-	-	-	-	-	
RB-30	15 to 25	10/24/18	18.80	HWA	**0.56**	**1.3**	**8.1**	**0.28**	-	-	-	-	-	
RB-31	15 to 25	10/25/18	15.60	HWA	**63**	**11**	**43**	**13**	-	-	-	-	-	
RB-32	15 to 25	10/25/18	17.90	HWA	**110**	**44**	**76**	<0.02	-	-	-	-	-	

Table 2
Riverside HVOC Site
Groundwater Analytical Results

Well	Screened Interval, (ft bgs)	Date Sampled	Depth to Water (ft below TOC)	Sampled By	PCE (µg/L)	TCE (µg/L)	(cis) 1,2-DCE (µg/L)	Vinyl Chloride (µg/L)	pH (units)	Temp (° C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Comments
EW-1	12.5 to 32.5	4/4/14	27.90	HWA	**17**	**3.0**	**1.2**	*<0.20*	-	-	-	-	-	
		6/25/14	14.78	HWA	**27**	**8.1**	**6.5**	*<0.20*	6.61	18.3	100	5.68		
		9/22/14		HWA	**-**	**-**	**-**	-	-	-	-	-	-	Pump not working
		12/19/14		HWA	**21**	**2.6**	**0.82**	*<0.20*	6.42	17.3	107	4.99	-	
		3/18/15		HWA	**2.8**	**0.27**	<0.20	*<0.20*	7.01	15.9	167	3.65	-	
		6/23/15		HWA	**22**	**2.0**	**0.95**	*<0.20*	-	-	-	-	-	
		9/11/15	15.86	HWA	**41**	**2.2**	**0.79**	*<0.20*	6.01	19.54	160	2.99	-49.88	
		12/8/15		HWA	**-**	**-**	**-**	-	-	-	-	-	-	Pump not working
		3/31/16		HWA	**22**	**2.8**	**2.5**	*<0.20*	6.27	15.94	227	6.55	80.2	
		6/29/16		HWA	**24**	**4.2**	**4.5**	*<0.20*	6.37	16.7	192	8.10	47.5	
		9/30/16		HWA	**20**	**2.0**	**2.3**	*<0.20*	5.63	14.21	193	4.10	90.1	
		1/5/17		HWA	**1.1**	<0.20	<0.20	*<0.20*	6.64	12.05	315	4.60	47.3	
		4/5/17		HWA	**13**	**1.2**	**0.85**	*<0.20*	5.89	15.9	368.2	2.34	136	
		6/29/17		HWA	**8.9**	**0.77**	**0.70**	*<0.20*	6.44	18.11	192	3.17	128.3	
		10/10/17		HWA	**15**	**0.81**	**0.50**	*<0.20*	6.49	15.28	226	7.34	298.8	
		9/27/19		Kane	**-**	**-**	**-**	-	-	-	-	-	-	Pump not working
		2/4/20		Kane	**-**	**-**	**-**	-	-	-	-	-	-	Pump not working
EW-2	15 to 35	4/4/14	23.70	HWA	**13**	**2.8**	**1.5**	-	-	-	-	-	-	
		6/25/14	17.10	HWA	**28**	**3.8**	**1.5**	*<0.20*	6.58	16.5	143	2.21	-	
		9/22/14		HWA	**66**	**16**	**12**	*<0.40*	-	-	-	-	-	
		12/19/14		HWA	**44**	**12**	**12**	*<0.40*	7.01	15.8	204	2.31	-	
		3/18/15		HWA	**22**	**6.5**	**4.3**	*<0.20*	6.87	15.0	251	2.16	-	
		6/23/15		HWA	**8.6**	**2.4**	**1.8**	*<0.20*	-	-	-	-	-	
		9/11/15	19.89	HWA	**6.5**	**0.62**	<0.20	*<0.20*	6.11	19.9	235	2.84	-56.8	
		12/8/15		HWA	**16**	**2.6**	**2.4**	*<0.20*	5.92	15.12	201	2.43	595.1	
		3/31/16		HWA	**16**	**4.0**	**3.7**	*<0.20*	5.75	15.21	218	8.58	129.9	
		6/29/16		HWA	**17**	**4.1**	**3.2**	*<0.20*	6.46	15.75	185	6.85	48.3	
		9/30/16		HWA	**21**	**6.2**	**5.6**	*<0.20*	5.94	14.24	191	3.97	73.9	
		1/5/17		HWA	**24**	**3.6**	**1.7**	*<0.20*	6.67	12.08	192	3.80	31.3	
		4/5/17		HWA	**11**	**3.2**	**2.2**	*<0.20*	6.38	16.2	258.7	5.08	123.4	
		6/29/17		HWA	**16**	**4.8**	**3.6**	*<0.20*	6.51	19.5	185	2.50	125.6	
		10/10/17		HWA	**3.0**	**0.45**	**0.23**	*<0.20*	6.73	16.35	215	6.20	300.9	
		9/27/19		Kane	**16**	**4.7**	**3.2**	*<0.20*	6.04	15.2	263.1	1.42	188.2	
		2/5/20		Kane	**26**	**7.9**	**6.2**	**0.39**	6.25	14.6	280.6	1.03	-7.4	
		5/7/20		Kane	**-**	**-**	**-**	**-**	-	-	-	-	-	Well is Dry
EW-3	14 to 34	4/4/14	23.80	HWA	**49**	**14.0**	**7.2**	**0.61**	-	-	-	-	-	
		6/25/14	19.00	HWA	**41**	**14.0**	**12**	*<0.40*	6.58	16.4	182	6.34	-	
		9/22/14		HWA	**190**	**59**	**33**	**1.1**	-	-	-	-	-	
		12/19/14		HWA	**21**	**6.4**	**6.0**	*<0.20*	6.82	15.9	275	6.02	-	
		3/18/15		HWA	**140**	**46**	**29**	*<1.0*	6.78	15.4	322	5.47	-	
		6/23/15		HWA	**87**	**24**	**9.0**	-	-	-	-	-	-	
		9/11/15	20.86	HWA	**81**	**28**	14	*<0.40*	6.56	19.89	354	2.53	-65.78	
		12/8/15		HWA	**33**	**11**	**7.8**	**0.38**	5.82	16.59	247	2.36	160	
		3/31/16		HWA	**72**	**21**	**16**	**0.64**	6.20	19.57	358	2.28	87.5	
		6/29/16		HWA	**79**	**24**	**14**	**0.43**	6.28	19.37	304	6.51	45.9	
		9/30/16		HWA	**50**	**18**	**10**	**0.63**	5.84	18.59	386	1.11	51.7	
		1/5/17		HWA	**95**	**30**	**20**	**0.46**	6.37	13.32	319	2.60	27.5	
		4/5/17		HWA	**150**	**57**	**30**	**1.3**	5.99	18.7	434.8	1.21	105.6	
		6/29/17		HWA	**270**	**79**	**59**	**1.4**	6.27	26.59	330	2.65	133	
		10/10/17		HWA	**69**	**25**	**16**	**0.41**	6.38	18.4	305	6.17	221.5	
		9/27/19		Kane	**-**	**-**	**-**	-	-	-	-	-	-	Well is Dry
		2/4/20		Kane	**-**	**-**	**-**	-	-	-	-	-	-	Well is Dry
		5/7/20		Kane	**25**	**23**	**11**	**0.023**	6.28	12.0	399.0	0.21	-72.8	
EW-4	11 to 31	4/4/14	12.50	HWA	-	-	**-**	**-**	-	-	-	-	-	Pump not working
		6/25/14	17.30	HWA	**1.7**	**1.8**	**1.1**	**0.38**	6.46	16.0	220	1.73		
		9/22/14		HWA	**45**	**10**	**7.4**	**0.87**						
		12/19/14		HWA	**1.2**	**1.6**	**1.1**	**0.27**	6.68	16.6	105	1.99		
		3/18/15		HWA	**15**	**4.8**	**3.2**	*<0.20*						
		6/23/15		HWA	**0.85**	**2.8**	**1.7**	**0.37**						
		9/11/15	18.84	HWA	**1.8**	**2.1**	**0.92**	**0.28**	6.23	19.22	125	2.55	-65.32	
		12/8/15		HWA	<0.20	**1.6**	**2.9**	**0.85**	5.84	22.04	424	0.00	214	
		3/31/16		HWA	<0.20	**2.5**	**2.0**	**0.31**	6.61	15.91	354	1.47	2.0	
		6/29/16		HWA	<0.20	**1.2**	**3.5**	**0.61**	6.54	19.19	344	6.99	33.0	
		9/30/16		HWA	<0.20	**0.88**	**4.0**	**0.75**	8.14	17.05	373	0.95	12.0	
		1/5/17		HWA	**0.33**	**3.2**	**1.8**	**0.29**	6.67	12.21	325	1.80	-67.9	
		4/5/17		HWA	**0.20**	**3.0**	**1.7**	**0.25**	6.37	15.9	409.2	0.82	-12.2	
		6/29/17		HWA	<0.20	**0.9**	**2.6**	**0.24**	6.73	19.88	343	1.12	-47.6	
		9/27/19		Kane	**-**	**-**	**-**	-	-	-	-	-	-	Pump not working
		2/4/20		Kane	**-**	**-**	**-**	-	-	-	-	-	-	Pump not working
		5/7/20		Kane	**-**	**-**	**-**	-	-	-	-	-	-	Pump not working
EW-5	15 to 35	1/5/17		HWA	**5.0**	**4.0**	**9.4**	**2.5**	6.61	12.71	270	1.29	-45.1	
		4/5/17		HWA	**6.9**	**5.2**	**15**	**3.8**	6.27	14.8	511.9	1.22	23.9	
		6/29/17		HWA	**8.6**	**3.8**	**10**	**0.49**	6.58	18.98	239	4.41	66.7	
		10/10/17		HWA	**0.36**	**0.94**	**8.6**	**1.8**	6.58	18.81	350	2.65	262.6	
		9/27/19		Kane	**-**	**-**	**-**	-	-	-	-	-	-	Pump Broken
		2/4/20		Kane	**-**	**-**	**-**	-	-	-	-	-	-	Pump Broken
		5/7/20		Kane	**-**	**-**	**-**	-	-	-	-	-	-	Pump Broken
EW-6	15 to 35	1/5/17		HWA	**2.4**	**0.54**	<0.20	*<0.20*	6.62	4.13	166	5.65	-17.8	
		4/5/17		HWA	**2.1**	**0.94**	**1.2**	*<0.20*	6.20	15.2	252.7	2.47	60.2	
		6/29/17		HWA	**0.56**	**0.63**	**2.0**	**0.31**	6.67	20.23	280	4.05	29.5	
		10/10/17		HWA	**20**	**7.2**	**18**	**0.46**	6.56	17.42	274	2.68	289.3	
		9/27/19		Kane	**4.7**	**1.4**	**4.2**	*<0.20*	6.03	16.8	273.0	0.01	200.6	
		2/5/20		Kane	**3.1**	**1.0**	**4.0**	*<0.20*	6.22	15.4	310.8	0.28	-33.0	
		5/7/20		Kane	**12**	**5.3**	**7.6**	**0.36**	6.42	15.7	245.9	0.32	-77.7	
Site Specific Cleanup Levels					**4.9** [a]	**0.38** [a]	**16** [b]	**0.02** [a]						

Notes:
PCE – Tetrachloroethene
TCE – Trichloroethene
(cis) 1,2-DCE - (cis) 1,2-Dichloroethene
Blank – Not analyzed or not available
Bold – Analyte detected
Bold / highlighted – Analyte exceeds Site Specific Cleanup Level
Italicized - Detection limit exceeds respective cleanup level
< – Analyte not detected at listed reporting limit
NA – Not Applicable
a - Surface Water ARARs - Human Health - Fresh Water - WAC 173-201A
b - MTCA Method B Cleanup Level - Groundwater

Attachment A
Site Historical Source Materials

KANE ENVIRONMENTAL INC

WASHINGTON STATE ARCHIVES – PUGET SOUND REGIONAL BRANCH

DISTRICT 7742

ADDITION TAX LOT

Section 8 Twp. 26 Range 5 Ewm. (156) Block

PERMIT No.

DATE

legal on back 7742

E 60' of W 315' of NW¼ of NW¼ ly S of Bothell Woodinville Road & N of Sammamish River & E 30' of sd Subdivision S of Sd River (Por of 120) less St Hiway

Bldg. "B"

Fee Owner

Condition of Exterior GOOD Interior GOOD Foundation GOOD

USE FIXIT. SHOP

- 1 No. Stories
- No. Stores
- 1 No. Rooms
- Basement
- No. Offices
- No. Apartments
- 1 rm. / 2 rm. / 3 rm. / 4 rm. / 5 rm. / 6 rm.

arb '65

ROOF CONSTRUCTION

- X Frame Lam
- Mill Construction
- Rein. Concrete
- No. Trusses
- Wood / Steel

ROOFING MATERIAL

- Tar and Gravel
- Or. SHINGLE

FLOOR FINISH

- Fir / Maple
- Oak / 2" x 6" T&G
- Lino. / 3" x 6" T&G
- Cement
- Terrazzo
- Rasconlith
- Tile
- Or. PLANK

Tile / Lino.

- Baths / Fl. / Walls
- Sq. Ft. N Floors
- Sq. Ft. N Walls
- Lin. Ft. O Dr. Bds.
- Sq. Ft. N Floors
- Sq. Ft. E Walls
- Lin. Ft. Dr. Bds.
- Kit's. / Fl. / Walls

PLUMBING

- No. Fixtures
- Toilets
- Tubs, Leg or Pem.
- Basins, Ped.
- N Sinks
- O Urinals
- N Showers (Tub) (Stall)
- E Laundry Trays
- H. W. Tank Fl. Drains
- Sprink. Sys. No. Hds.

TYPE OF CONSTRUCTION

- X Frame
- X Single / Double
- Ordinary Masonry
- Mill Construction
- Class A Rein. Con.
- Stru. Steel and Con.
- Tile / Brick
- Con. / Rein. Con.

Good Med. X Cheap

Date Built 1944 [X] Finished / Unfinished / Remodeled

Effective Age Years Future Life Years

Dep. For Cond. Dep. For Ob. Dep. For Ex. Total 25

REPRODUCTION COST

Total $

Assessed Value 50% $

Sup. Building A. V. $

Total $

FOUNDATION

- Mud Sills
- X Post and Pier
- Brick
- Concrete
- Pile

BASEMENT

- Full %
- Sub-Basement
- N Size x
- O Garage / No. Cars
- N Floors
- E Plastered
- Living Rooms
- Service Rooms

HEATING

- Stove
- Pipeless Furnace
- Gravity H. A.
- N Air Cond., Fan
- O Arcola
- N 1-Pipe Steam
- E 2-Pipe St. or Vapor
- Hot Water
- Oil Burner
- Coal Stoker

WIRING

- Knobs & Tube
- Flex Cable
- X Conduit OPEN
- Power Wiring
- Range Wiring
- No. Outlets

ELEVATORS

- Pass. / Freight
- Auto. / Elec.
- Man. / Hyd.
- Man.

1300

650

'65 BH.5

OK '66

450

350 ~~$~~ 47

EXTERIOR WALL CONSTR.

- X Single / Double
- X 2" x 4" Stud Walls 16"
- 2" x 6" Stud Walls
- Brick Walls
- Brick With Pilasters
- Concrete Walls
- Con. With Pilasters
- Tile Walls
- Rein. Con. Skel.
- Filler Walls
- Laminated Walls

EXTERIOR FACING

- X Siding / Shingles
- Shakes / Stucco
- Brick Veneer
- Kind
- Stone / Cast S.
- Terra Cotta
- Struct. Glass
- Trim

FLOOR CONSTRUCTION

Joist Con. Size 2 x 10

O. C. 16" In Bridg. [X]

- Mill Construction
- Rein. Con.

INTERIOR WALLS

- Stud and Plaster
- Lam. / Plastered
- Ply Wood
- Ceiled
- Plaster Board
- Painted
- Stain / Varnish
- Kalsomine
- Whitewashed
- Unfinished
- X OPEN STUDS

INTERIOR TRIM

- Fir
- Mah. / Oak
- Metal
- Doors
- Windows
- Stained
- Varnished
- Painted
- Unfinished
- X NONE

GAS STATIONS

- Frame
- Metal
- Masonry
- Plastered or Ceiled
- Floors

SERVICE BUILDING

- Frame
- Metal
- Masonry
- Plastered or Ceiled
- Floors

TANKS, ETC., LIST

Hoists: Elect. Hyd.

DOCKS AND PIERS

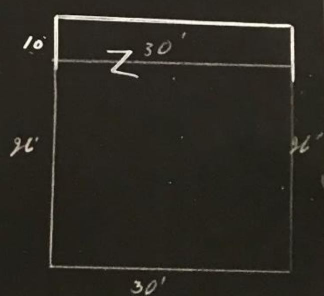
- Treated Piles and Timbers
- Untreated
- Treated Piles only
- Average Length
- Paved

C. H.

S.B., B, 1 10, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22

GROUND FLOOR AREA 780

TOTAL FLOOR AREA



Other Buildings	Construction	Floor	Roof	Stories	Dimensions	S. F. Area	Factor	Value	% Dep.	Deprec.	Net Value
Garage NONE					x			$		$	$
					x			$		$	$
					x			$		$	$
					x			$		$	$
					x			$		$	$

Years Future Life Years

p. For Cond. Dep. For Ob. Dep. For Es. Total 35

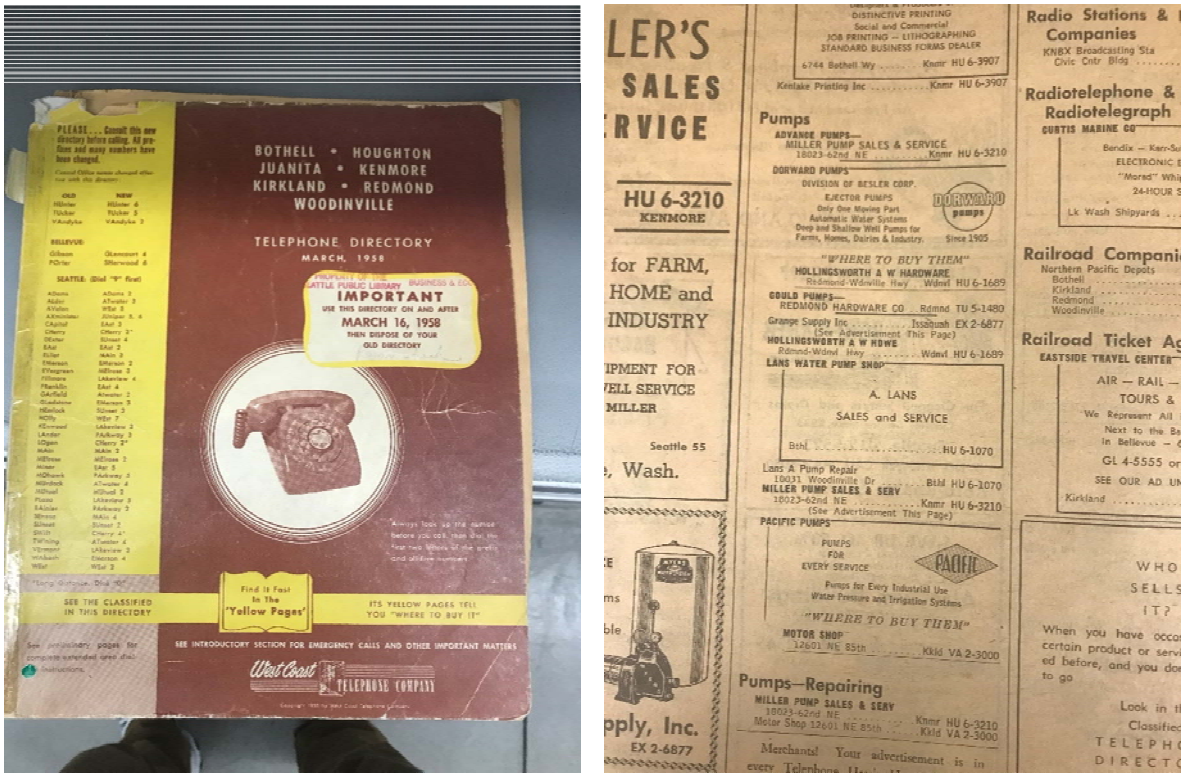
REPRODUCTION COST

Mc
6-5-45
F-7742

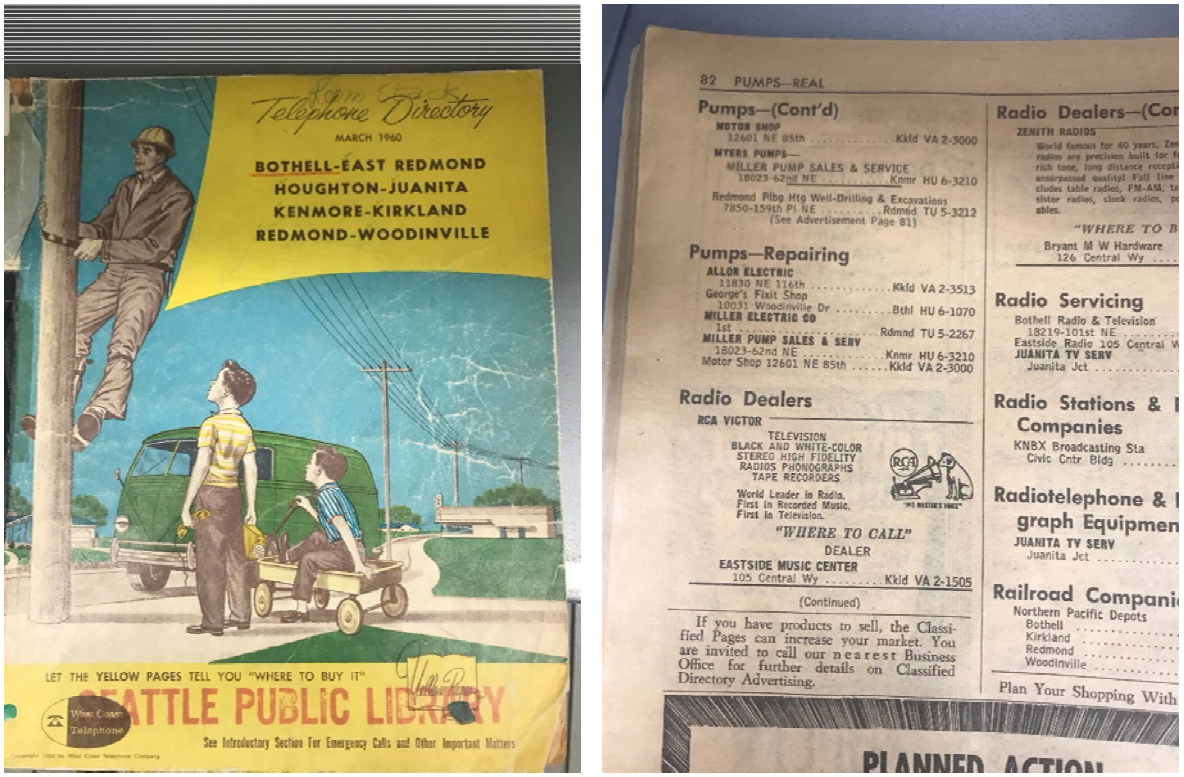
8-26-5
T.L. 156

KANE ENVIRONMENTAL INC

CENTRAL BRANCH OF THE SEATTLE PUBLIC LIBRARY



Photograph of 1958 Yellow Pages depicting “Lans A Pump Repair” as located at 10031 Woodinville Dr.



Photograph of 1960 Yellow Pages depicting “George’s Fixit Shop” as located at 10031 Woodinville Dr.

KANE ENVIRONMENTAL INC

HISTORICAL AERIAL PHOTOGRAPHS

Bothell Riverside

Not Reported

Bothell, WA 98011

Inquiry Number: 5776934.3

September 05, 2019

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

09/05/19

Site Name:

Bothell Riverside
Not Reported
Bothell, WA 98011
EDR Inquiry # 5776934.3

Client Name:

Kane Environmental Inc.
4015 13th Avenue West
Seattle, WA 98119
Contact: Jeffrey Jensen

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2013	1"=500'	Flight Year: 2013	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1990	1"=500'	Acquisition Date: July 10, 1990	USGS/DOQQ
1985	1"=500'	Flight Date: June 19, 1985	NRWA
1980	1"=500'	Flight Date: July 27, 1980	USDA
1977	1"=500'	Flight Date: September 13, 1977	USGS
1973	1"=500'	Flight Date: July 09, 1973	NOAA
1968	1"=500'	Flight Date: September 02, 1968	USGS
1965	1"=500'	Flight Date: July 06, 1965	NRWA
1952	1"=500'	Flight Date: July 01, 1952	USGS
1943	1"=500'	Flight Date: March 05, 1943	DIA
1941	1"=500'	Flight Date: June 11, 1941	USDA

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INQUIRY #: 5776934.3

YEAR: 2017

= 500'

N

EDR

INQUIRY #: 5776934.3

YEAR: 2013

= 500'

N

EDR


INQUIRY #: 5776934.3
YEAR: 2009
= 500'
N
EDR

INQUIRY #: 5776934.3

YEAR: 2006

= 500'

N

EDR

INQUIRY #: 5776934.3

YEAR: 1990

= 500'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.


INQUIRY #: 5776934.3
YEAR: 1985
= 500'
N
EDR

INQUIRY #: 5776934.3

YEAR: 1980

= 500'

N

EDR

INQUIRY #: 5776934.3

YEAR: 1977

= 500'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.

INQUIRY #: 5776934.3

YEAR: 1973

= 500'

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EDR

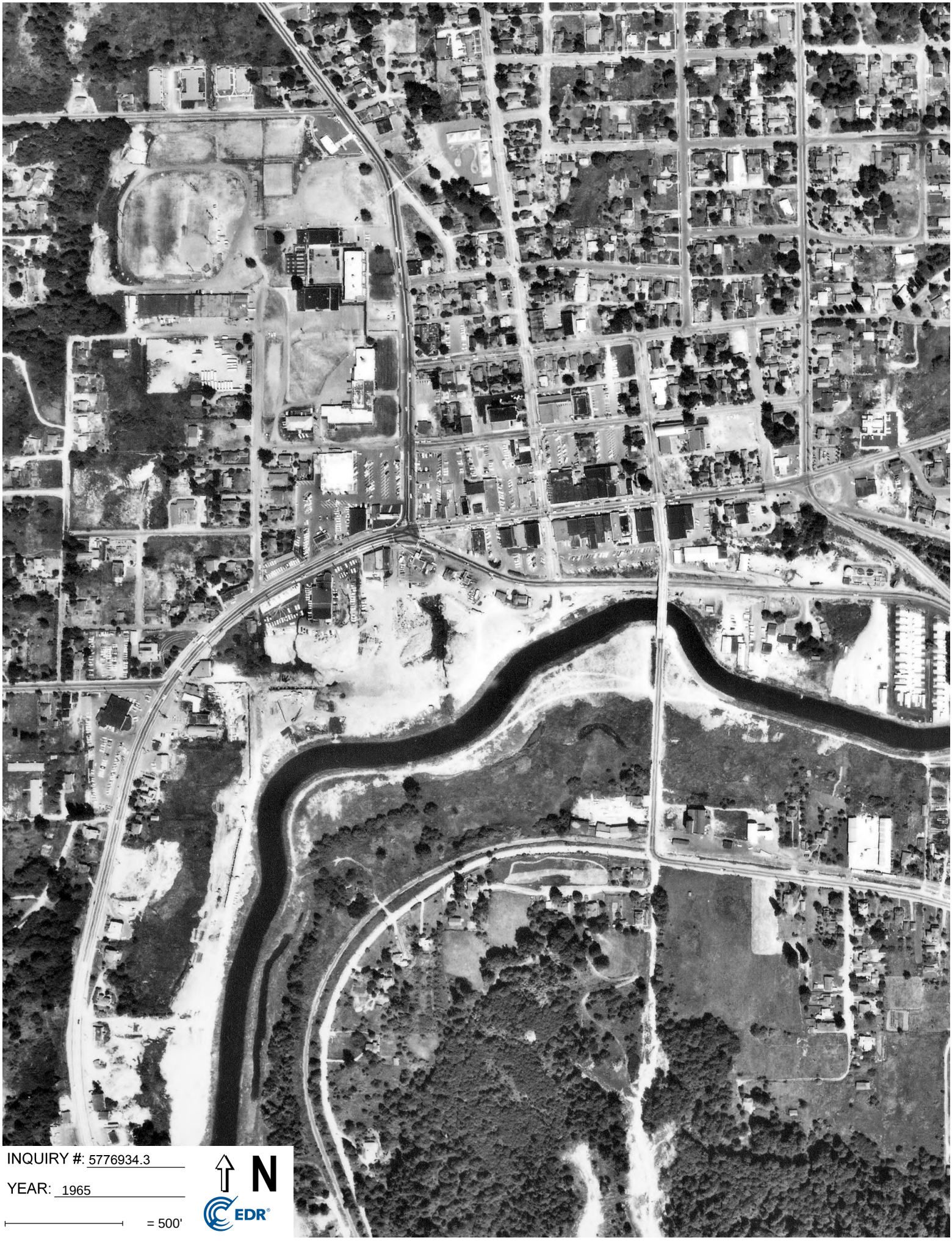
INQUIRY #: 5776934.3

YEAR: 1968

= 500'

N

EDR



INQUIRY #: 5776934.3

YEAR: 1965

= 500'

N

EDR

INQUIRY #: 5776934.3

YEAR: 1952

= 500'

N

EDR

INQUIRY #: 5776934.3

YEAR: 1943

= 500'

N

EDR

INQUIRY #: 5776934.3

YEAR: 1941

= 500'

N

EDR

Attachment B
Soil Boring and Groundwater Monitoring Well Logs

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

COHESIONLESS SOILS			COHESIVE SOILS		
Density	N (blows/ft)	Approximate Relative Density(%)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	over 30	>4000

USCS SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP DESCRIPTIONS	
Coarse Grained Soils	Gravel and Gravelly Soils	Clean Gravel (little or no fines)	GW	Well-graded GRAVEL
			GP	Poorly-graded GRAVEL
	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Gravel with Fines (appreciable amount of fines)	GM	Silty GRAVEL
			GC	Clayey GRAVEL
More than 50% Retained on No. 200 Sieve Size	Sand and Sandy Soils	Clean Sand (little or no fines)	SW	Well-graded SAND
			SP	Poorly-graded SAND
	50% or More of Coarse Fraction Passing No. 4 Sieve	Sand with Fines (appreciable amount of fines)	SM	Silty SAND
			SC	Clayey SAND
Fine Grained Soils	Silt and Clay	Liquid Limit Less than 50%	ML	SILT
			CL	Lean CLAY
			OL	Organic SILT/Organic CLAY
50% or More Passing No. 200 Sieve Size	Silt and Clay	Liquid Limit 50% or More	MH	Elastic SILT
			CH	Fat CLAY
			OH	Organic SILT/Organic CLAY
Highly Organic Soils			PT	PEAT

TEST SYMBOLS

%F	Percent Fines
AL	Atterberg Limits: PL = Plastic Limit, LL = Liquid Limit
CBR	California Bearing Ratio
CN	Consolidation
DD	Dry Density (pcf)
DS	Direct Shear
GS	Grain Size Distribution
K	Permeability
MD	Moisture/Density Relationship (Proctor)
MR	Resilient Modulus
PID	Photoionization Device Reading
PP	Pocket Penetrometer Approx. Compressive Strength (tsf)
SG	Specific Gravity
TC	Triaxial Compression
TV	Torvane Approx. Shear Strength (tsf)
UC	Unconfined Compression

SAMPLE TYPE SYMBOLS

- 2.0" OD Split Spoon (SPT) (140 lb. hammer with 30 in. drop)
- Shelby Tube
- 3-1/4" OD Split Spoon with Brass Rings
- Small Bag Sample
- Large Bag (Bulk) Sample
- Core Run
- Non-standard Penetration Test (3.0" OD split spoon)

GROUNDWATER SYMBOLS

- Groundwater Level (measured at time of drilling)
- Groundwater Level (measured in well or open hole after water level stabilized)

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5 mm) to No. 200 (0.074 mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074mm)

COMPONENT PROPORTIONS

PROPORTION RANGE	DESCRIPTIVE TERMS
< 5%	Clean
5 - 12%	Slightly (Clayey, Silty, Sandy)
12 - 30%	Clayey, Silty, Sandy, Gravelly
30 - 50%	Very (Clayey, Silty, Sandy, Gravelly)
Components are arranged in order of increasing quantities.	

NOTES: Soil classifications presented on exploration logs are based on visual and laboratory observation.
Soil descriptions are presented in the following general order:

Density/consistency, color, modifier (if any) GROUP NAME, additions to group name (if any), moisture content. Proportion, gradation, and angularity of constituents, additional comments. (GEOLOGIC INTERPRETATION)

Please refer to the discussion in the report text as well as the exploration logs for a more complete description of subsurface conditions.

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
MOIST	Damp but no visible water.
WET	Visible free water, usually soil is below water table.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

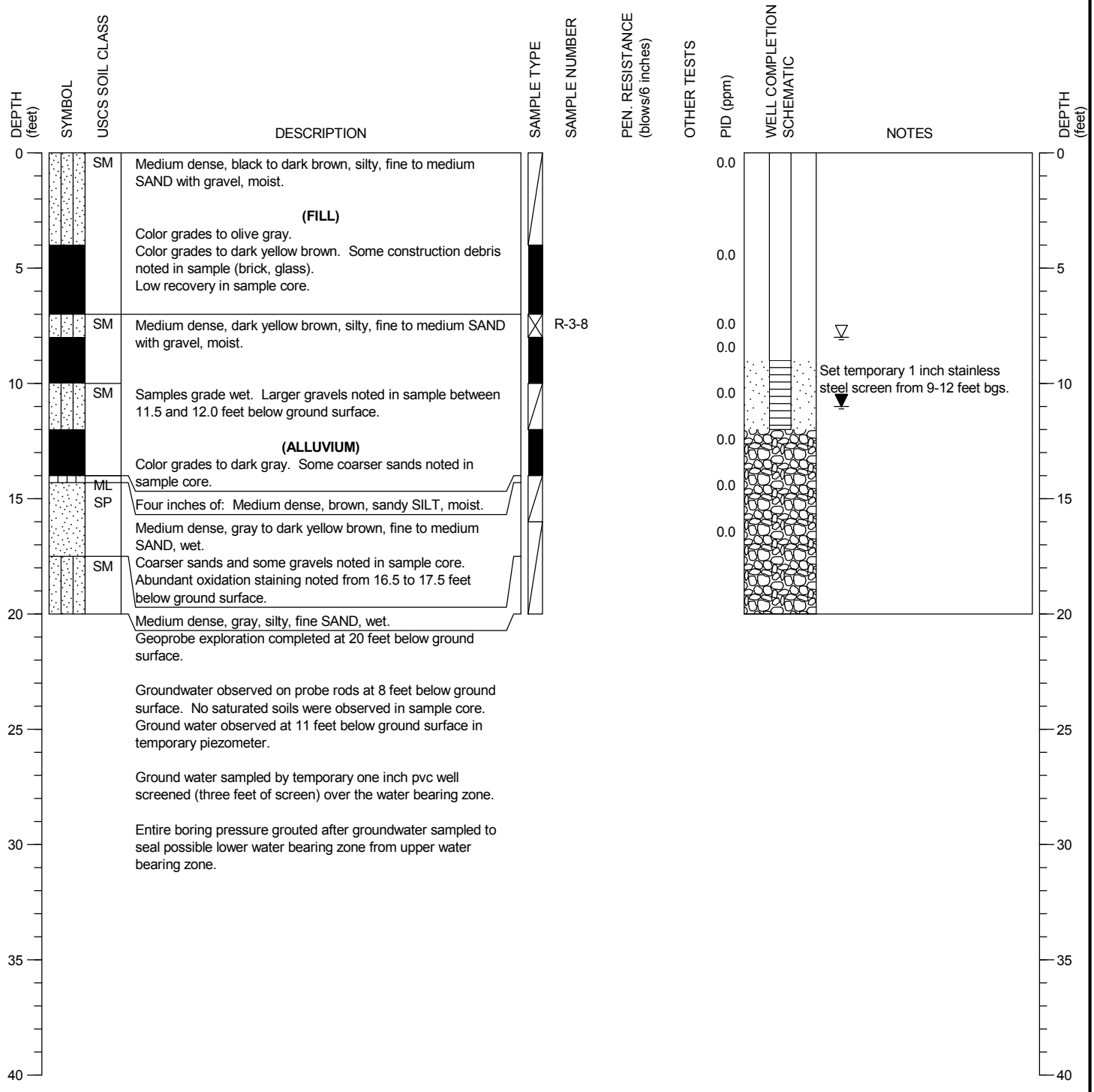
LEGEND OF TERMS AND SYMBOLS USED ON EXPLORATION LOGS

PROJECT NO.: 2007-098-800 FIGURE: A-1

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: See Figure 2

SURFACE ELEVATION: 37.50 ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/12/2008
DATE COMPLETED: 2/12/2008
LOGGED BY: J. Speck



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
R-3

PAGE: 1 of 1

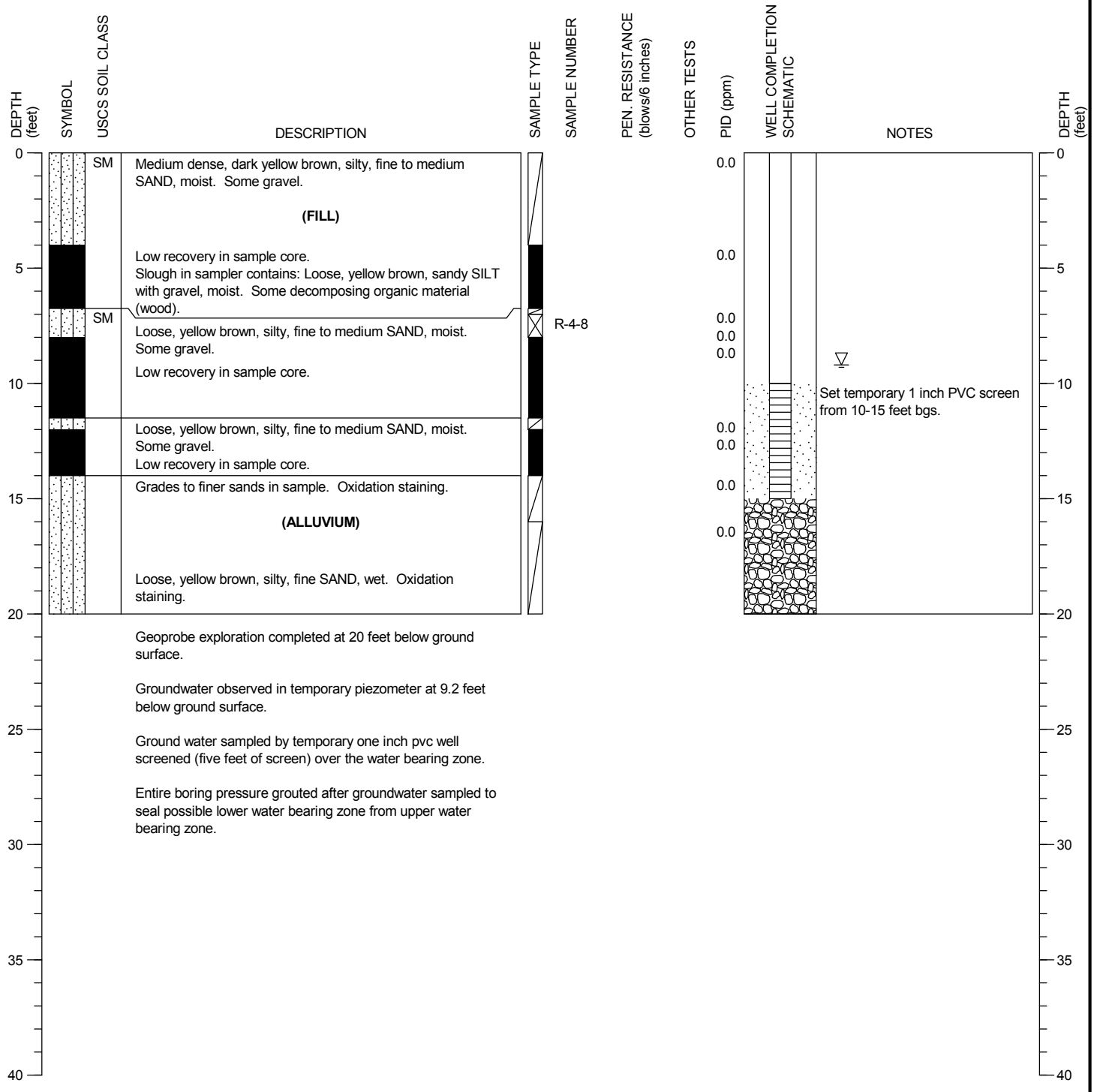
PROJECT NO.: 2007-098-800 FIGURE: A-18

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: See Figure 2

SURFACE ELEVATION: 36.50 ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/12/2008
DATE COMPLETED: 2/12/2008
LOGGED BY: J. Speck



Geoprobe exploration completed at 20 feet below ground surface.

Groundwater observed in temporary piezometer at 9.2 feet below ground surface.

Ground water sampled by temporary one inch pvc well screened (five feet of screen) over the water bearing zone.

Entire boring pressure grouted after groundwater sampled to seal possible lower water bearing zone from upper water bearing zone.

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

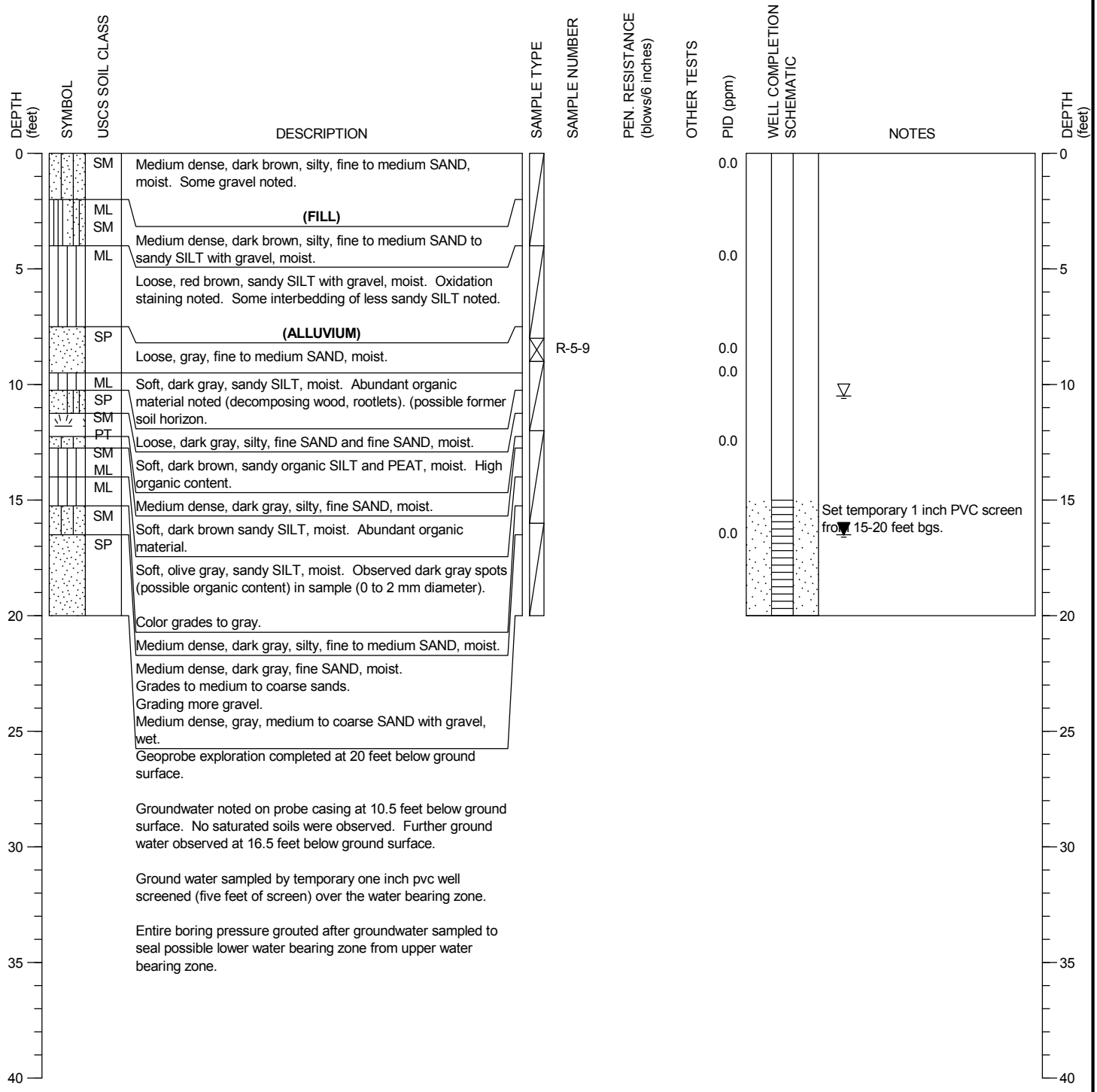
MONITORING WELL:
R-4

PROJECT NO.: 2007-098-800 FIGURE: A-19

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: See Figure 2

SURFACE ELEVATION: 35.50 ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/12/2008
DATE COMPLETED: 2/12/2008
LOGGED BY: J. Speck



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
R-5

PAGE: 1 of 1

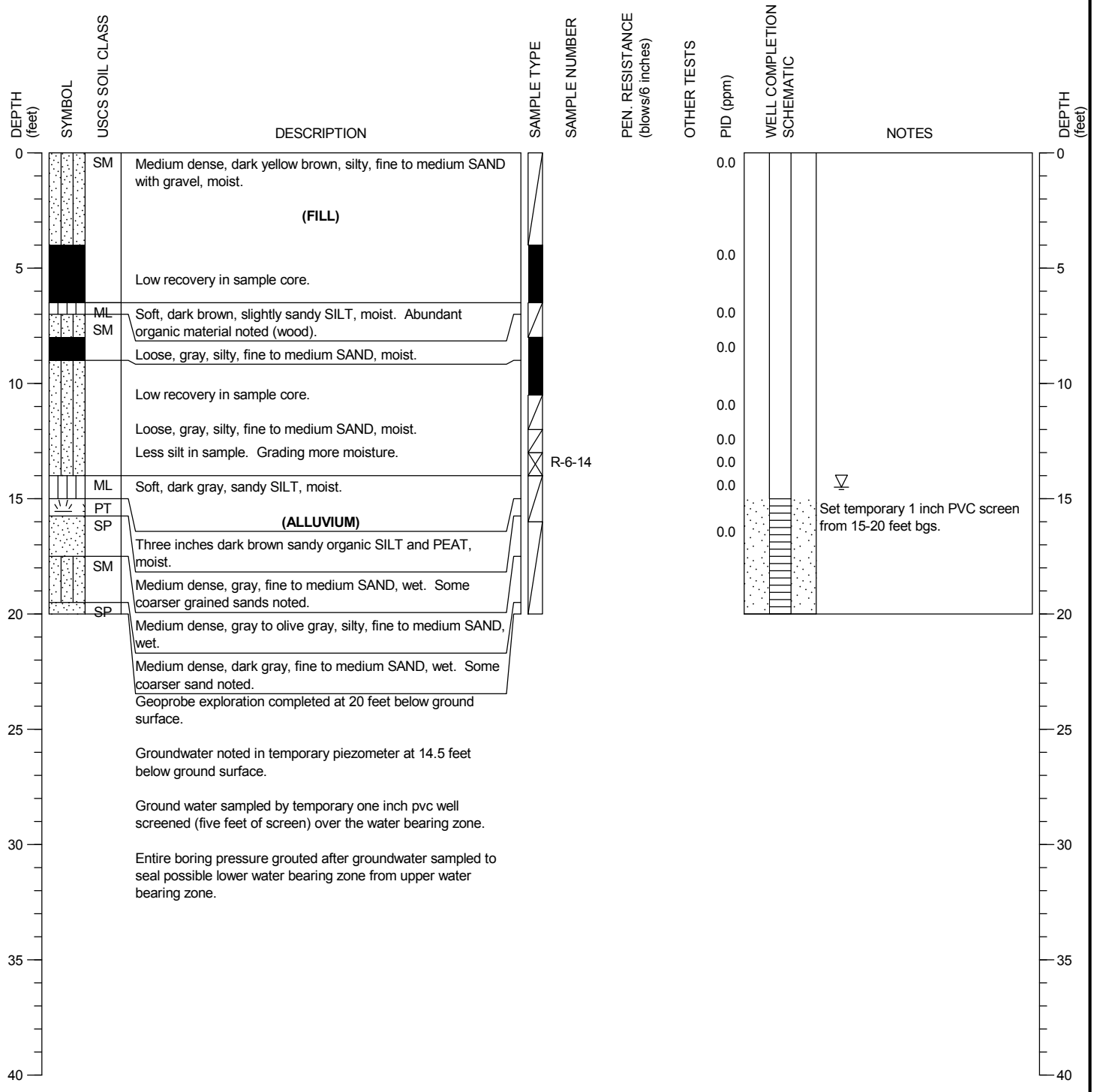
PROJECT NO.: 2007-098-800 FIGURE: A-20

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: See Figure 2

SURFACE ELEVATION: 36.30 ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/12/2008
DATE COMPLETED: 2/12/2008
LOGGED BY: J. Speck



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

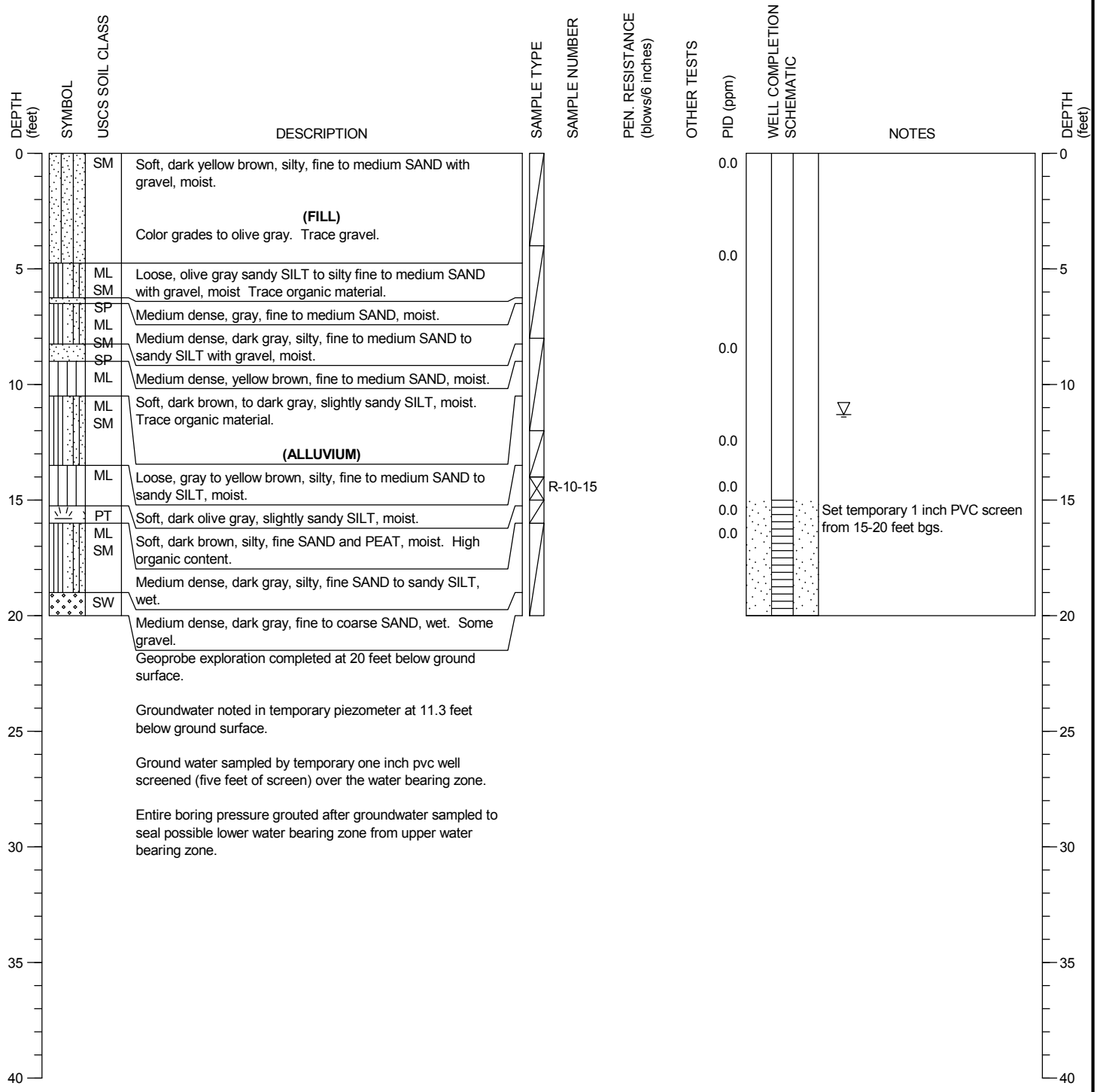
MONITORING WELL:
R-6

PROJECT NO.: 2007-098-800 FIGURE: A-21

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: See Figure 2

SURFACE ELEVATION: 36.70 ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/13/2008
DATE COMPLETED: 2/13/2008
LOGGED BY: J. Speck



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
R-10

PAGE: 1 of 1

PROJECT NO.: 2007-098-800 FIGURE: A-25

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

SOIL CLASSIFICATION LEGEND

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS More than half is larger than No. 200 sieve	GRAVELS More than half coarse fraction is larger than No. 4 sieve size	Clean gravels with little or no fines	GW	Well graded gravels, gravel-sand mixtures
			GP	Poorly graded gravels, gravel-sand mixtures
		Gravel with over 12% fines	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than half coarse fraction is smaller than No. 4 sieve size	Clean sands with little or no fines	SW	Well graded sands, gravelly sands
			SP	Poorly graded sands, gravelly sands
		Sands with over 12% fines	SM	Silty sand, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS More than half is smaller than No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic clays and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			PT	Peat and other highly organic soils

SAMPLE TYPE SYMBOLS

- Disturbed bag or jar sample
- Std. Penetration Test (2.0" OD)
- Type U Ring Sampler (3.25" OD)
- California Sampler (3.0" OD)
- Undisturbed Tube Sample
- G — Grab Sample
- Core Run
- Non-standard Penetration Test (with split spoon sampler)

CONTACT BETWEEN UNITS

- Change in geologic unit
- Soil type change within geologic unit
- Obscure or gradational change

DESCRIPTORS FOR SOIL STRATA AND STRUCTURE (ENGLISH/METRIC)

General Thickness or Spacing

Parting:	less than 1/16 in. (1/6 cm)
Seam:	1/16 to 1/2 in. (1/6 to 1 1/4 cm)
Layer:	1/2 to 12 in. (1 1/4 to 30 1/2 cm)
Stratum:	> 12 in. (30 1/2 cm)
Scattered:	< 1 per ft. (30 1/2 cm)
Numerous:	> 1 per ft. (30 1/2 cm)

Structure

Pocket:	Erratic, discontinuous deposit of limited extent
Lens:	Lenticular deposit
Varved:	Alternating seams of silt and clay
Laminated:	Alternating seams
Interbedded:	Alternating layers

General Attitude

Near horizontal:	0 to 10 deg.
Low angle:	10 to 45 deg.
High angle:	45 to 80 deg.
Near Vertical:	80 to 90 deg.

STRUCTURE DESCRIPTION (cont.)

Fractured	Breaks easily along definite fractured planes
Slickensided	Polished, glossy, fractured planes
Blocky, Diced	Breaks easily into small angular lumps
Sheared	Disturbed texture, mix of strengths
Homogeneous	Same color and appearance throughout

RELATIVE DENSITY OR CONSISTENCY VS. SPT N-VALUE

COARSE GRAINED			FINE GRAINED		
Density	N (blows/ft)	Approx. Relative Density (%)	Consistency	N (blows/ft)	Approx. Undrained Shear Str. (psf)
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	Over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	over 30	>4000

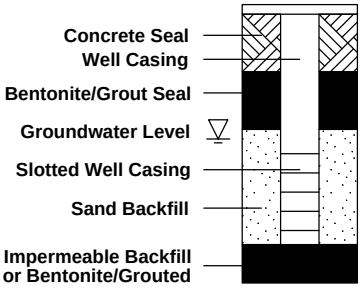
MOISTURE DESCRIPTION

Dry - Free of moisture, dusty

Moist - Damp but no visible free water

Wet - Visible free water, saturated

WELL COMPLETIONS



PHYSICAL PROPERTY TEST

AL -	Atterberg Limits
FC -	Fines Content
GSD -	Grain Size Distribution
MC -	Moisture Content
MD -	Moisture Content/Dry Density
Comp -	Compaction Test (Proctor)
SG -	Specific Gravity
CBR -	California Bearing Ratio
RM -	Resilient Modulus
Perm -	Permeability
TXP -	Triaxial Permeability
Cons -	Consolidation
Chem -	Analytical Chemical Analysis
Corr -	Corrosion
VS -	Vane Shear
DS -	Direct Shear
UC -	Unconfined Compression
TX -	Triaxial Compression
UU -	Unconsolidated, Undrained
CU -	Consolidated, Undrained
CD -	Consolidated, Drained

Notes:

1. Sample descriptions in this report are based on visual field and 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 classification methods in accordance with ASTM D 2488 were used as an identification guide. Where laboratory data are available, soil classifications are in general accordance with ASTM D 2487.

2. Dual symbols are used to indicate gravel and sand units with 5 to 12 percent fines.

3. WOR = weight of rod.

CDM

King County
Bothell Crossroads Redevelopment Project
Bothell, Washington

Project No: 19897.68445 Figure: C1

SOIL CLASSIFICATION/LEGEND 19897-68445-BOTHELL ROW.GPJ CDM_BLLV.GDT 5/22/09 REV.

Boring Log B15

Other Tests	Sample No.	Moisture Content (%)	Dry Density (pcf)	PID (ppm) (reading/background)	Penetration Resistance (blows / 6 in.)	Depth (feet)	Sample	USCS	Symbol	DESCRIPTION	Elev. (feet)
										8" Asphalt.	
										Silty SAND (SM), dark brown, gravel (10%), medium dense, moist.	
						2					
						4		SM		Decreasing silt, tan.	
										Increasing gravel becoming coarse.	
						6					
										Clayey SILT (ML), black, low plasticity (Marsh Deposit).	
						8					
	B15-10					10				Increasing clay, becomes wet.	
										Decreasing clay.	
								ML		Becomes gray and tan, stiff.	
						12					
						14					
						16				Boring terminated at 16 ft bgs. Groundwater encountered at approximately 11 ft bgs.	
						18					
						20					

Station: _____
Surface Elevation: _____
Logged By: AW

Drill Rig: DPT
Equipment/Hammer: Continuous Core/
Date Completed: 4-3-09

CDM

King County
Bothell Crossroads Redevelopment Project
Bothell, Washington

Boring Log B15 Figure: C17
Project No: 19897.68445 1 of 1

NEIS_BORING_LOG 19897-68445-BOTHELL ROW.GPJ CDM_BLLV.GDT 5/22/09 REV.

Boring Log B16

Other Tests	Sample No.	Moisture Content (%)	Dry Density (pcf)	PID (ppm) [reading/background]	Penetration Resistance (blows / 6 in.)	Depth (feet)	Sample	USCS	Symbol	DESCRIPTION	Elev. (feet)
						0				8" Asphalt.	
						2				Silty SAND (SM), tan-brown, with fine to coarse gravel (20%), medium dense, moist.	
						4		SM		No recovery.	
						6					
						8				Silty SAND (SM), tan-brown, fine to coarse gravel, medium dense, moist.	
						10		SM			
						▽12				SILT (ML), tan, stiff, saturated.	
	B16-13					14					
						16		ML			
	B16-W									Increasing sand, becomes sandy SILT (ML), soft, saturated.	
						18				Decreasing sand, becomes SILT (ML), stiff, saturated.	
										Boring terminated at 19 ft bgs. Groundwater encountered at 12 ft bgs.	
						20					

Station: _____ Drill Rig: DPT

Surface Elevation: _____ Equipment/Hammer: Continuous Core/

Logged By: AW Date Completed: 4-3-09

CDM

King County
Bothell Crossroads Redevelopment Project
Bothell, Washington

Boring Log B16 Figure: C18

Project No: 19897.68445 1 of 1

NEIS_BORING_LOG 19897-68445-BOTHELL ROW.GPJ CDM_BLLV.GDT 5/22/09 REV.

Boring Log B-17

Other Tests	Sample No.	Moisture Content (%)	Dry Density (pcf)	PID (ppm) [reading/background]	Penetration Resistance (blows / 6 in.)	Depth (feet)	Sample	USCS	Symbol	DESCRIPTION	Elev. (feet)
										6" Concrete.	
										SAND (SP), tan, fine to medium grained, trace fine gravel, gravel is rounded, diam. 1/4-1/2", medium dense, moist.	
				0		2					
						4					
						6				Gravel is absent after 5.5 ft bgs.	
				0		8					
						10		SP		Becomes bedded with mm thick beds.	
				0.8							
	B17-11					12					
						14					
						▽					
				0.8						Becomes saturated.	
						16					
						18					
	B17-W										
						20				Boring terminated at 19 ft bgs. Groundwater encountered at 15 ft bgs.	

Station: _____ Drill Rig: DPT

Surface Elevation: _____ Equipment/Hammer: Continuous Core/

Logged By: AW Date Completed: 4-2-09

King County
Bothell Crossroads Redevelopment Project
Bothell, Washington

CDM

Boring Log B-17 Figure: C19

Project No: 19897.68445 1 of 1

NEIS_BORING_LOG 19897-68445-BOTHELL ROW.GPJ CDM_BLLV.GDT 5/22/09 REV.

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

COHESIONLESS SOILS			COHESIVE SOILS		
Density	N (blows/ft)	Approximate Relative Density(%)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	over 30	>4000

USCS SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP DESCRIPTIONS	
Coarse Grained Soils	Gravel and Gravelly Soils	Clean Gravel (little or no fines)	GW	Well-graded GRAVEL
			GP	Poorly-graded GRAVEL
	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Gravel with Fines (appreciable amount of fines)	GM	Silty GRAVEL
			GC	Clayey GRAVEL
	Sand and Sandy Soils	Clean Sand (little or no fines)	SW	Well-graded SAND
			SP	Poorly-graded SAND
More than 50% Retained on No. 200 Sieve Size	50% or More of Coarse Fraction Passing No. 4 Sieve	Sand with Fines (appreciable amount of fines)	SM	Silty SAND
			SC	Clayey SAND
Fine Grained Soils	Silt and Clay	Liquid Limit Less than 50%	ML	SILT
			CL	Lean CLAY
			OL	Organic SILT/Organic CLAY
50% or More Passing No. 200 Sieve Size	Silt and Clay	Liquid Limit 50% or More	MH	Elastic SILT
			CH	Fat CLAY
			OH	Organic SILT/Organic CLAY
Highly Organic Soils			PT	PEAT

TEST SYMBOLS

%F	Percent Fines
AL	Atterberg Limits: PL = Plastic Limit, LL = Liquid Limit
CBR	California Bearing Ratio
CN	Consolidation
DD	Dry Density (pcf)
DS	Direct Shear
GS	Grain Size Distribution
K	Permeability
MD	Moisture/Density Relationship (Proctor)
MR	Resilient Modulus
PID	Photoionization Device Reading
PP	Pocket Penetrometer Approx. Compressive Strength (tsf)
SG	Specific Gravity
TC	Triaxial Compression
TV	Torvane Approx. Shear Strength (tsf)
UC	Unconfined Compression

SAMPLE TYPE SYMBOLS

- 2.0" OD Split Spoon (SPT) (140 lb. hammer with 30 in. drop)
- Shelby Tube
- 3-1/4" OD Split Spoon with Brass Rings
- Small Bag Sample
- Large Bag (Bulk) Sample
- Core Run
- Non-standard Penetration Test (3.0" OD split spoon)

GROUNDWATER SYMBOLS

- Groundwater Level (measured at time of drilling)
- Groundwater Level (measured in well or open hole after water level stabilized)

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5 mm) to No. 200 (0.074 mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074mm)

COMPONENT PROPORTIONS

PROPORTION RANGE	DESCRIPTIVE TERMS
< 5%	Clean
5 - 12%	Slightly (Clayey, Silty, Sandy)
12 - 30%	Clayey, Silty, Sandy, Gravelly
30 - 50%	Very (Clayey, Silty, Sandy, Gravelly)
Components are arranged in order of increasing quantities.	

NOTES: Soil classifications presented on exploration logs are based on visual and laboratory observation. Soil descriptions are presented in the following general order:

Density/consistency, color, modifier (if any) GROUP NAME, additions to group name (if any), moisture content. Proportion, gradation, and angularity of constituents, additional comments. (GEOLOGIC INTERPRETATION)

Please refer to the discussion in the report text as well as the exploration logs for a more complete description of subsurface conditions.

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
MOIST	Damp but no visible water.
WET	Visible free water, usually soil is below water table.

HWA GEOSCIENCES INC.

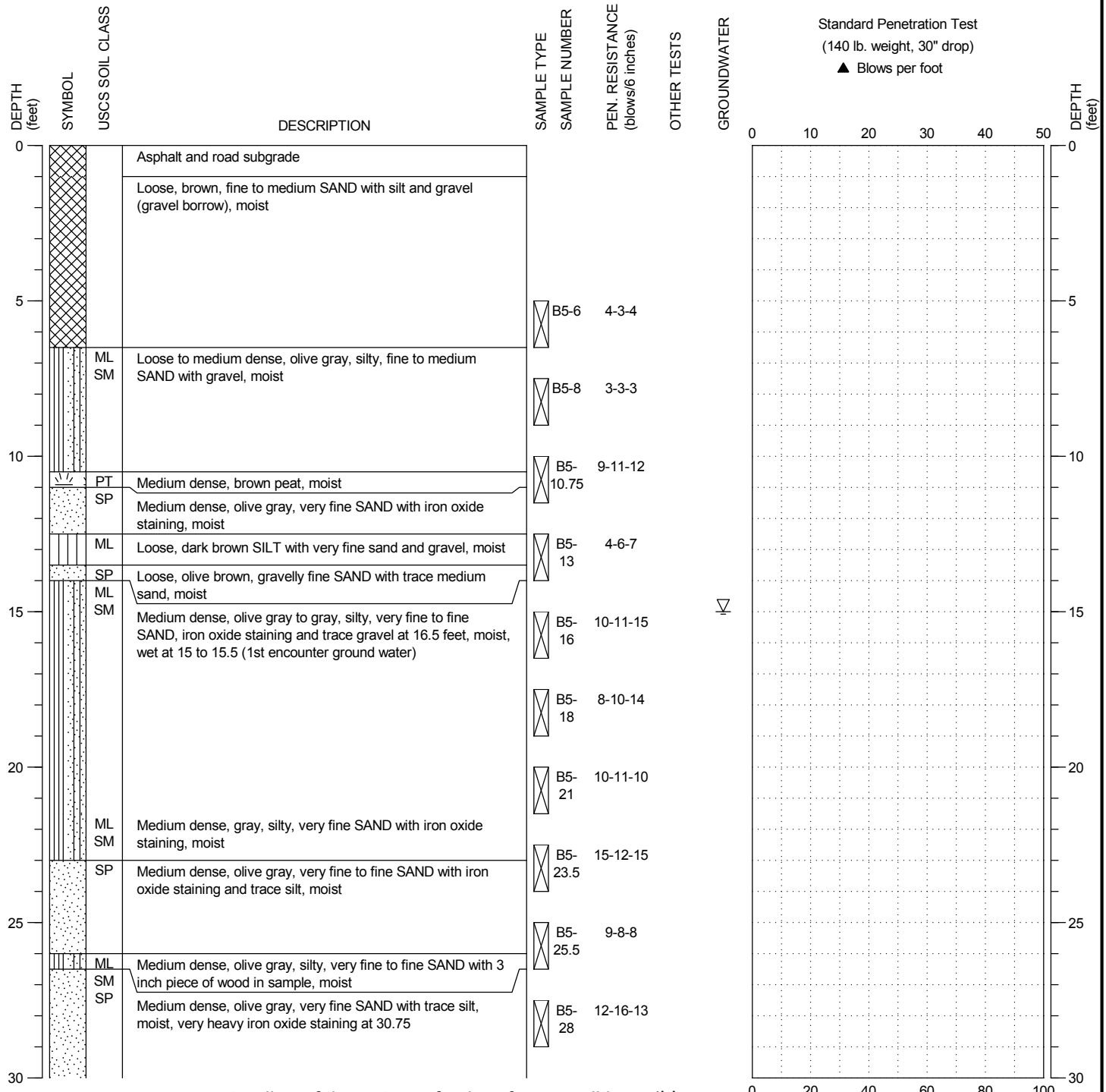
UCC/RIVERSIDE HVOC SITE
RECON GROUND WATER SAMPLING
BOTHELL, WASHINGTON

LEGEND OF TERMS AND SYMBOLS USED ON EXPLORATION LOGS

PROJECT NO.: 2007-098-2045 FIGURE:

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD:
SAMPLING METHOD: Hollow Stem Auger
SURFACE ELEVATION: 35.00 ± feet

LOCATION: Bothell, Washington
DATE STARTED: 3/22/2017
DATE COMPLETED: 3/21/2017
LOGGED BY: N. Kapise



For a proper understanding of the nature of subsurface conditions, this exploration log should be read in conjunction with the text of the geotechnical report.

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Ultra/Riverside HVOC Site
Bothell, Washington

BORING:
UCCB-5

PROJECT NO.: 2007-098-2045 FIGURE:

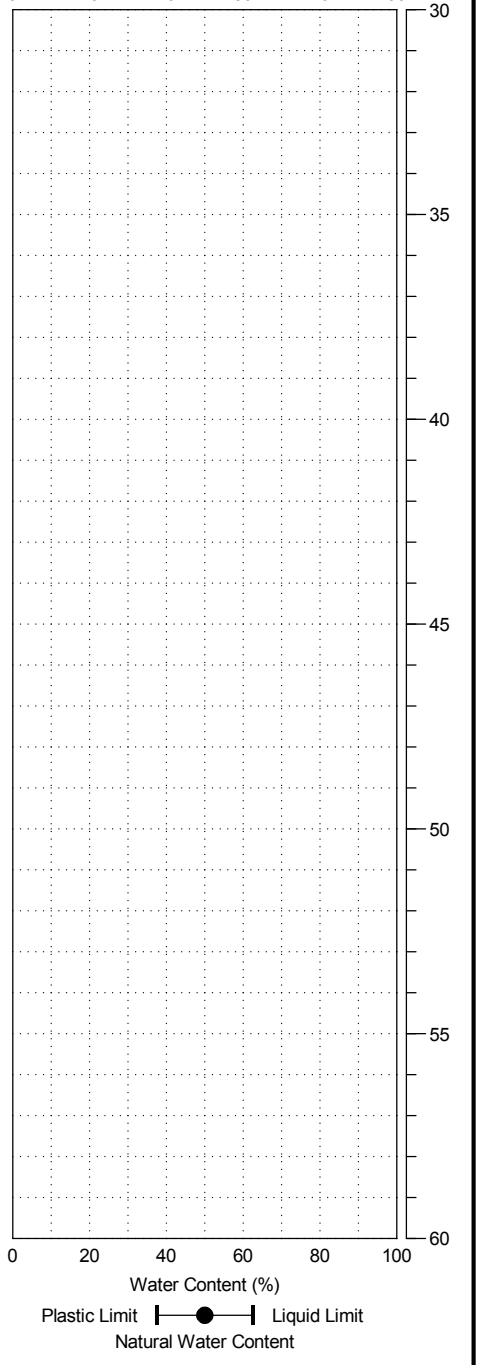
DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD:
SAMPLING METHOD: Hollow Stem Auger
SURFACE ELEVATION: 35.00 ± feet

LOCATION: Bothell, Washington
DATE STARTED: 3/22/2017
DATE COMPLETED: 3/21/2017
LOGGED BY: N. Kapise

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	GROUNDWATER
30								
		ML SM	Medium dense to very dense, olive gray, silty, very fine to fine SAND, 1 to 2 inch very fine sand lenses, and trace medium sand, moist, wet at approximately 32 feet (2nd encounter ground water) and 43 feet (3rd encounter ground water)		B5-31	16-15-21		
					B5-34	21-50 for 6		
35					B5-36	17-22-29		
					B5-38	30-50 for 6		
40					B5-40	50 for 6		
					B5-43	50 for 6		
45		SW	Very dense, olive gray fine to medium SAND with silt, moist to wet		B5-45.5	50 for 6		
50								
55								
60								

Exploration terminated at 45.5 feet. Ground water encountered at approximately 15, 32, and 43 feet. No visual or olfactory signs of contamination in soil. Temporary wells screened from 10 to 20, 29 to 34, and 40 to 45 feet.

Standard Penetration Test
(140 lb. weight, 30" drop)
▲ Blows per foot



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NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Ultra/Riverside HVOC Site
Bothell, Washington

BORING:
UCCB-5

PROJECT NO.: 2007-098-2045 FIGURE:

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD:
SAMPLING METHOD: Hollow Stem Auger
SURFACE ELEVATION: 35.00 ± feet

LOCATION: Bothell, Washington
DATE STARTED: 3/23/2017
DATE COMPLETED: 3/23/2017
LOGGED BY: N. Kapise

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	GROUNDWATER
0			Grass and topsoil					
		ML SM	Loose, brown, silty, fine to medium SAND with gravel and organics, moist					
5		SP	Loose, olive gray, fine to medium SAND with gravel and silt, moist			4-4-6		
		ML SM	Loose, olive gray, silty, very fine to fine SAND with gravel and iron oxide staining, moist			6-6-5		
		ML SM	Loose, olive gray, silty, very fine to fine SAND with gravel and iron oxide staining, moist, wet at 9 feet (1st encounter ground water)					▽
10		SP	Loose, olive gray, very fine SAND with trace silt, iron oxide staining, moist		B6-11	5-6-7		
						5-5-5		
15		ML SM	Medium dense, olive gray, silty, very fine to fine SAND, moist, wet at 22 (2nd encounter ground water), approximately 2 inch fine to medium sand lenses from 15 to 17 feet and 23 feet, iron oxide staining at 22.5 to 24 feet			10-9-11		
						10-10-10		
20						9-12-12		
						12-14-15		
25		SP	Medium dense, olive gray, very fine to medium SAND with silt and iron oxide staining, moist		B6-25.5	15-14-17		
		ML SM	Medium dense, olive gray, silty, very fine to fine SAND with minimal iron oxide staining, lamination visible, moist			15-14-17		
30		ML	Medium dense, olive gray, silty, very fine to fine SAND with					

Standard Penetration Test
(140 lb. weight, 30" drop)
▲ Blows per foot

0 10 20 30 40 50

DEPTH (feet)

0 5 10 15 20 25 30

0 20 40 60 80 100

Water Content (%)

Plastic Limit ⊢●⊣ Liquid Limit
Natural Water Content

For a proper understanding of the nature of subsurface conditions, this exploration log should be read in conjunction with the text of the geotechnical report.

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Ultra/Riverside HVOC Site
Bothell, Washington

BORING:
UCCB-6

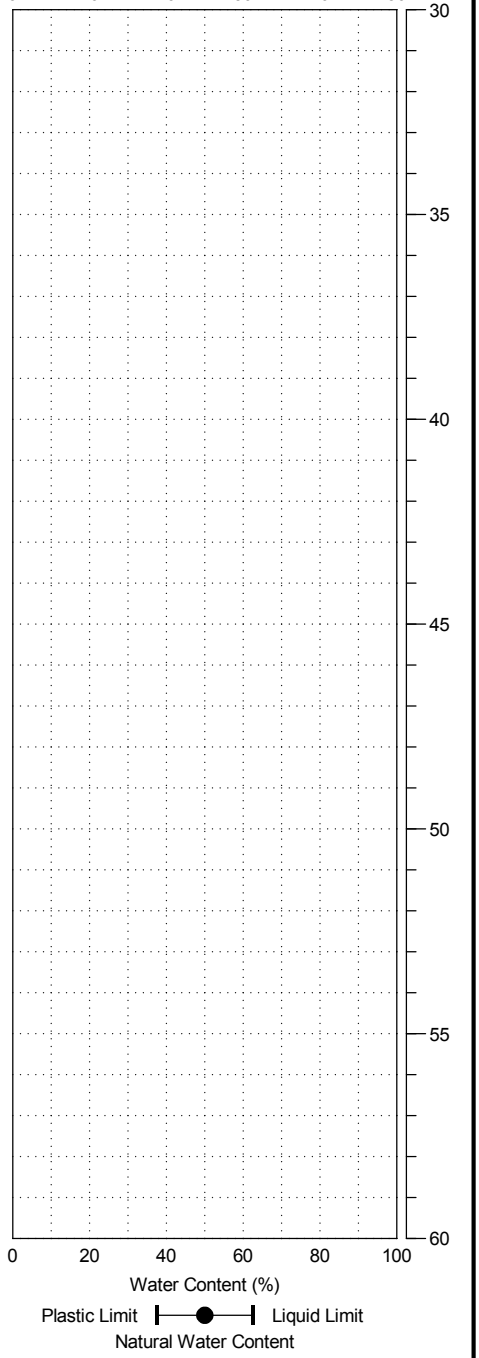
PROJECT NO.: 2007-098-2045 FIGURE:

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD:
SAMPLING METHOD: Hollow Stem Auger
SURFACE ELEVATION: 35.00 ± feet

LOCATION: Bothell, Washington
DATE STARTED: 3/23/2017
DATE COMPLETED: 3/23/2017
LOGGED BY: N. Kapise

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	GROUNDWATER
30		SM	iron oxide staining and visible lamination, moist, wet at approximately 36 feet			16-19-21		
						22-23-30		
35						19-25-25		
		SP	Medium dense, olive gray, fine to medium SAND with silt and trace coarse sand, wet at 36 feet (3rd encounter ground water)		B6-38	13-14-14		
		CL	Medium dense, olive gray, silty CLAY, moist					
		ML	Medium dense, olive gray SILT, moist					
40						17-19-21		
45			Exploration terminated at 41.5 feet. Ground water encountered at approximately 9, 22, and 36 feet. No visual or olfactory signs of contamination in soil. Temporary wells screened from 7 to 12, 20 to 25, and 33 to 38 feet.					
50								
55								
60								

Standard Penetration Test
(140 lb. weight, 30" drop)
▲ Blows per foot



For a proper understanding of the nature of subsurface conditions, this exploration log should be read in conjunction with the text of the geotechnical report.

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Ultra/Riverside HVOC Site
Bothell, Washington

BORING:
UCCB-6

PROJECT NO.: 2007-098-2045 FIGURE:

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD:
SAMPLING METHOD: Hollow Stem Auger
SURFACE ELEVATION: 36.00 ± feet

LOCATION: Bothell, Washington
DATE STARTED: 3/24/2017
DATE COMPLETED: 3/23/2017
LOGGED BY: N. Kapise

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	GROUNDWATER
0			Grass and topsoil					
		ML SM	Loose, yellow brown, silty, fine SAND, moist			4-4-5		
5		ML SM	Loose, olive gray, silty, very fine to fine SAND, iron oxide staining at 5 feet, moist, slightly wet from 9 to 11.5 feet			6-5-5		
						6-7-9		
10						6-5-5		
		ML SM	Loose to medium dense, olive gray, very fine SAND with silt, moist to slightly wet, trace coarse sand and slightly wetter from 15 to 16.5 feet, lenses of silty very fine to fine sand with iron oxide staining at approximately 18.5 to 19 feet and 20.75 to 21 feet			6-6-6		
15						5-8-8		▽
						8-8-10		
20					B7-20	13-12-12		
						10-9-11		
25						10-10-10		
		ML SM	Medium dense, olive gray, silty, fine SAND with iron oxide staining, wet at 28 feet (2nd encounter ground water)			12-12-13		
30								

Standard Penetration Test
(140 lb. weight, 30" drop)
▲ Blows per foot

0 10 20 30 40 50

DEPTH (feet)

0 5 10 15 20 25 30

0 20 40 60 80 100

Water Content (%)

Plastic Limit ⊢●⊣ Liquid Limit
Natural Water Content

For a proper understanding of the nature of subsurface conditions, this exploration log should be read in conjunction with the text of the geotechnical report.

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Ultra/Riverside HVOC Site
Bothell, Washington

BORING:
UCCB-7

PROJECT NO.: 2007-098-2045 FIGURE:

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD:
SAMPLING METHOD: Hollow Stem Auger
SURFACE ELEVATION: 36.00 ± feet

LOCATION: Bothell, Washington
DATE STARTED: 3/24/2017
DATE COMPLETED: 3/23/2017
LOGGED BY: N. Kapise

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	GROUNDWATER
30		ML SM	Medium dense, olive gray, silty, very fine to fine SAND with iron oxide staining, moist, wet at 38 to 39 feet (3rd encounter ground water), lamination visible at 32.5 to 34 feet		B7-30.5	22-23-25		
						21-22-25		
35						19-19-19		
					B7-39	17-17-17		
40			Exploration terminated at 40 feet. Ground water encountered at approximately 17, 28, and 38 feet. No visual or olfactory signs of contamination in soil. Temporary wells screened from 14 to 19, 25 to 30, and 35 to 40 feet.					
45								
50								
55								
60								

Standard Penetration Test
(140 lb. weight, 30" drop)
▲ Blows per foot

0 10 20 30 40 50

DEPTH (feet)

0 20 40 60 80 100

Water Content (%)

Plastic Limit ⊢●⊣ Liquid Limit
Natural Water Content

For a proper understanding of the nature of subsurface conditions, this exploration log should be read in conjunction with the text of the geotechnical report.

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Ultra/Riverside HVOC Site
Bothell, Washington

BORING:
UCCB-7

PROJECT NO.: 2007-098-2045 FIGURE:

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD:
SAMPLING METHOD: Hollow Stem Auger
SURFACE ELEVATION: 34.00 ± feet

LOCATION: Bothell, Washington
DATE STARTED: 3/23/2017
DATE COMPLETED: 3/22/2017
LOGGED BY: N. Kapise

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	GROUNDWATER
0			Grass and topsoil					
		ML SM	Loose, brown, silty, fine to medium SAND with gravel and organics, moist					
		SP	Loose, olive gray, fine to medium SAND with silt and iron oxide staining, moist					
5					B9-6	5-5-5		
		ML SM	Loose to medium dense, olive gray, silty, very fine SAND with iron oxide staining, moist, wet at 18 feet (1st encounter ground water) and 31 feet (2nd encounter ground water), lenses of very fine to fine sand with silt at approximately 17.5 to 18.5 feet and 25.5 to 26.5 feet		B9-8	5-4-4		
10					B9-11	8-10-10		
					B9-13	8-9-9		
15					B9-16	10-10-10		
					B9-18	5-6-6		▽
20					B9-20	7-9-9		
					B9-24	5-6-8		
25					B9-26	12-15-15		
					B9-28	11-16-14		
30								

Standard Penetration Test
(140 lb. weight, 30" drop)
▲ Blows per foot

0 10 20 30 40 50

DEPTH (feet)

0 5 10 15 20 25 30

0 20 40 60 80 100

Water Content (%)

Plastic Limit ⊢●⊣ Liquid Limit
Natural Water Content

For a proper understanding of the nature of subsurface conditions, this exploration log should be read in conjunction with the text of the geotechnical report.

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Ultra/Riverside HVOC Site
Bothell, Washington

BORING:
UCCB-9

PROJECT NO.: 2007-098-2045 FIGURE:

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD:
SAMPLING METHOD: Hollow Stem Auger
SURFACE ELEVATION: 34.00 ± feet

LOCATION: Bothell, Washington
DATE STARTED: 3/23/2017
DATE COMPLETED: 3/22/2017
LOGGED BY: N. Kapise

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	GROUNDWATER
30								
		ML SM	Medium dense to very dense, olive gray, silty, very fine to fine SAND with trace medium sand, moist, wet at 41 feet (3rd encounter ground water)		B9-30.5	15-13-15		
					B9-33	12-16-13		
35					B9-35.5	20-50 for 6		
					B9-38.5	20-21-24		
40					B9-41	21-21-21		
					B9-43	18-22-19		
		ML	Medium dense to very dense, olive gray SILT with iron oxide staining and trace very fine sand, moist		B9-45.25	50 for 6		
45								
50			Exploration terminated at 45.5 feet. Ground water encountered at approximately 18, 31, and 41 feet. No visual or olfactory signs of contamination in soil. Temporary wells screend from 15 to 20, 28 to 33, and 39 to 44 feet.					
55								
60								

Standard Penetration Test
(140 lb. weight, 30" drop)
▲ Blows per foot

0 10 20 30 40 50

DEPTH (feet)

0 20 40 60 80 100

Water Content (%)

Plastic Limit ⊢●⊣ Liquid Limit
Natural Water Content

For a proper understanding of the nature of subsurface conditions, this exploration log should be read in conjunction with the text of the geotechnical report.

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Ultra/Riverside HVOC Site
Bothell, Washington

BORING:
UCCB-9

PROJECT NO.: 2007-098-2045 FIGURE:

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

COHESIONLESS SOILS			COHESIVE SOILS		
Density	N (blows/ft)	Approximate Relative Density(%)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	over 30	>4000

USCS SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP DESCRIPTIONS	
Coarse Grained Soils	Gravel and Gravelly Soils	Clean Gravel (little or no fines)	GW	Well-graded GRAVEL
			GP	Poorly-graded GRAVEL
	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Gravel with Fines (appreciable amount of fines)	GM	Silty GRAVEL
			GC	Clayey GRAVEL
More than 50% Retained on No. 200 Sieve Size	Sand and Sandy Soils	Clean Sand (little or no fines)	SW	Well-graded SAND
			SP	Poorly-graded SAND
	50% or More of Coarse Fraction Passing No. 4 Sieve	Sand with Fines (appreciable amount of fines)	SM	Silty SAND
			SC	Clayey SAND
Fine Grained Soils	Silt and Clay	Liquid Limit Less than 50%	ML	SILT
			CL	Lean CLAY
			OL	Organic SILT/Organic CLAY
50% or More Passing No. 200 Sieve Size	Silt and Clay	Liquid Limit 50% or More	MH	Elastic SILT
			CH	Fat CLAY
			OH	Organic SILT/Organic CLAY
Highly Organic Soils			PT	PEAT

TEST SYMBOLS

%F	Percent Fines
AL	Atterberg Limits: PL = Plastic Limit, LL = Liquid Limit
CBR	California Bearing Ratio
CN	Consolidation
DD	Dry Density (pcf)
DS	Direct Shear
GS	Grain Size Distribution
K	Permeability
MD	Moisture/Density Relationship (Proctor)
MR	Resilient Modulus
PID	Photoionization Device Reading
PP	Pocket Penetrometer Approx. Compressive Strength (tsf)
SG	Specific Gravity
TC	Triaxial Compression
TV	Torvane Approx. Shear Strength (tsf)
UC	Unconfined Compression

SAMPLE TYPE SYMBOLS

- 2.0" OD Split Spoon (SPT) (140 lb. hammer with 30 in. drop)
- Shelby Tube
- 3-1/4" OD Split Spoon with Brass Rings
- Small Bag Sample
- Large Bag (Bulk) Sample
- Core Run
- Non-standard Penetration Test (3.0" OD split spoon)

GROUNDWATER SYMBOLS

- Groundwater Level (measured at time of drilling)
- Groundwater Level (measured in well or open hole after water level stabilized)

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5 mm) to No. 200 (0.074 mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074mm)

COMPONENT PROPORTIONS

PROPORTION RANGE	DESCRIPTIVE TERMS
< 5%	Clean
5 - 12%	Slightly (Clayey, Silty, Sandy)
12 - 30%	Clayey, Silty, Sandy, Gravelly
30 - 50%	Very (Clayey, Silty, Sandy, Gravelly)
Components are arranged in order of increasing quantities.	

NOTES: Soil classifications presented on exploration logs are based on visual and laboratory observation.
Soil descriptions are presented in the following general order:

Density/consistency, color, modifier (if any) GROUP NAME, additions to group name (if any), moisture content. Proportion, gradation, and angularity of constituents, additional comments. (GEOLOGIC INTERPRETATION)

Please refer to the discussion in the report text as well as the exploration logs for a more complete description of subsurface conditions.

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
MOIST	Damp but no visible water.
WET	Visible free water, usually soil is below water table.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

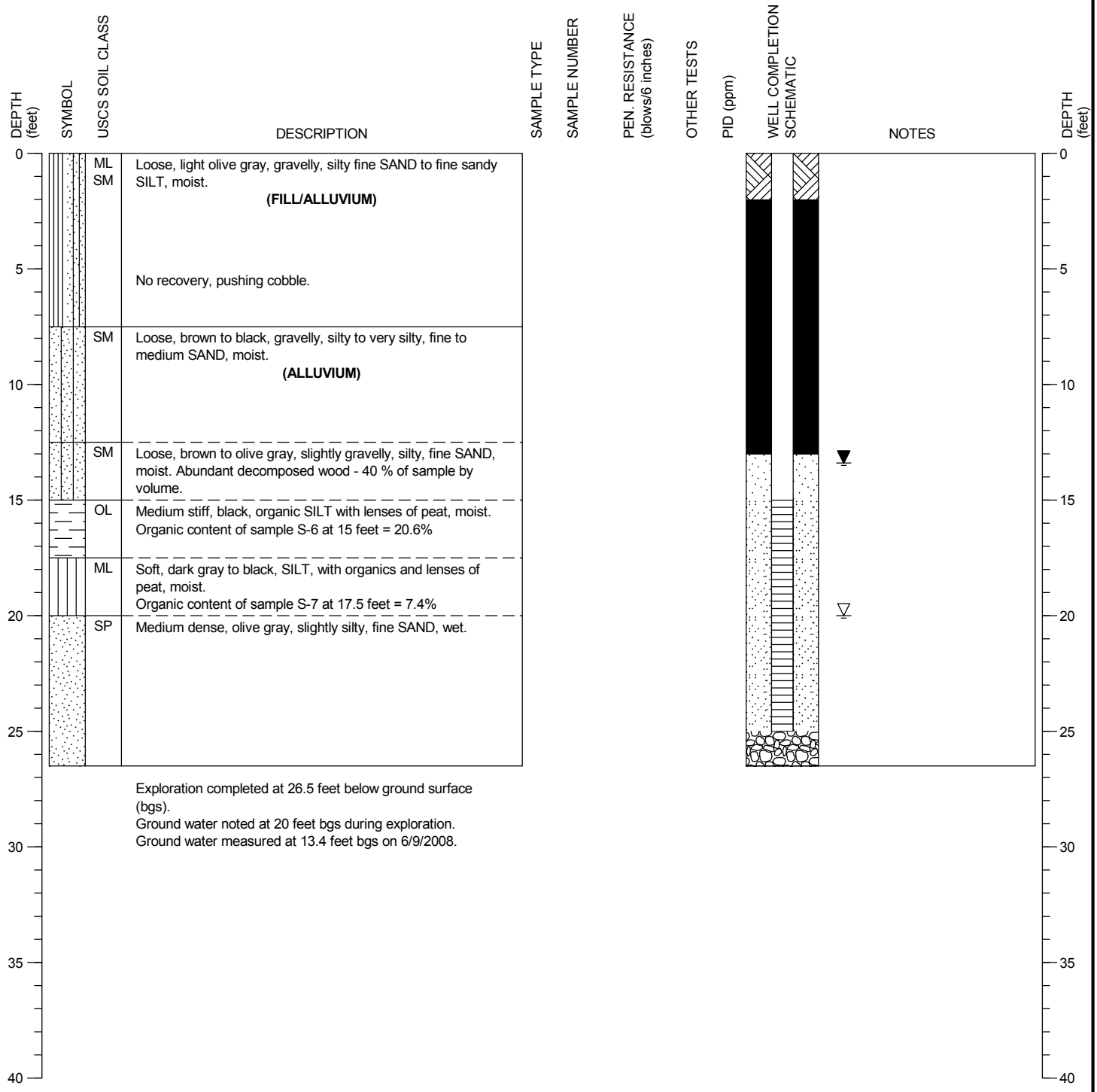
LEGEND OF TERMS AND SYMBOLS USED ON EXPLORATION LOGS

PROJECT NO.: 2007-098-800 FIGURE: A-1

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Hollow-Stem Auger, Mobile B-61 truck rig
SAMPLING METHOD: SPT with Autohammer
LOCATION:

SURFACE ELEVATION: 37.39 ± feet
CASING ELEVATION ± feet

DATE STARTED: 6/5/2008
DATE COMPLETED: 6/5/2008
LOGGED BY: J. Speck



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

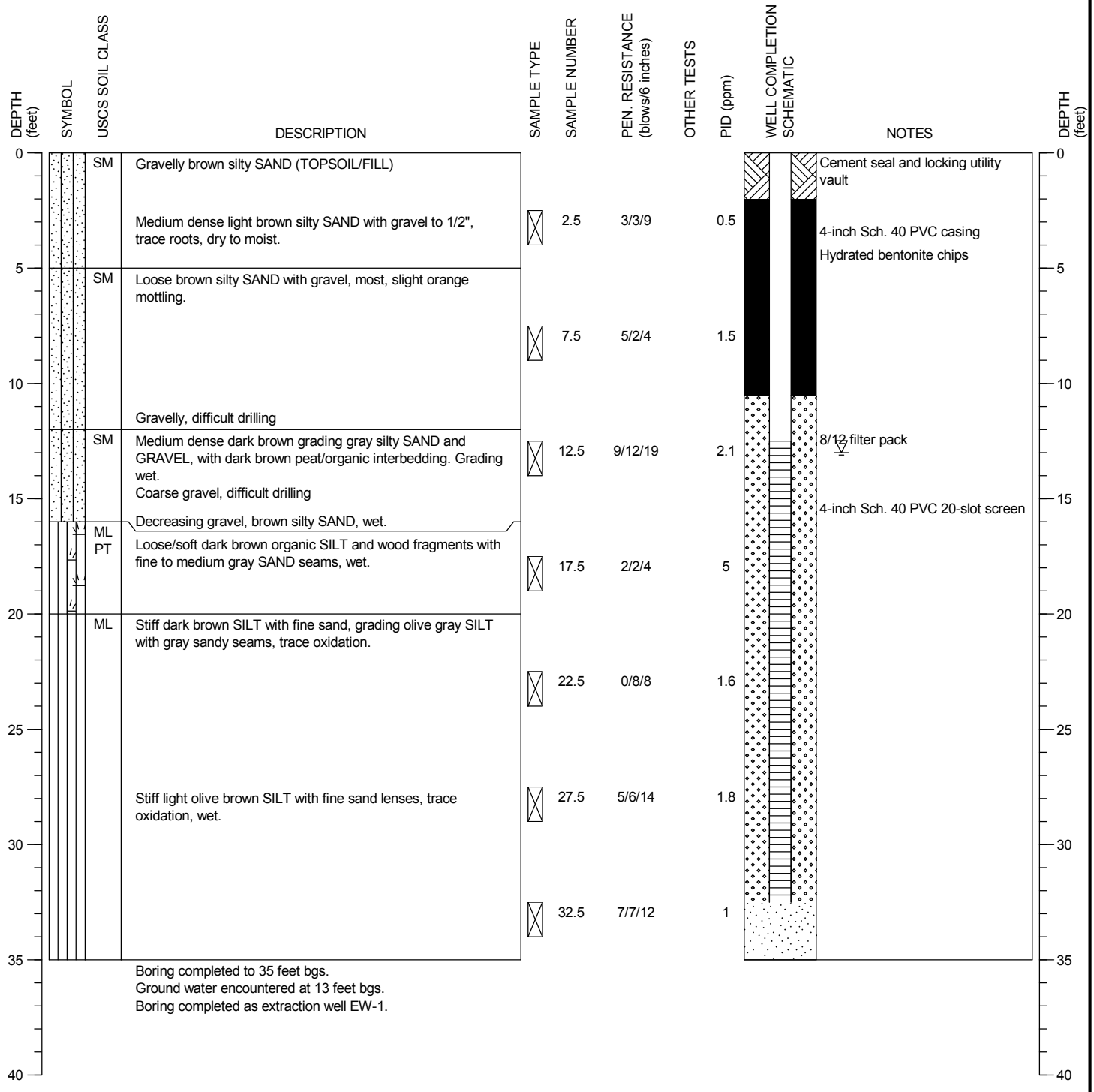
MONITORING WELL:
BC- 3

PROJECT NO.: 2007-098-800 FIGURE: A-2

DRILLING COMPANY: Environmental Drilling, Inc.
DRILLING METHOD: Mobile B-61 HSA
SAMPLING METHOD: SPT
LOCATION:

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 7/16/2013
DATE COMPLETED: 7/16/2013
LOGGED BY: V. Atkins



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HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

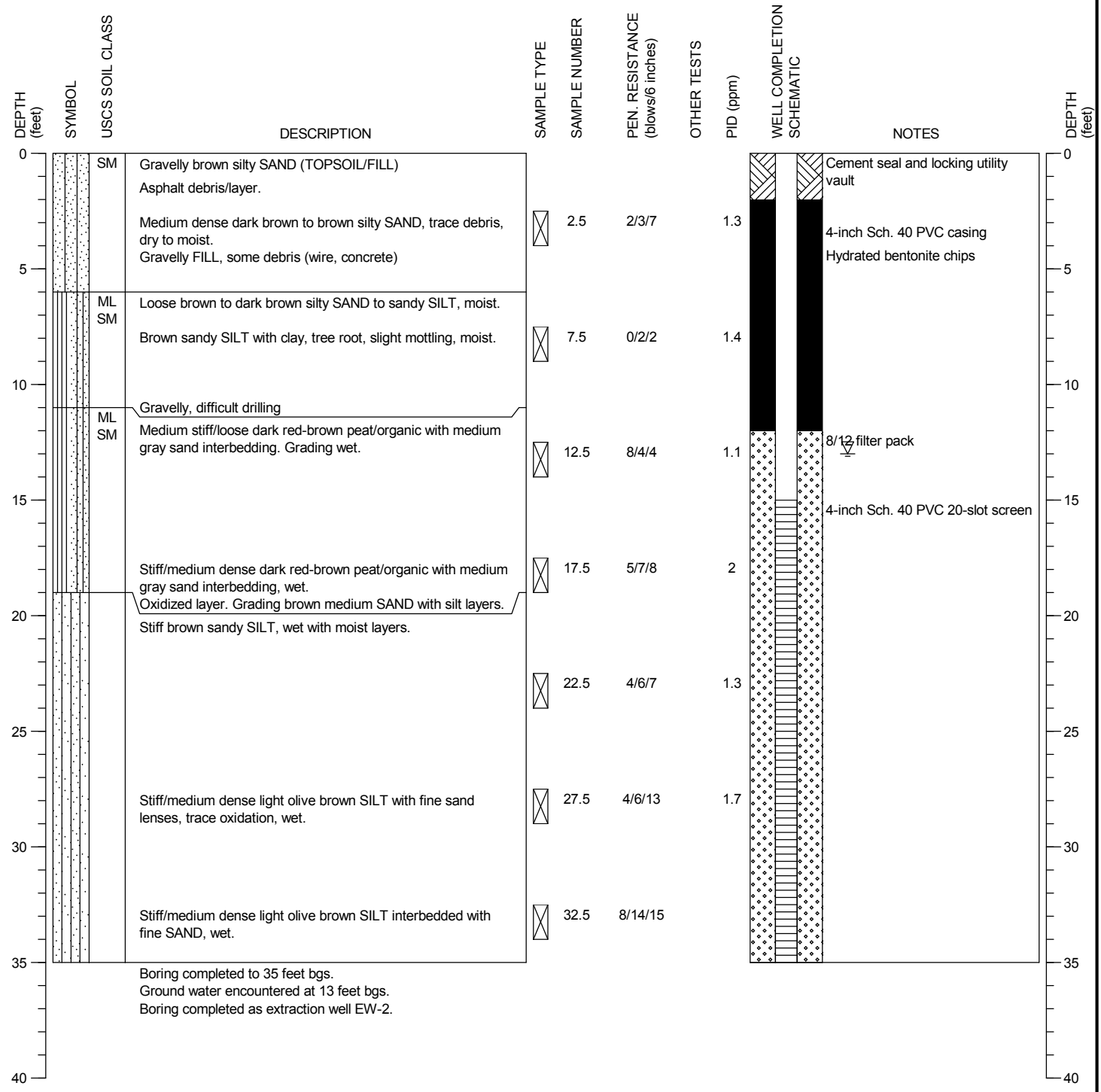
MONITORING WELL:
EW-1

PROJECT NO.: 2007-098-800 FIGURE: A-5

DRILLING COMPANY: Environmental Drilling, Inc.
DRILLING METHOD: Mobile B-61 HSA
SAMPLING METHOD: SPT
LOCATION:

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 7/16/2013
DATE COMPLETED: 7/16/2013
LOGGED BY: V. Atkins



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HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
EW-2

PAGE: 1 of 1

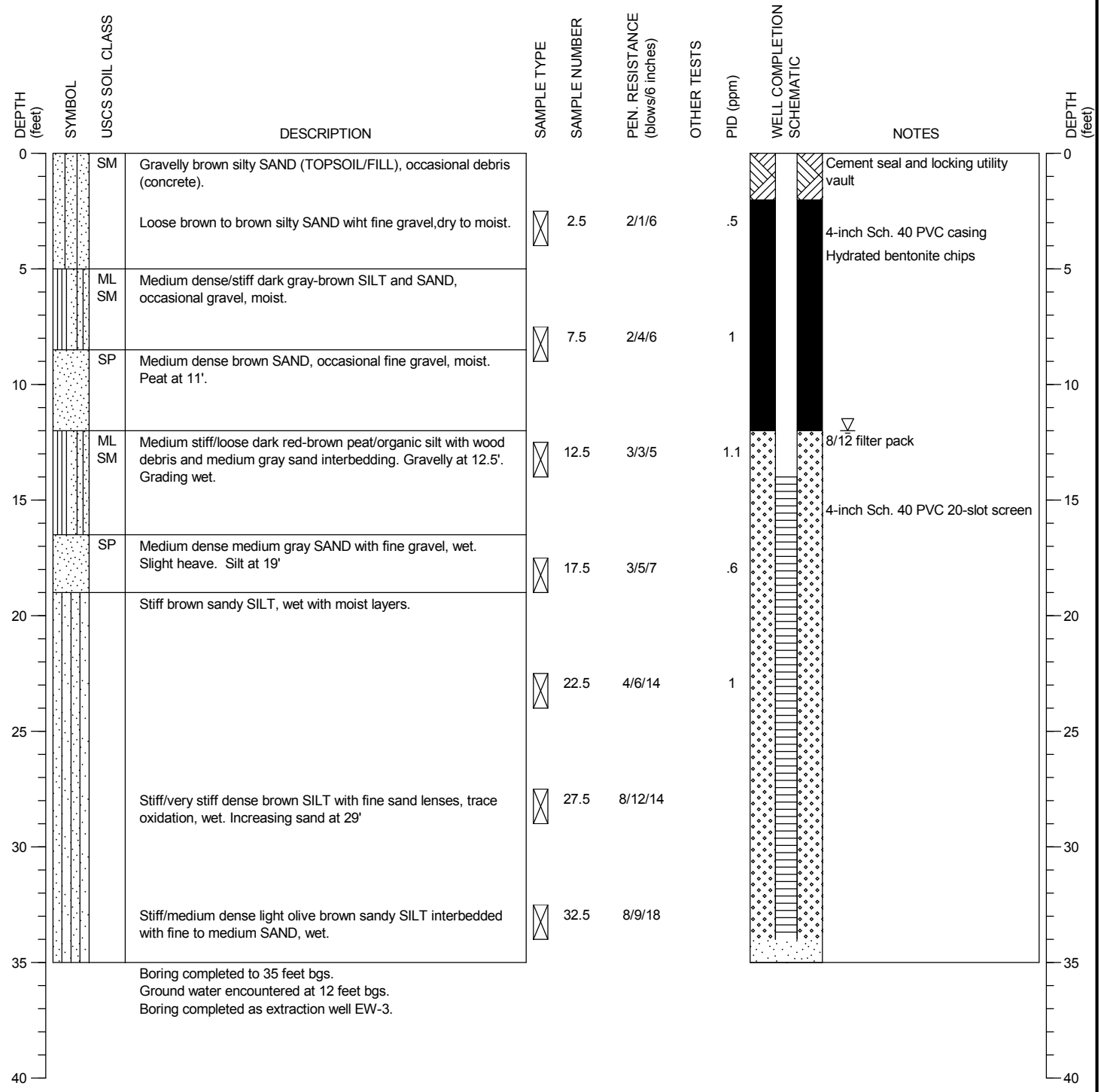
PROJECT NO.: 2007-098-800 FIGURE: A-6

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

DRILLING COMPANY: Environmental Drilling, Inc.
DRILLING METHOD: Mobile B-61 HSA
SAMPLING METHOD: SPT
LOCATION:

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 7/15/2013
DATE COMPLETED: 7/15/2013
LOGGED BY: V. Atkins



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HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
EW-3

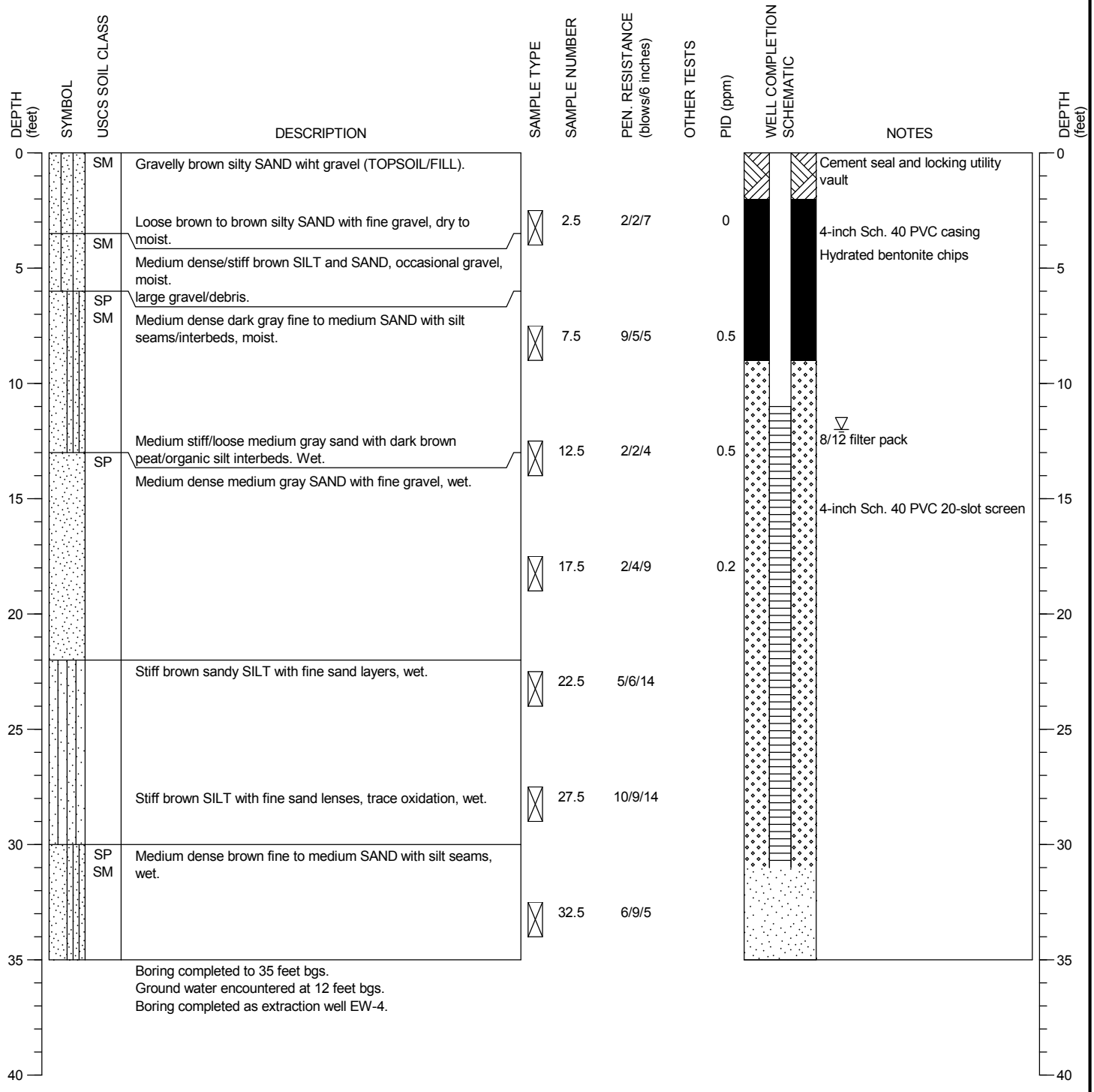
PROJECT NO.: 2007-098-800 FIGURE: A-7

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

DRILLING COMPANY: Environmental Drilling, Inc.
DRILLING METHOD: Mobile B-61 HSA
SAMPLING METHOD: SPT
LOCATION:

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 7/15/2013
DATE COMPLETED: 7/15/2013
LOGGED BY: V. Atkins



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
EW-4

PAGE: 1 of 1

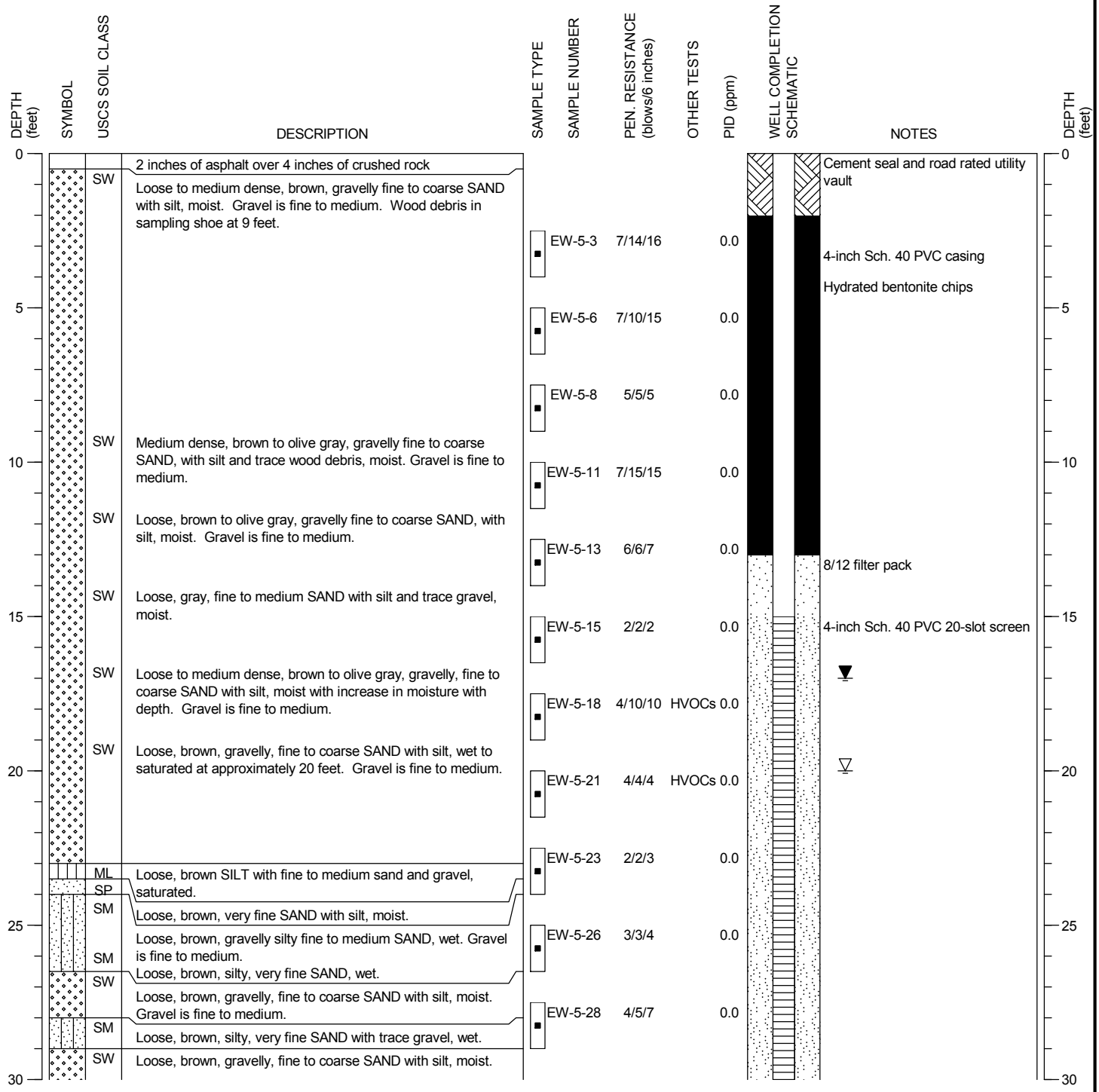
PROJECT NO.: 2007-098-800 FIGURE: A-8

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: South Lane of 180th

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 10/11/2016
DATE COMPLETED: 10/11/2016
LOGGED BY: N. Kapise



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside HVOC Site
Bothell, Washington

MONITORING WELL:
EW-5

PROJECT NO.: 2007-098-800 FIGURE: 1

MWELL 2007-098-RIVERSIDE.GPJ 11/10/16

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: South Lane of 180th

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 10/11/2016
DATE COMPLETED: 10/11/2016
LOGGED BY: N. Kapise

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	WELL COMPLETION SCHEMATIC	NOTES	DEPTH (feet)
30			Gravel is fine to medium.								30
		SM	Loose, brown, silty, very fine SAND with trace gravel, wet.	■	EW-5-31	3/4/6		0.0			
		SW	Loose, brown, gravelly, fine to coarse SAND with trace silt, moist.								
		SP	Loose, brown, very fine SAND with silt, moist.	■	EW-5-33	7/9/10		0.0			
		SM	Loose, brown, silty, very fine to fine SAND, wet.								
35				■	EW-5-36	5/6/7		0.0			35
		ML	Loose, gray SILT, moist.								
			Exploration terminated at 37 feet. Groundwater encountered at 20 feet. No visual or olfactory signs of contamination in soil. Well installed with screen from 15 to 35 feet.								
40											40
45											45
50											50
55											55
60											60

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside HVOC Site
Bothell, Washington

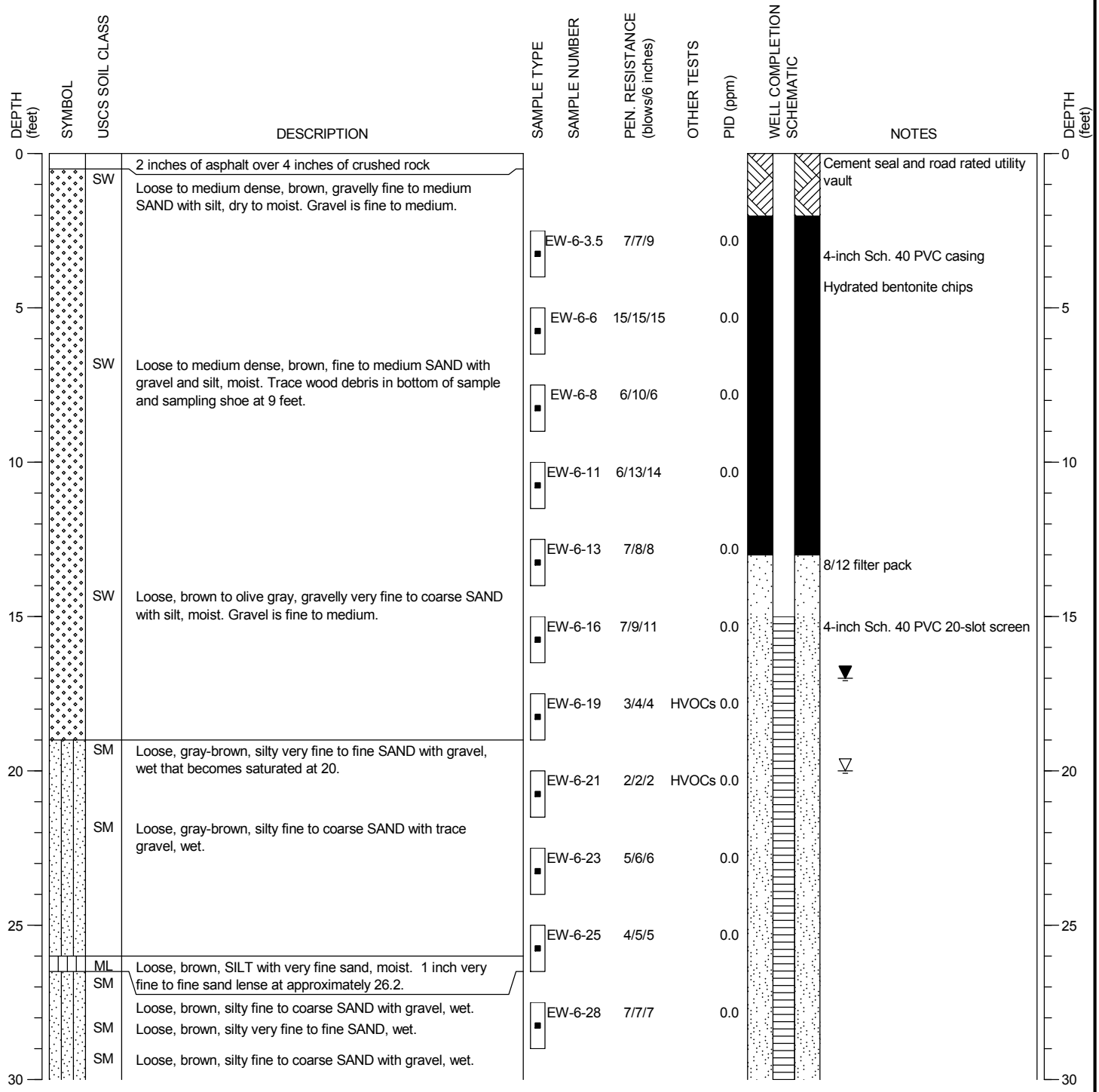
MONITORING WELL:
EW-5

PROJECT NO.: 2007-098-800 FIGURE: 1

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: South Lane of 180th

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 10/12/2016
DATE COMPLETED: 10/12/2016
LOGGED BY: N. Kapise



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside HVOC Site
Bothell, Washington

MONITORING WELL:
EW-6

PROJECT NO.: 2007-098-800 FIGURE: 2

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: South Lane of 180th

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 10/12/2016
DATE COMPLETED: 10/12/2016
LOGGED BY: N. Kapise

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	WELL COMPLETION SCHEMATIC	NOTES
30		SM	Loose, brown, silty very fine to fine SAND, wet.		EW-6-31	3/9/10		0.0		
		SM	Medium dense, brown, silty very fine to fine SAND with trace medium gravel, wet.		EW-6-33	3/18/20		0.0		
35		SM	Medium dense, brown, silty very fine to fine SAND, wet. Iron oxide staining at approximately 36.		EW-6-36	4/13/21		0.0		
			Exploration terminated at 37 feet. Groundwater encountered at 20 feet. No visual or olfactory signs of contamination in soil. Well installed with screen from 15 to 35 feet.							
40										
45										
50										
55										
60										

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside HVOC Site
Bothell, Washington

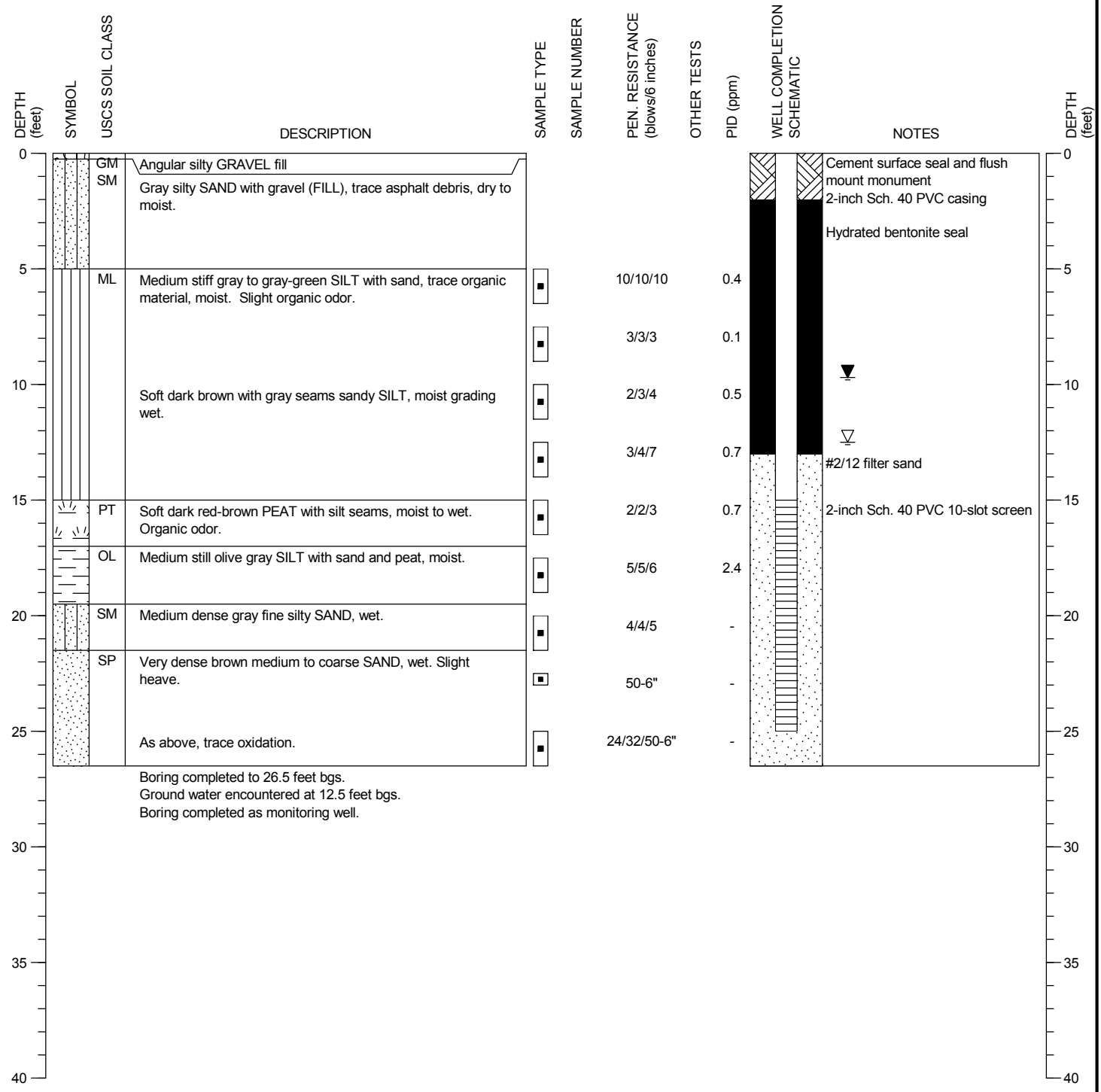
MONITORING WELL:
EW-6

PROJECT NO.: 2007-098-800 FIGURE: 2

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted 8-inch HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: Riverside property, center

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/31/2009
DATE COMPLETED: 8/31/2009
LOGGED BY: V. Atkins



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
RMW-4

PAGE: 1 of 1

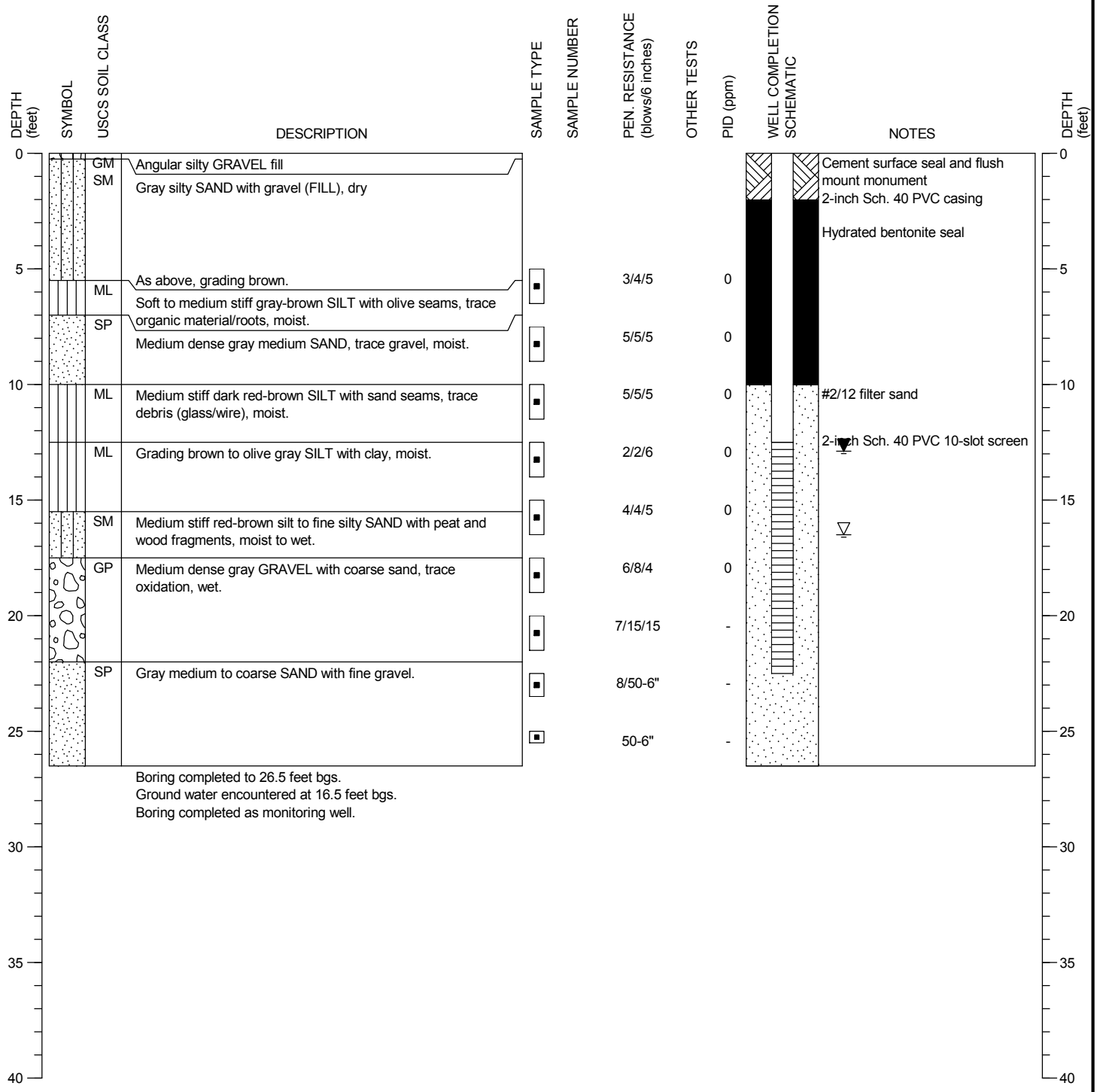
PROJECT NO.: 2007-098-800 FIGURE: A-9

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted 8-inch HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: Riverside property, south boundary

SURFACE ELEVATION: 35.56 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/31/2009
DATE COMPLETED: 8/31/2009
LOGGED BY: V. Atkins



Boring completed to 26.5 feet bgs.
Ground water encountered at 16.5 feet bgs.
Boring completed as monitoring well.

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
RMW-5

PROJECT NO.: 2007-098-800 FIGURE: A-10

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted 8-inch HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: Riverside property, south boundary

SURFACE ELEVATION: 34.50 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/31/2009
DATE COMPLETED: 8/31/2009
LOGGED BY: V. Atkins

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	WELL COMPLETION SCHEMATIC	NOTES
0			Brown silty sand TOPSOIL with organics, root material.							Cement surface seal and flush mount monument
		SM	Brown silty SAND with gravel (FILL), trace roots, dry.							2-inch Sch. 40 PVC casing
										Hydrated bentonite seal
5			Medium dense brown silty SAND with gravel, dry.	■		4/4/11		0		
				■		7/5/4		0		
10			Brown to red-brown silty SAND.	■		4/4/3		0		
		OL	Medium stiff olive green to red-brown organic SILT, moist.							
		SM	Medium dense olive gray silty SAND grading medium SAND with silt seams, moist.	■		4/6/4		0		#2/12 filter sand
15			Medium dense interbedded gray medium SAND with red-brown silt and wood fragments, moist.	■		4/5/4		0		2-inch Sch. 40 PVC 10-slot screen
		SP	Dense gray medium to coarse SAND with gravel, wet. Gravel to 2".	■		10/20/18		0		
20			Dense gray coarse SAND with silt, wet.	■		12/18/15		0		
			Stiff light brown silty SAND grading sandy SILT, wet.	■		12/15/16		-		
25				■		14/20/21		-		
			Boring completed to 26.5 feet bgs. Ground water encountered at 17.5 feet bgs. Boring completed as monitoring well.							
30										
35										
40										

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
RMW-6

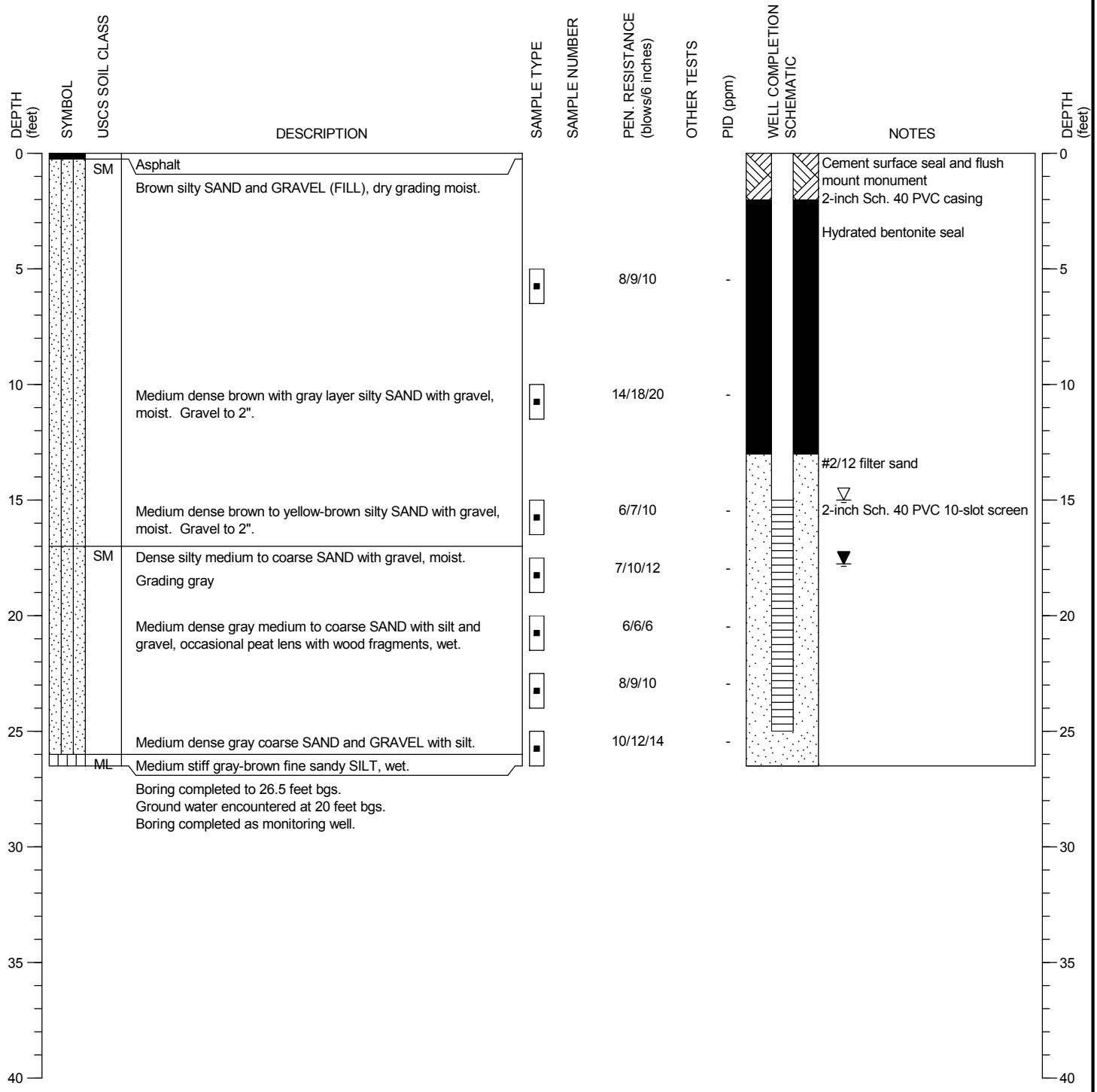
PROJECT NO.: 2007-098-800 FIGURE: A-11

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted 8-inch HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: Riverside property, south side of NE 180th Street

SURFACE ELEVATION: 35.51 ± feet
CASING ELEVATION ± feet

DATE STARTED: 9/1/2009
DATE COMPLETED: 9/1/2009
LOGGED BY: V. Atkins



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

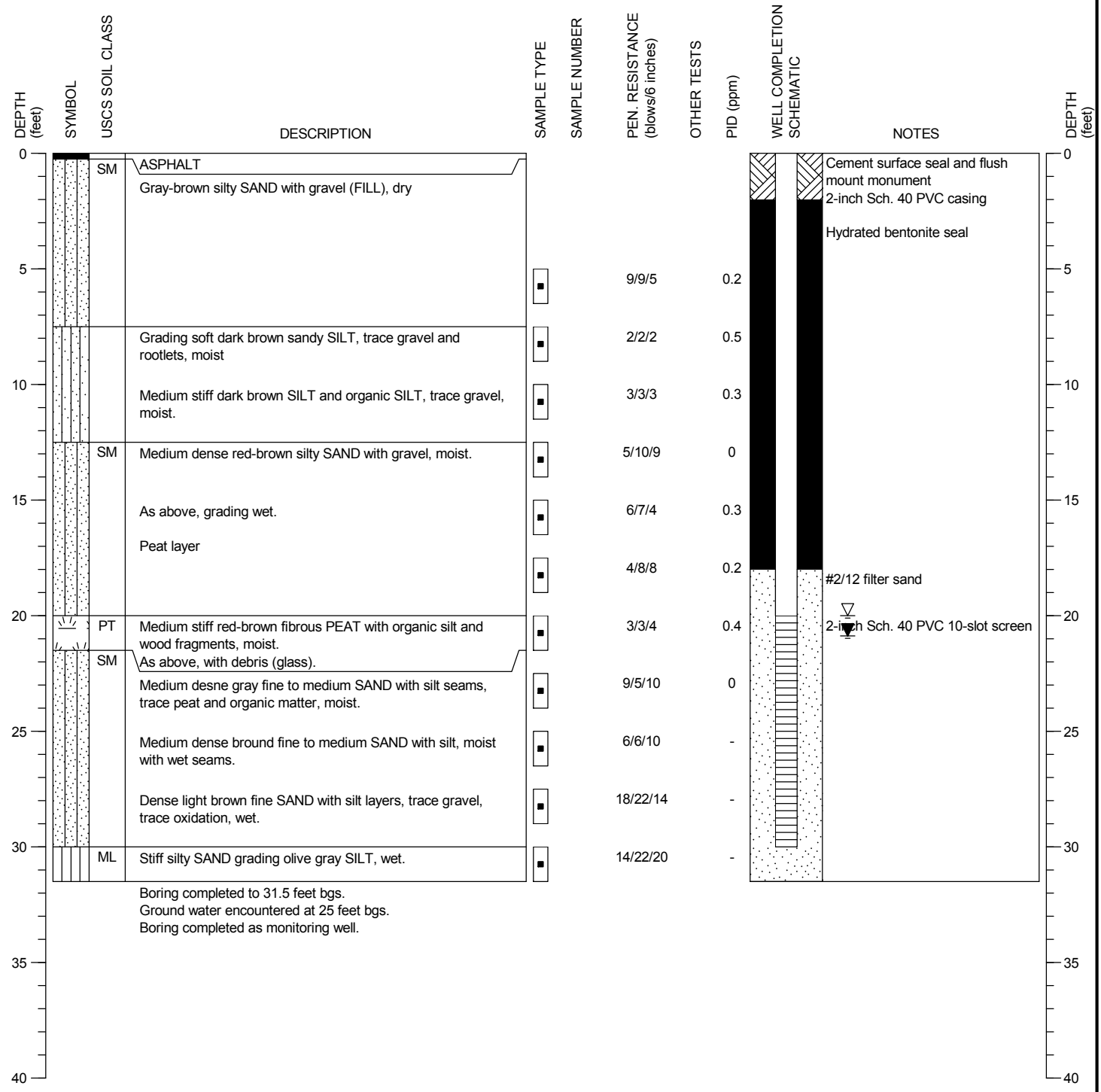
MONITORING WELL:
RMW-7

PROJECT NO.: 2007-098-800 FIGURE: A-12

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted 8-inch HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: East of Riverside property, intersection of SR 522 and NE 180th Street

SURFACE ELEVATION: 40.40 ± feet
CASING ELEVATION ± feet

DATE STARTED: 9/1/2009
DATE COMPLETED: 9/1/2009
LOGGED BY: V. Atkins



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
RMW-8

PAGE: 1 of 1

PROJECT NO.: 2007-098-800 FIGURE: A-13

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted 8-inch HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: North of Riverside property, intersection of SR 522 and 101st Ave NE

SURFACE ELEVATION: 44.08 ± feet
CASING ELEVATION ± feet

DATE STARTED: 9/1/2009
DATE COMPLETED: 9/1/2009
LOGGED BY: V. Atkins

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	WELL COMPLETION SCHEMATIC	NOTES
0		SM	ASPHALT Brown to yellow-brown SAND with silt and gravel (FILL), dry grading moist.							Cement surface seal and flush mount monument 2-inch Sch. 40 PVC casing Hydrated bentonite seal
5			Loose yellow-brown medium SAND with silt and gravel, moist.	■		2/2/7		-		
10		SM	Medium dense yellow brown medium SAND to silty SAND with silt layers (ALLUVIUM), moist with wet seams.	■		7/10/12		-		
15				■		7/10/12		-		▼
20			Medium dense yellow brown fine to medium silty SAND, trace oxidation, wet.	■		7/16/12		-		#2/12 filter sand ▽ 2-inch Sch. 40 PVC 10-slot screen
			Still sandy SILT with silty SAND layers, moist to wet.	■		14/15/15		-		
25		SM	Medium dense dark brown fine silty SAND and sandy SILT with orange mottling, wet.	■		8/8/10		-		
			Medium dense brown to olive brown silty fine SAND, wet.	■		8/9/10		-		
30			Medium dense olive brown silty fine SAND, wet, slight heave.	■		5/5/7		-		
35			Boring completed to 31.5 feet bgs. Ground water encountered at 24 feet bgs. Boring completed as monitoring well.							
40										

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
RMW-9

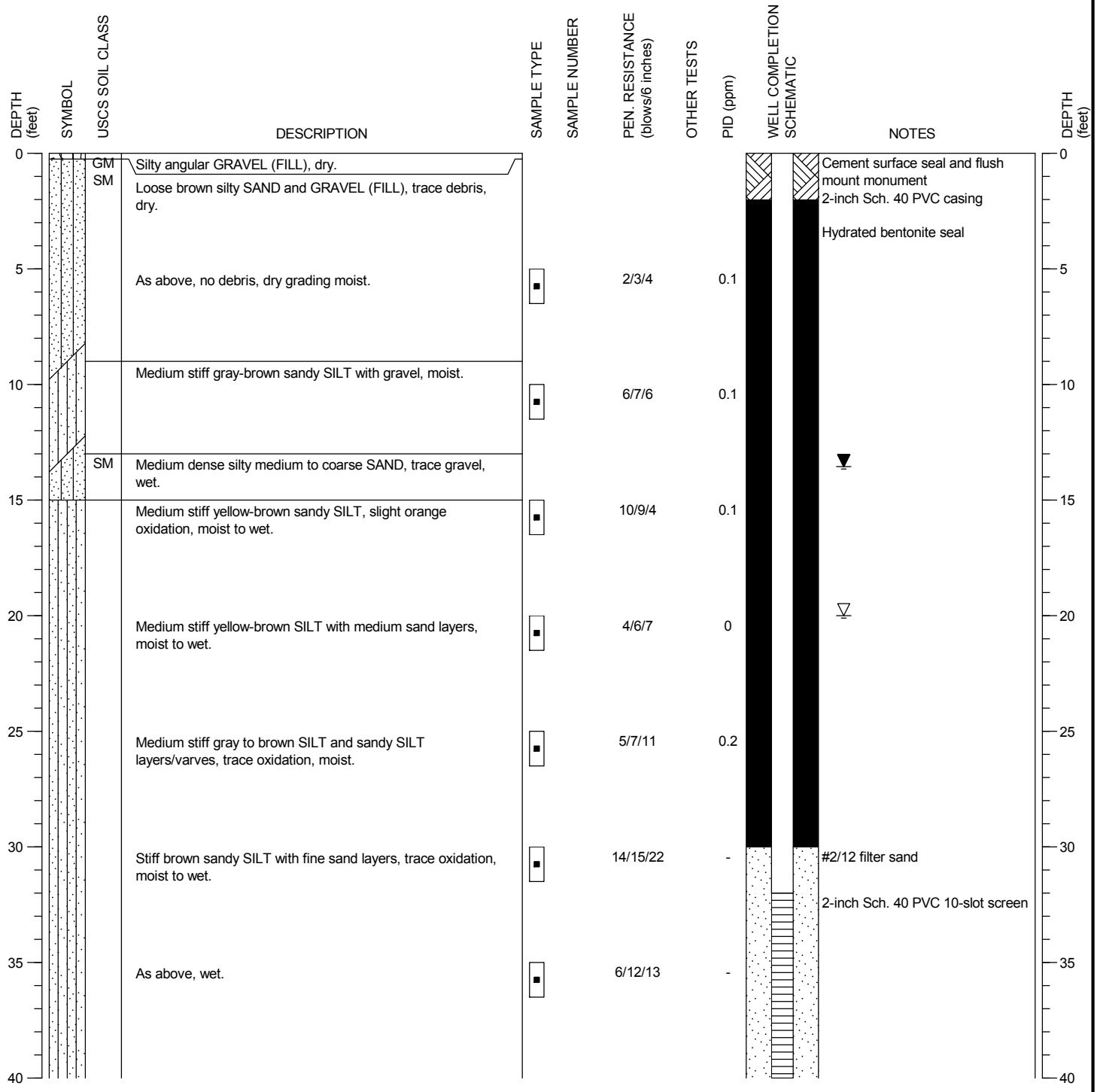
PROJECT NO.: 2007-098-800 FIGURE: A-14

MWELL 2007-098-RIVERSIDE.GPJ 4/7/15

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted 8-inch HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: Riverside property, east end

SURFACE ELEVATION: 36.79 ± feet
CASING ELEVATION ± feet

DATE STARTED: 9/3/2009
DATE COMPLETED: 9/3/2009
LOGGED BY: V. Atkins



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

MONITORING WELL:
RMW-10

PROJECT NO.: 2007-098-800 FIGURE: A-15

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted 8-inch HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: Riverside property, east end

SURFACE ELEVATION: 36.79 ± feet
CASING ELEVATION ± feet

DATE STARTED: 9/3/2009
DATE COMPLETED: 9/3/2009
LOGGED BY: V. Atkins

DEPTH (feet)	SYMBOL	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	WELL COMPLETION SCHEMATIC	NOTES
40		ML	Stiff gray SILT, wet.	■		6/12/20		-		
			Harder drilling.							Hydrated bentonite backfill
45			Stiff gray sandy SILT with fine sand layers, moist to wet.	■		12/18/16		-		
50			Stiff gray SILT with fine sand layers, moist to wet.	■		8/9/10		-		
			Boring completed to 51.5 feet bgs.							
			Ground water encountered at 20 and 30 feet bgs.							
			Boring completed as monitoring well.							
55										
60										
65										
70										
75										
80										

NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside
Bothell, Washington

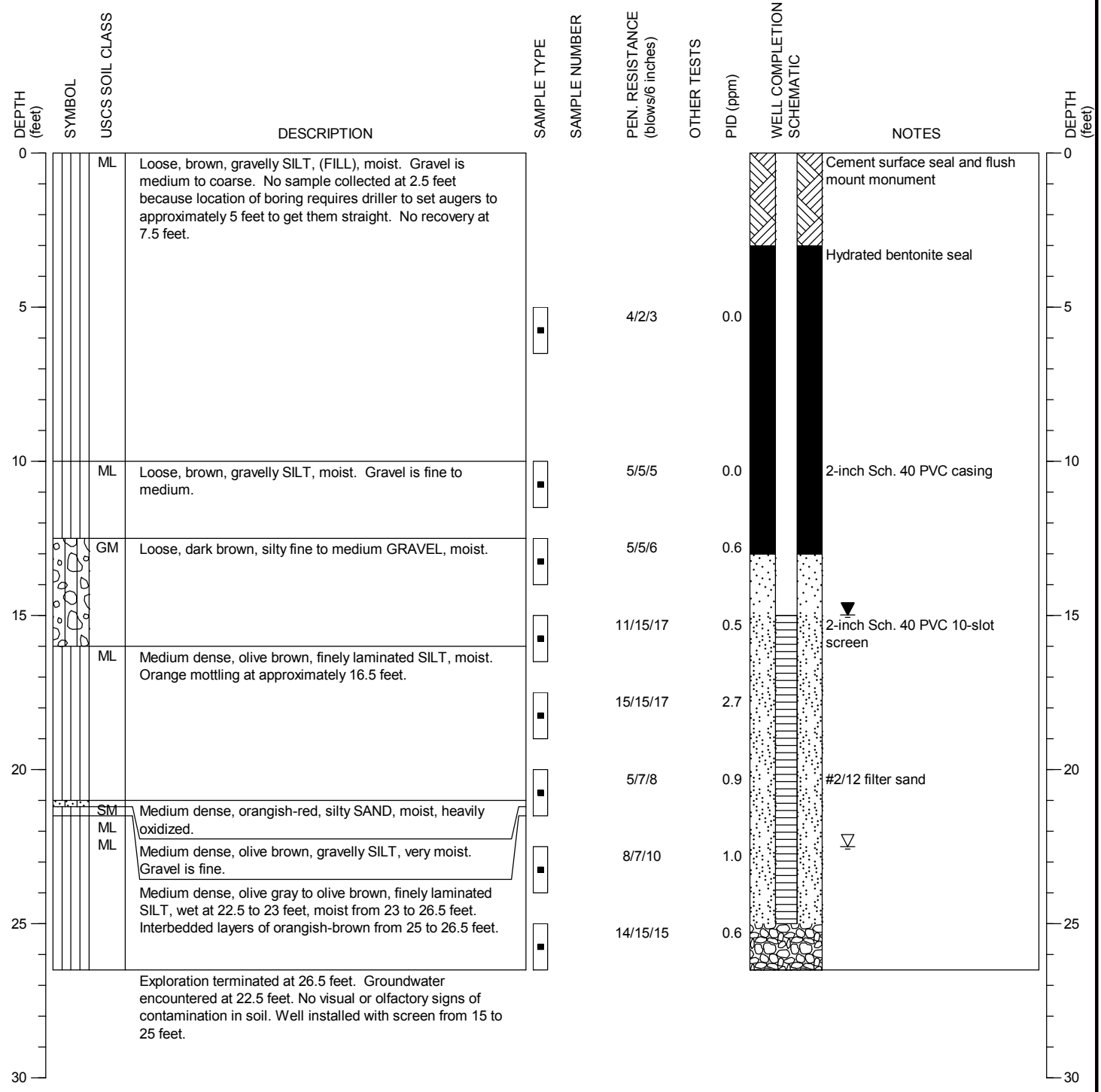
MONITORING WELL:
RMW-10

PROJECT NO.: 2007-098-800 FIGURE: A-15

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: Hollow Stem Auger, Modified CME-55
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: North of Gravel Parking Lot

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 7/22/2016
DATE COMPLETED: 7/22/2016
LOGGED BY: A. York



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HWA GEOSCIENCES INC.

Bothell Crossroads RI/FS
Bothell, Washington

MONITORING WELL:
RMW-12

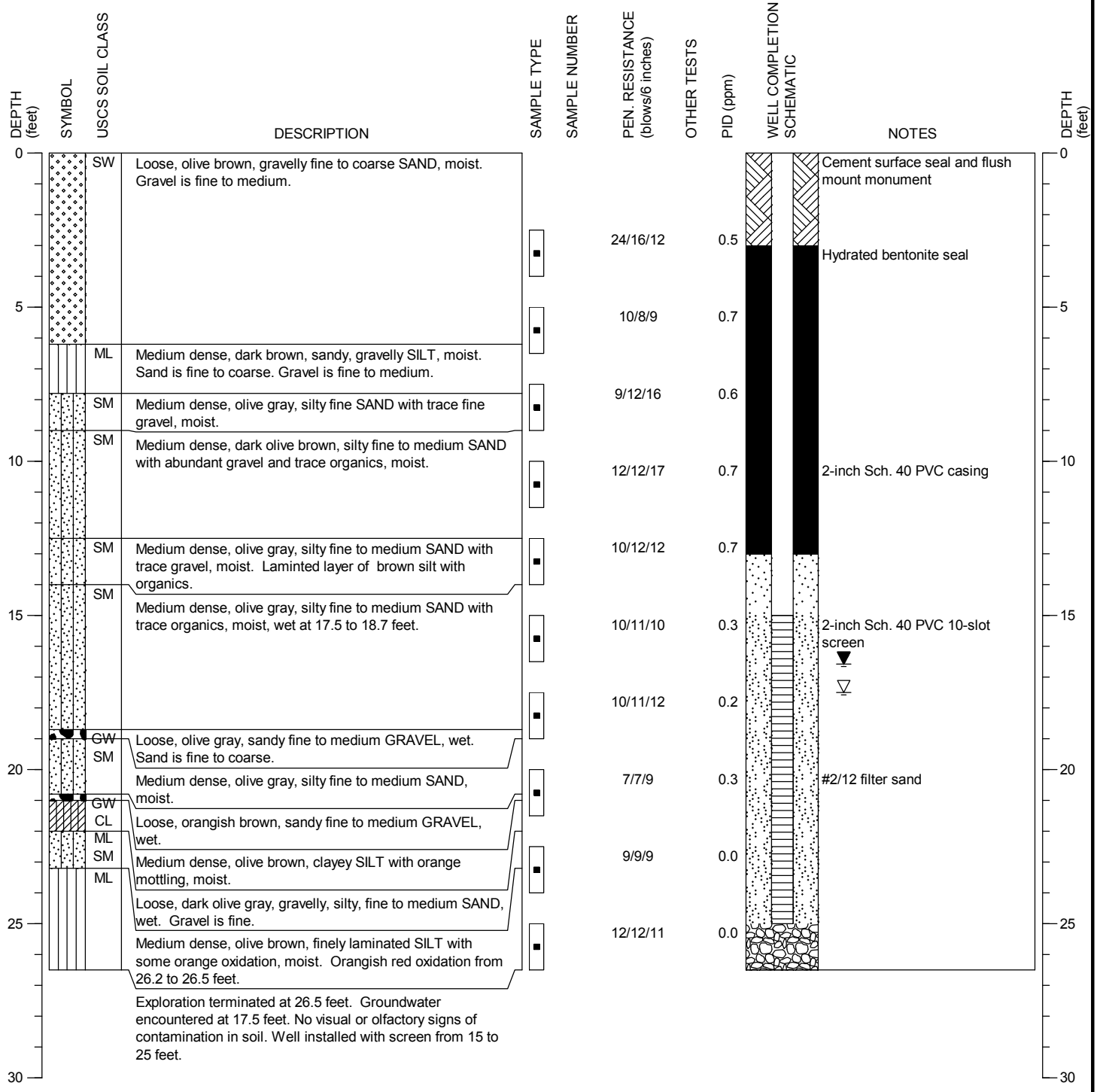
PAGE: 1 of 1

PROJECT NO.: 2007-098-800 FIGURE:

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: Hollow Stem Auger, Modified CME-55
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: Paved Pathway South of 180th

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 7/22/2016
DATE COMPLETED: 7/22/2016
LOGGED BY: A. York



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HWA GEOSCIENCES INC.

Bothell Crossroads RI/FS
Bothell, Washington

MONITORING WELL:
RMW-13

PAGE: 1 of 1

PROJECT NO.: 2007-098-800 FIGURE:

MWELL 2007-098-RIVERSIDE.GPJ 8/15/16

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

COHESIONLESS SOILS			COHESIVE SOILS		
Density	N (blows/ft)	Approximate Relative Density(%)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	over 30	>4000

USCS SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP DESCRIPTIONS	
Coarse Grained Soils	Gravel and Gravelly Soils	Clean Gravel (little or no fines)	GW	Well-graded GRAVEL
			GP	Poorly-graded GRAVEL
	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Gravel with Fines (appreciable amount of fines)	GM	Silty GRAVEL
			GC	Clayey GRAVEL
	Sand and Sandy Soils	Clean Sand (little or no fines)	SW	Well-graded SAND
			SP	Poorly-graded SAND
More than 50% Retained on No. 200 Sieve Size	50% or More of Coarse Fraction Passing No. 4 Sieve	Sand with Fines (appreciable amount of fines)	SM	Silty SAND
			SC	Clayey SAND
Fine Grained Soils	Silt and Clay	Liquid Limit Less than 50%	ML	SILT
			CL	Lean CLAY
			OL	Organic SILT/Organic CLAY
50% or More Passing No. 200 Sieve Size	Silt and Clay	Liquid Limit 50% or More	MH	Elastic SILT
			CH	Fat CLAY
			OH	Organic SILT/Organic CLAY
Highly Organic Soils			PT	PEAT

TEST SYMBOLS

%F	Percent Fines
AL	Atterberg Limits: PL = Plastic Limit, LL = Liquid Limit
CBR	California Bearing Ratio
CN	Consolidation
DD	Dry Density (pcf)
DS	Direct Shear
GS	Grain Size Distribution
K	Permeability
MD	Moisture/Density Relationship (Proctor)
MR	Resilient Modulus
PID	Photoionization Device Reading
PP	Pocket Penetrometer Approx. Compressive Strength (tsf)
SG	Specific Gravity
TC	Triaxial Compression
TV	Torvane Approx. Shear Strength (tsf)
UC	Unconfined Compression

SAMPLE TYPE SYMBOLS

- 2.0" OD Split Spoon (SPT) (140 lb. hammer with 30 in. drop)
- Shelby Tube
- 3-1/4" OD Split Spoon with Brass Rings
- Small Bag Sample
- Large Bag (Bulk) Sample
- Core Run
- Non-standard Penetration Test (3.0" OD split spoon)

GROUNDWATER SYMBOLS

- Groundwater Level (measured at time of drilling)
- Groundwater Level (measured in well or open hole after water level stabilized)

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5 mm) to No. 200 (0.074 mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074mm)

COMPONENT PROPORTIONS

PROPORTION RANGE	DESCRIPTIVE TERMS
< 5%	Clean
5 - 12%	Slightly (Clayey, Silty, Sandy)
12 - 30%	Clayey, Silty, Sandy, Gravelly
30 - 50%	Very (Clayey, Silty, Sandy, Gravelly)
Components are arranged in order of increasing quantities.	

NOTES: Soil classifications presented on exploration logs are based on visual and laboratory observation. Soil descriptions are presented in the following general order:

Density/consistency, color, modifier (if any) GROUP NAME, additions to group name (if any), moisture content. Proportion, gradation, and angularity of constituents, additional comments. (GEOLOGIC INTERPRETATION)

Please refer to the discussion in the report text as well as the exploration logs for a more complete description of subsurface conditions.

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
MOIST	Damp but no visible water.
WET	Visible free water, usually soil is below water table.

HWA GEOSCIENCES INC.

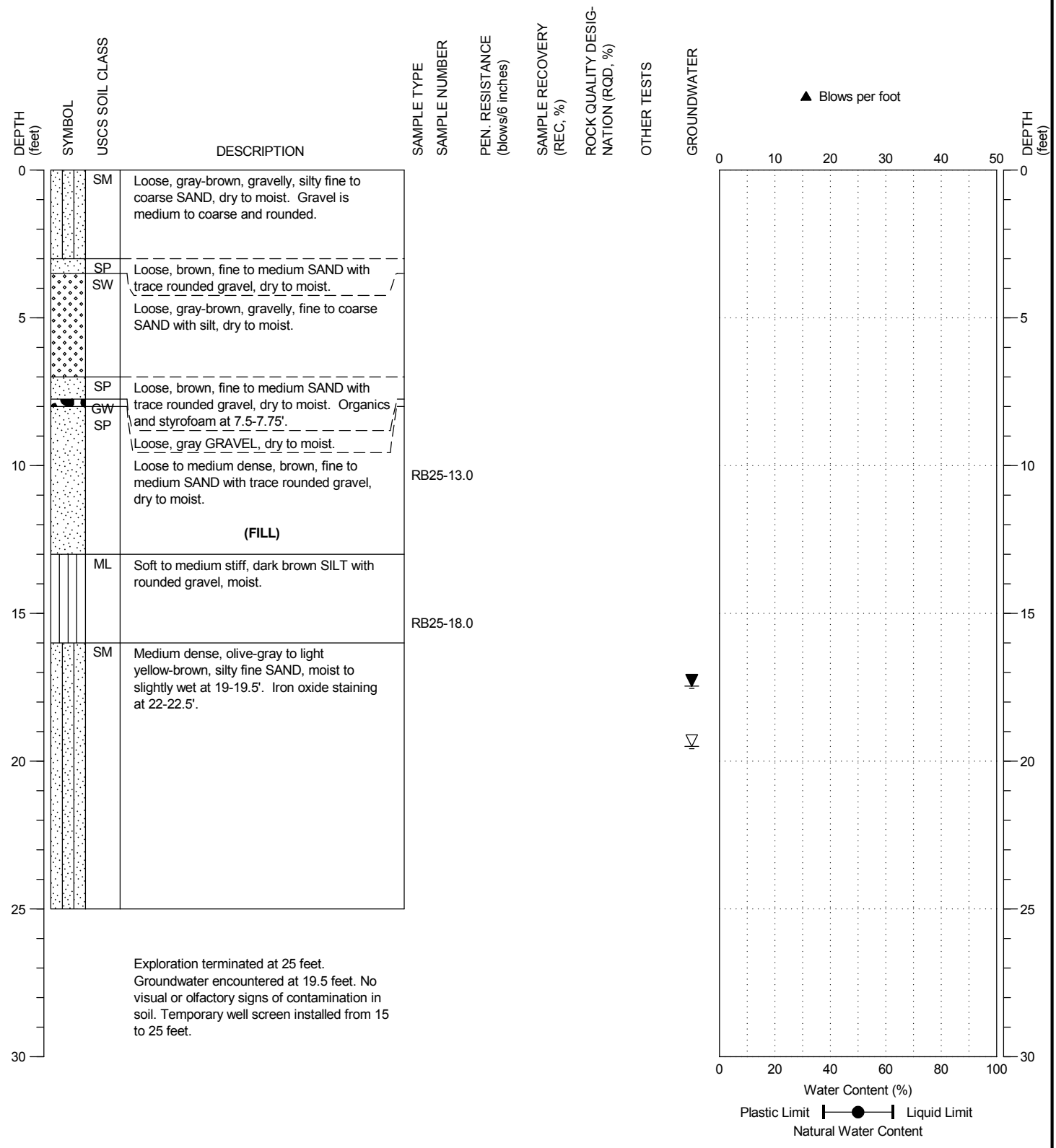
BOTHELL RIVERSIDE HVOC SITE
FALL 2018 BORINGS
BOTHELL, WASHINGTON

LEGEND OF TERMS AND SYMBOLS USED ON EXPLORATION LOGS

PROJECT NO.: 2007-098-T2052 FIGURE: 1

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: North of Gravel Parking Lot

DATE STARTED: 10/24/2018
DATE COMPLETED: 10/24/2018
LOGGED BY: N. Kapise



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HWA GEOSCIENCES INC.

Bothell Riverside HVOC Site
Bothell, Washington

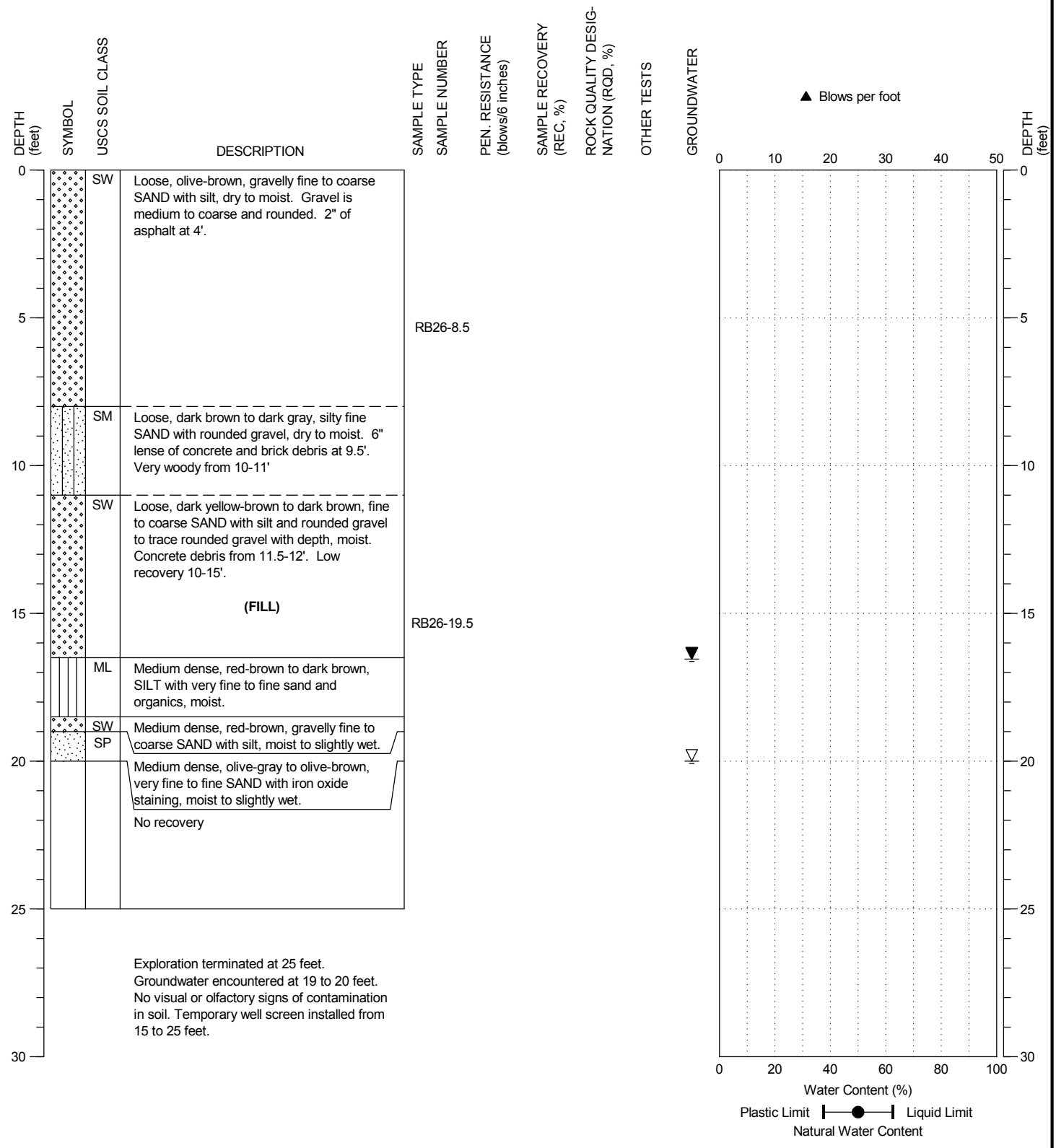
BORING:
RB-25

PAGE: 1 of 1

PROJECT NO.: 2007-098-T2052 FIGURE: 2

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: North of Gravel Parking Lot

DATE STARTED: 10/24/2018
DATE COMPLETED: 10/24/2018
LOGGED BY: N. Kapise



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HWA GEOSCIENCES INC.

Bothell Riverside HVOC Site
Bothell, Washington

BORING:
RB-26

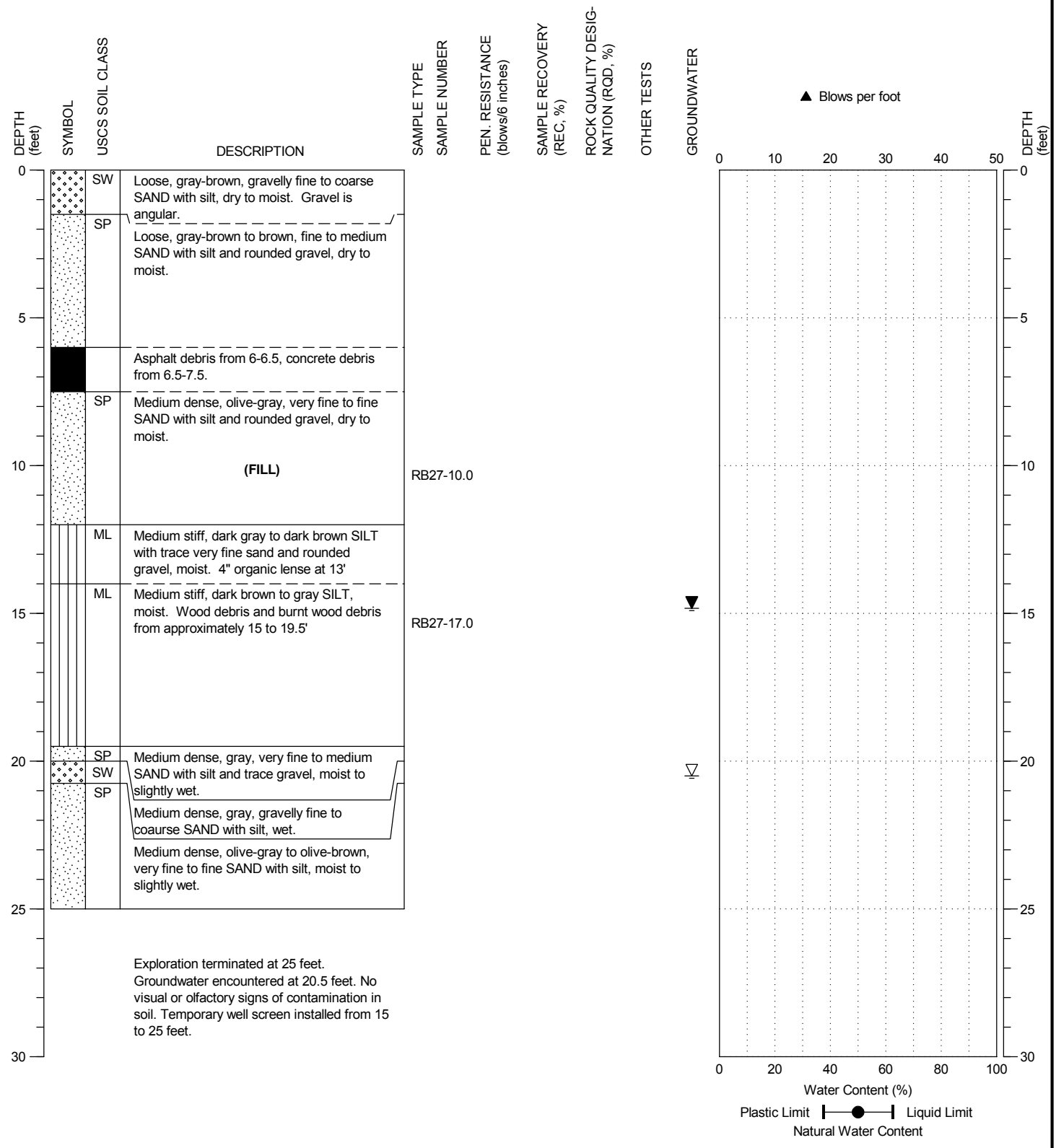
PAGE: 1 of 1

PROJECT NO.: 2007-098-T2052 FIGURE: 3

BORCOR 2007-098-T2052 FALL 2018.GPJ 11/9/18

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: Gravel Parking Lot

DATE STARTED: 10/24/2018
DATE COMPLETED: 10/24/2018
LOGGED BY: N. Kapise



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside HVOC Site
Bothell, Washington

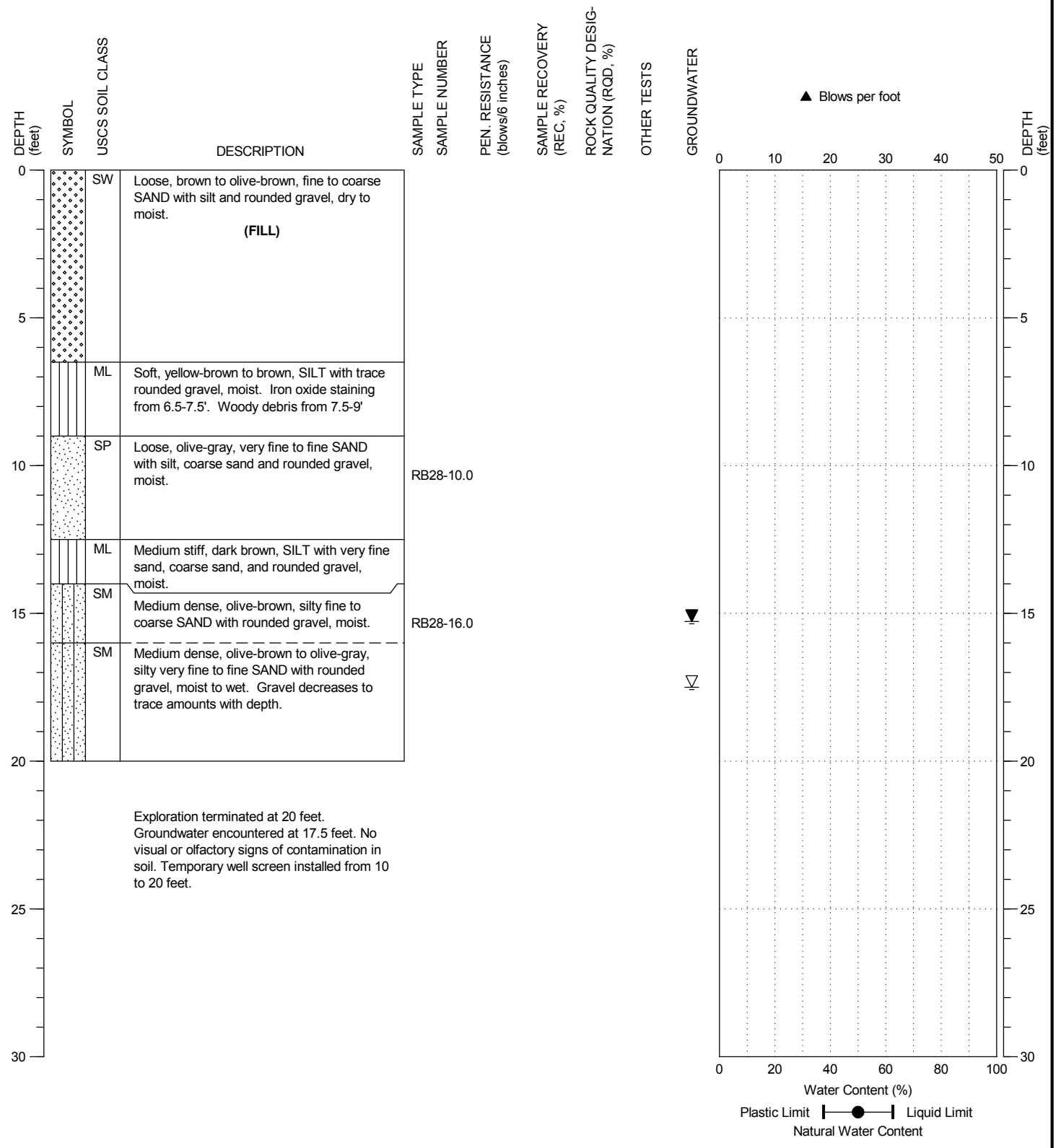
BORING:
RB-27

PAGE: 1 of 1

PROJECT NO.: 2007-098-T2052 FIGURE: 4

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: North of RMW-10

DATE STARTED: 10/24/2018
DATE COMPLETED: 10/24/2018
LOGGED BY: N. Kapise



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside HVOC Site
Bothell, Washington

BORING:
RB-28

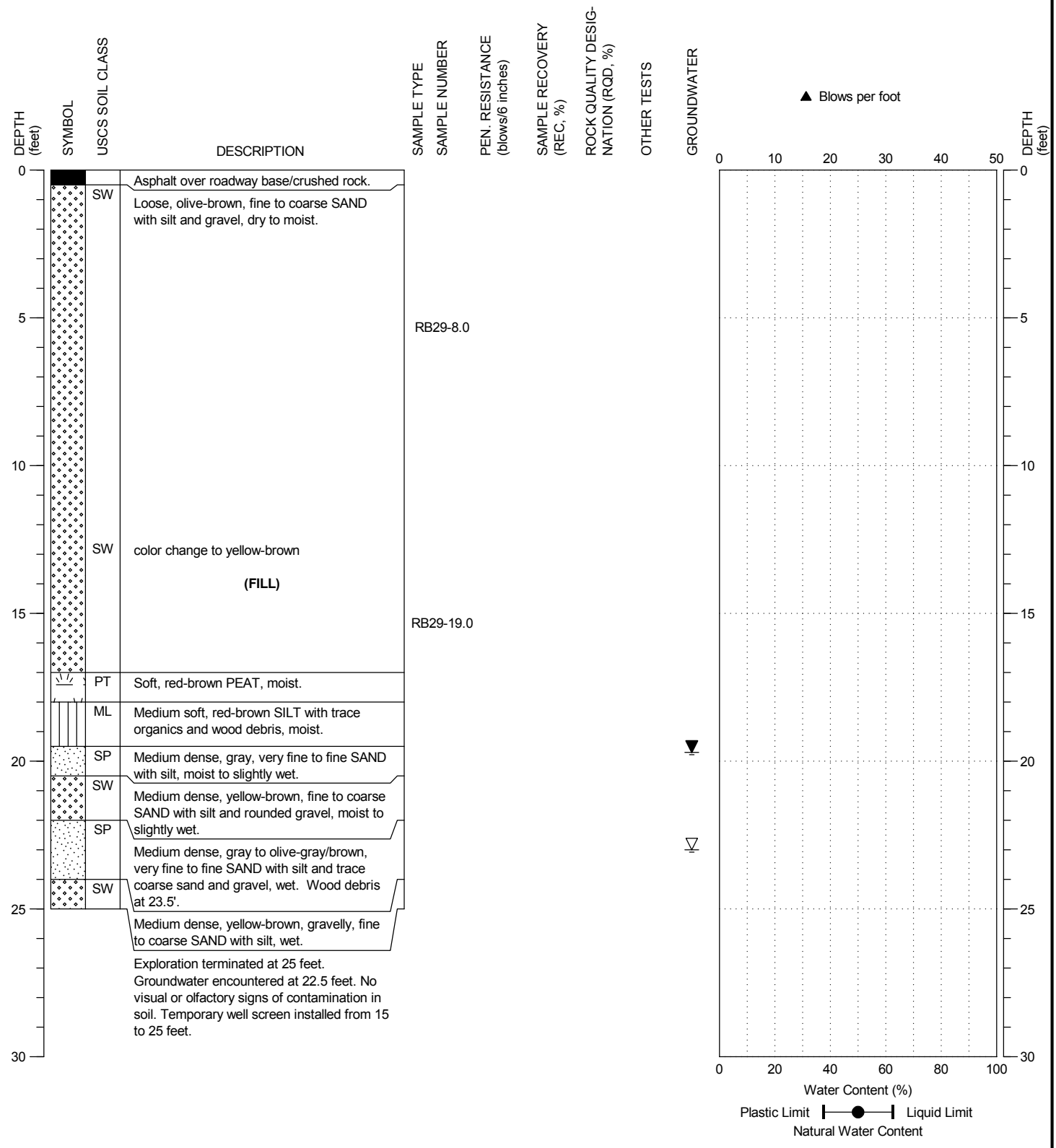
PAGE: 1 of 1

PROJECT NO.: 2007-098-T2052 FIGURE: 5

BORCOR 2007-098-T2052 FALL 2018.GPJ 11/9/18

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: South side of NE 180th St

DATE STARTED: 10/24/2018
DATE COMPLETED: 10/24/2018
LOGGED BY: N. Kapise



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside HVOC Site
Bothell, Washington

BORING:
RB-29

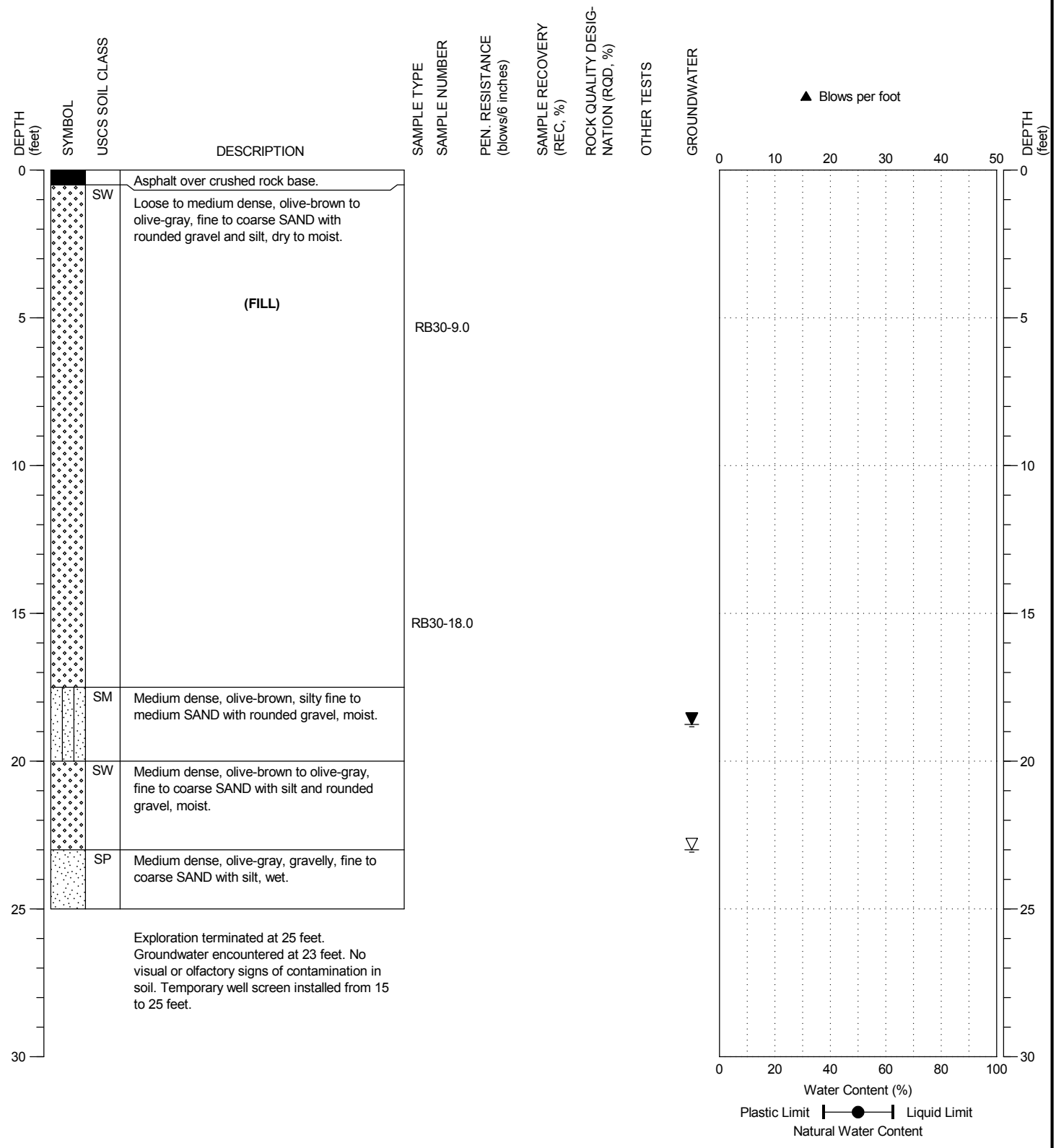
PAGE: 1 of 1

PROJECT NO.: 2007-098-T2052 FIGURE: 6

BORCOR 2007-098-T2052 FALL 2018.GPJ 11/9/18

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: South of RMW-7

DATE STARTED: 10/24/2018
DATE COMPLETED: 10/24/2018
LOGGED BY: N. Kapise



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

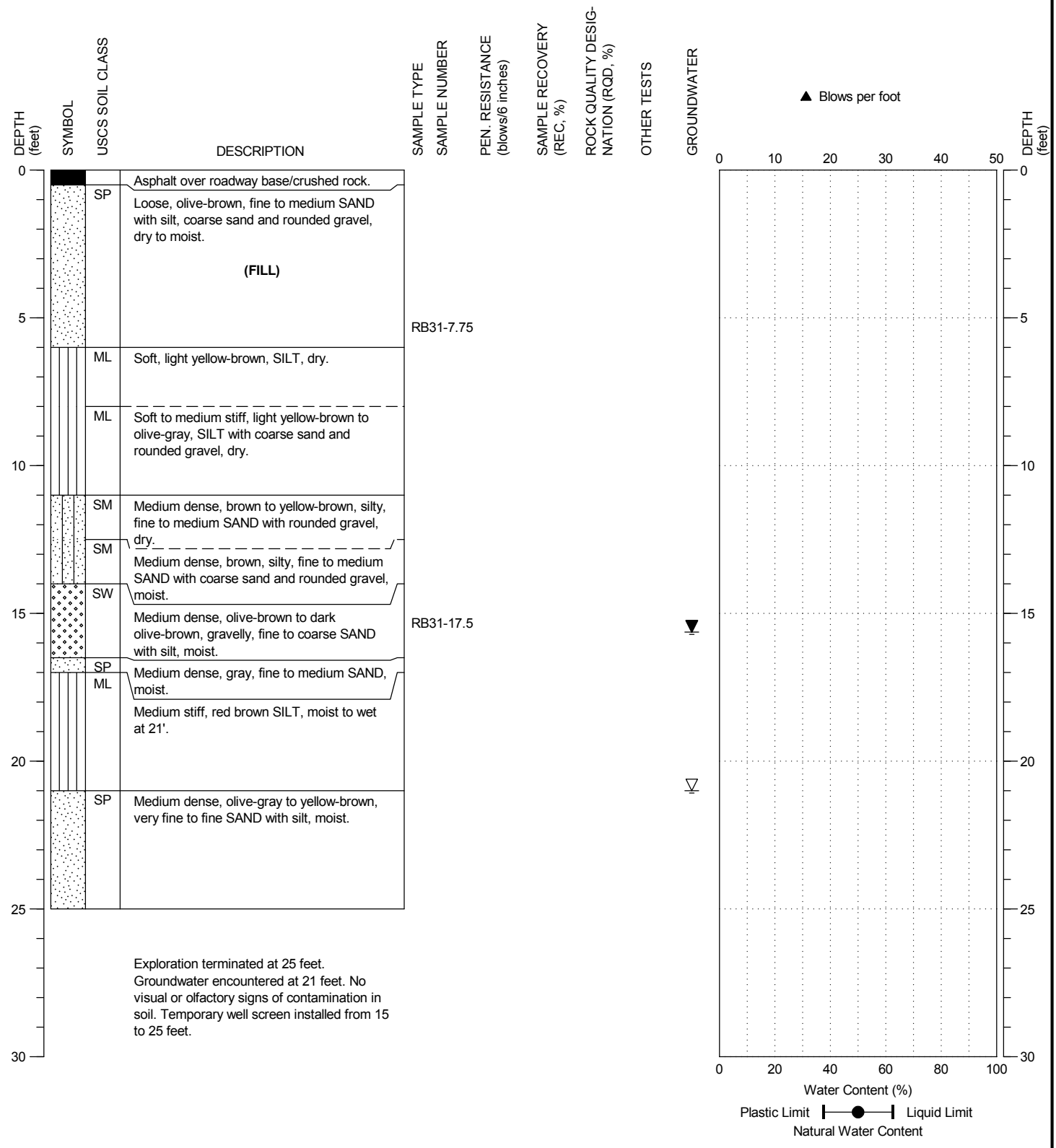
Bothell Riverside HVOC Site
Bothell, Washington

BORING:
RB-30

PROJECT NO.: 2007-098-T2052 FIGURE: 7

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: North side of NE 180th St.

DATE STARTED: 10/25/2018
DATE COMPLETED: 10/25/2018
LOGGED BY: N. Kapise



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

Bothell Riverside HVOC Site
Bothell, Washington

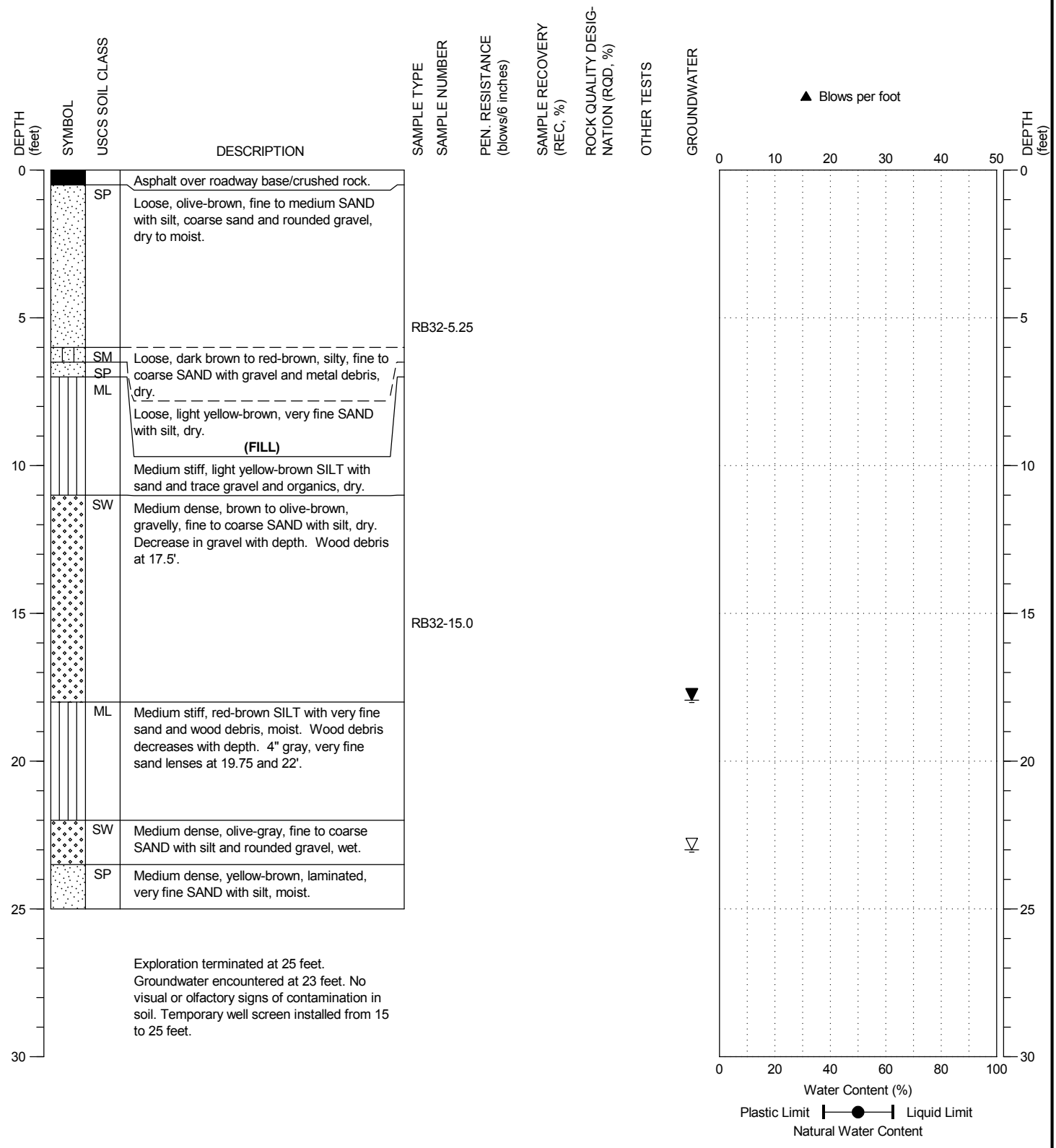
BORING:
RB-31

PAGE: 1 of 1

PROJECT NO.: 2007-098-T2052 FIGURE: 8

DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: Geoprobe
SAMPLING METHOD: Continuous
LOCATION: North side of NE 180th St.

DATE STARTED: 10/25/2018
DATE COMPLETED: 10/25/2018
LOGGED BY: N. Kapise



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.

HWA GEOSCIENCES INC.

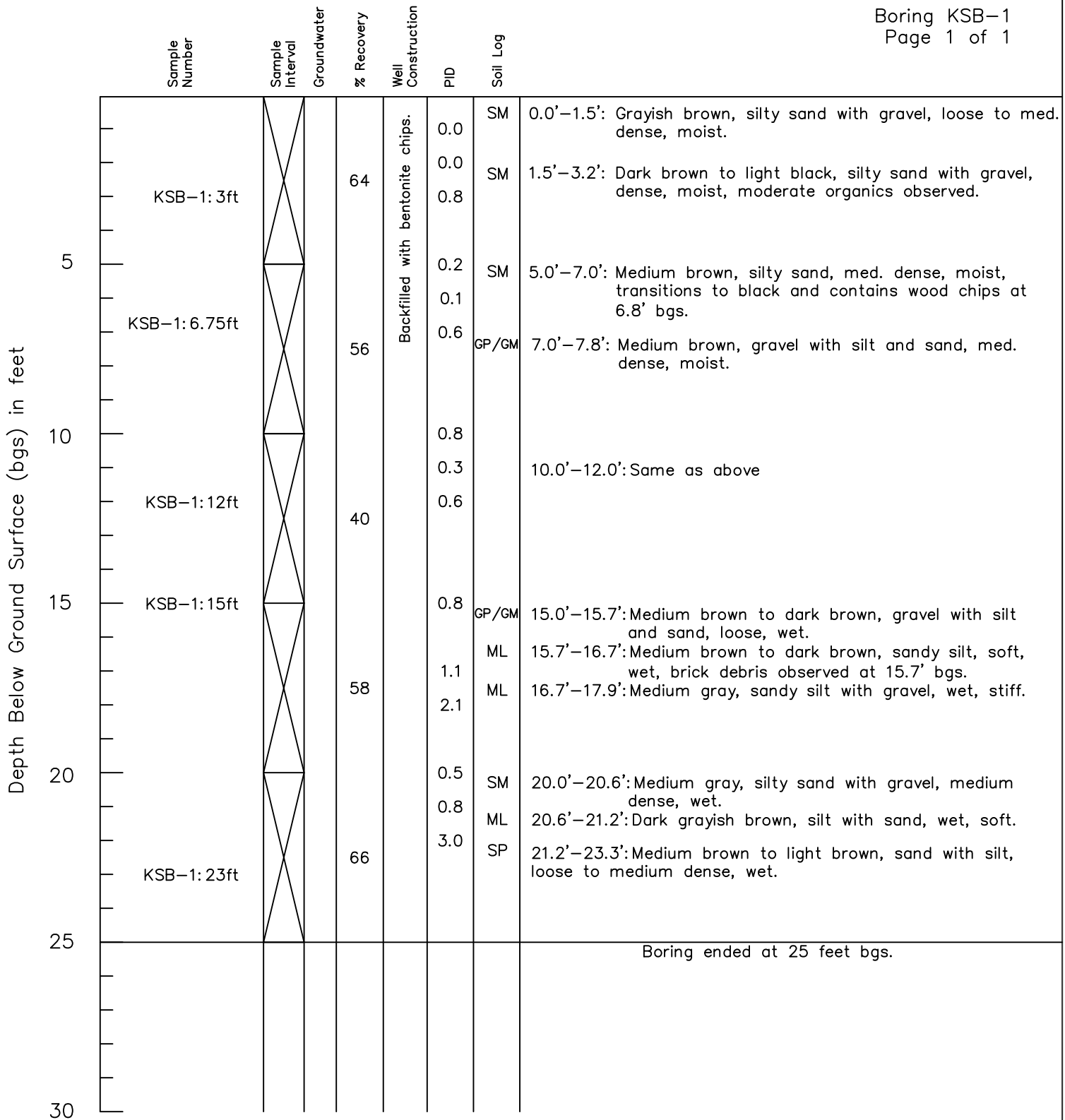
Bothell Riverside HVOC Site
Bothell, Washington

BORING:
RB-32

PAGE: 1 of 1

PROJECT NO.: 2007-098-T2052 FIGURE: 9

Boring KSB–1
Page 1 of 1



Logged by: Nate Evenson
Driller: Cascade Drilling
Drilling Method: Direct Push
Sampling Method: Acetate Liner
Casing Type: N/A
Annular Pack: N/A
Slot Size: N/A

Hammer Size: N/A
Date Drilled: 2/24/2020
Hole Diameter: 2.25 inches
Hole Depth: 25 feet
Screened Interval: N/A

Depth to Water (First Encountered): 15ft bgs
Depth to Water (Static): N/A
(water depths are approximate)

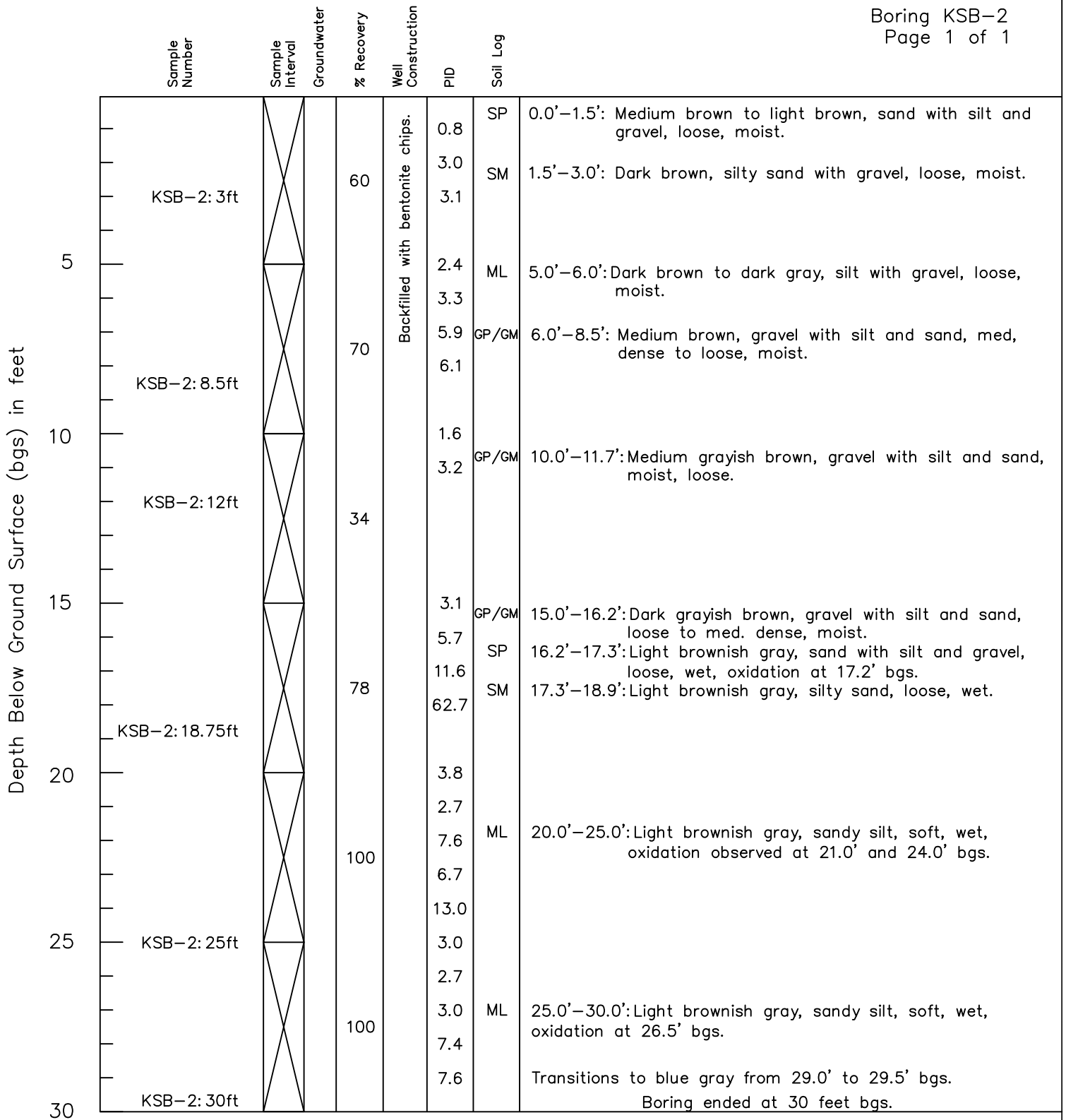
Soils classified visually using the Unified Soils Classification System

KANE ENVIRONMENTAL INC
Project No. 82306

Limited Phase II
Environmental Site Assessment
Riverside HVOC Site
Bothell, Washington

Soil Boring Log

Boring KSB–2
Page 1 of 1



0.0'–1.5': Medium brown to light brown, sand with silt and gravel, loose, moist.

1.5'–3.0': Dark brown, silty sand with gravel, loose, moist.

5.0'–6.0': Dark brown to dark gray, silt with gravel, loose, moist.

6.0'–8.5': Medium brown, gravel with silt and sand, med, dense to loose, moist.

10.0'–11.7': Medium grayish brown, gravel with silt and sand, moist, loose.

15.0'–16.2': Dark grayish brown, gravel with silt and sand, loose to med. dense, moist.

16.2'–17.3': Light brownish gray, sand with silt and gravel, loose, wet, oxidation at 17.2' bgs.

17.3'–18.9': Light brownish gray, silty sand, loose, wet.

20.0'–25.0': Light brownish gray, sandy silt, soft, wet, oxidation observed at 21.0' and 24.0' bgs.

25.0'–30.0': Light brownish gray, sandy silt, soft, wet, oxidation at 26.5' bgs.

Transitions to blue gray from 29.0' to 29.5' bgs.

Boring ended at 30 feet bgs.

Logged by: Nate Evenson
Driller: Cascade Drilling
Drilling Method: Direct Push
Sampling Method: Acetate Liner
Casing Type: N/A
Annular Pack: N/A
Slot Size: N/A

Hammer Size: N/A
Date Drilled: 2/24/2020
Hole Diameter: 2.25 inches
Hole Depth: 30 feet
Screened Interval: N/A

Depth to Water (First Encountered): 16.2 ft bgs
Depth to Water (Static): N/A
(water depths are approximate)

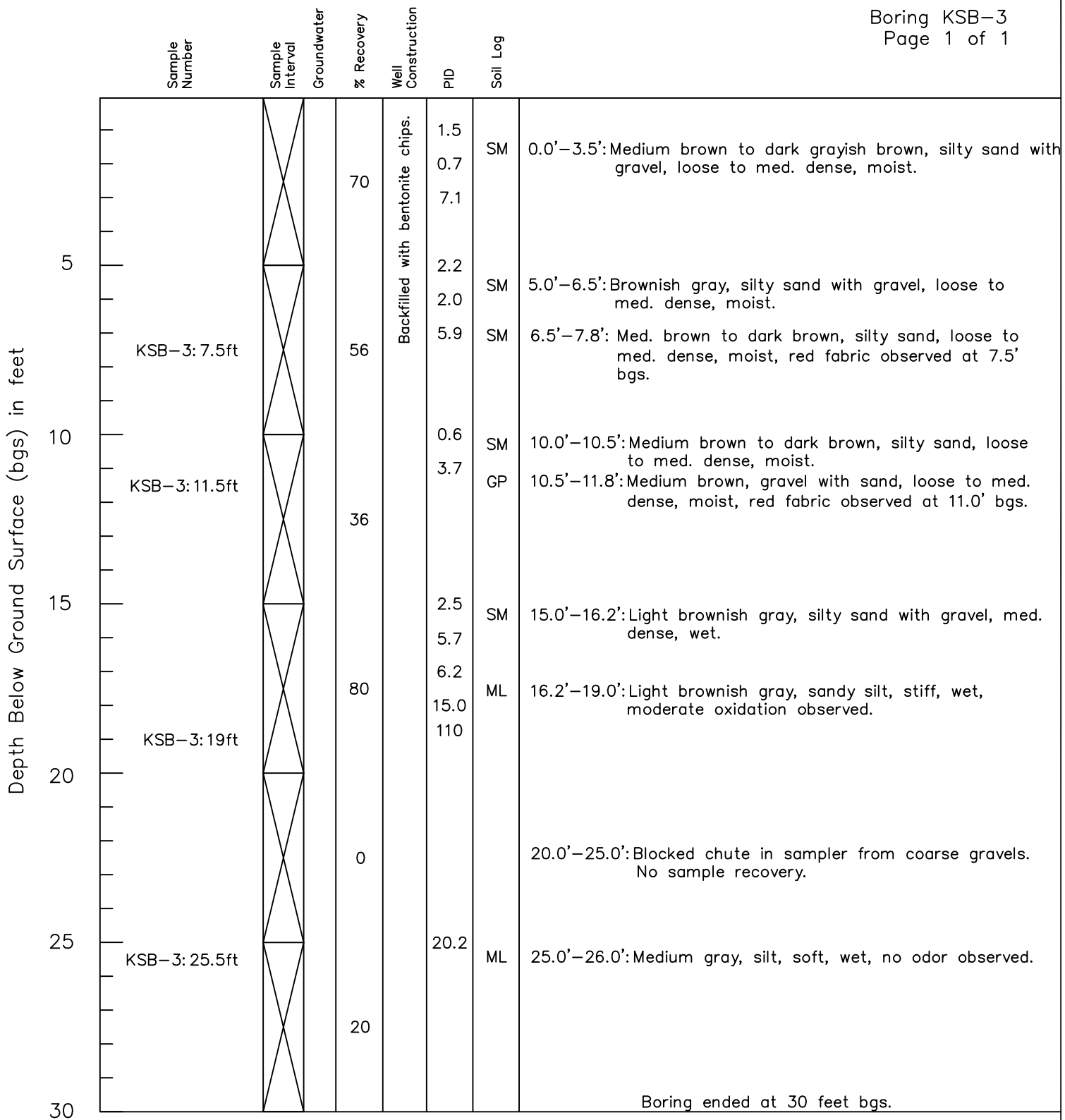
Soils classified visually using the Unified Soils Classification System

KANE ENVIRONMENTAL INC
Project No. 82306

Limited Phase II
Environmental Site Assessment
Riverside HVOC Site
Bothell, Washington

Soil Boring Log

Boring KSB–3
Page 1 of 1



Logged by: Nate Evenson
Driller: Cascade Drilling
Drilling Method: Direct Push
Sampling Method: Acetate Liner
Casing Type: N/A
Annular Pack: N/A
Slot Size: N/A

Hammer Size: N/A
Date Drilled: 2/24/2020
Hole Diameter: 2.25 inches
Hole Depth: 30 feet
Screened Interval: N/A

Depth to Water (First Encountered): 15 ft bgs
Depth to Water (Static): N/A
(water depths are approximate)

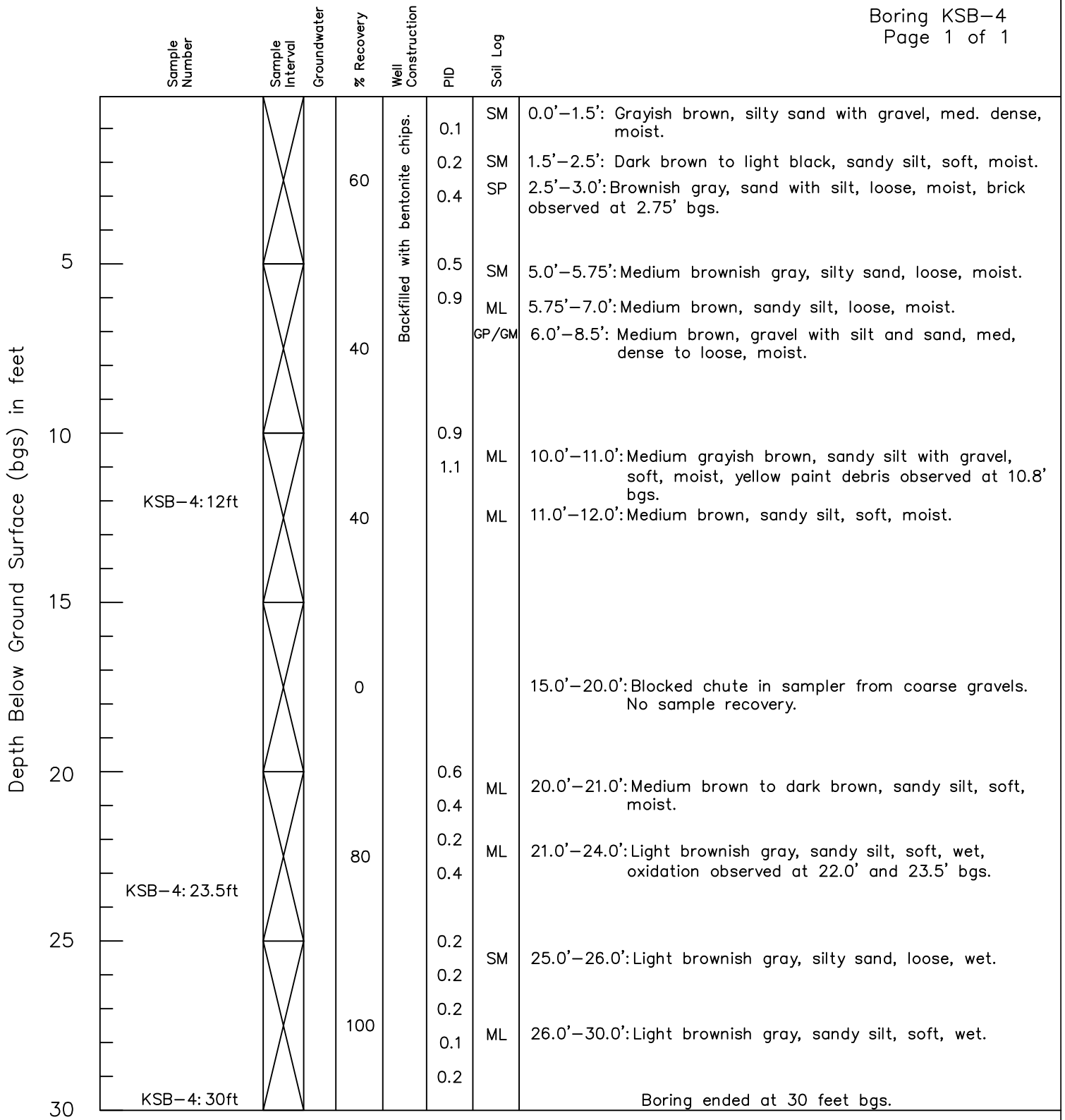
Soils classified visually using the Unified Soils Classification System

KANE ENVIRONMENTAL INC
Project No. 82306

Limited Phase II
Environmental Site Assessment
Riverside HVOC Site
Botell, Washington

Soil Boring Log

Boring KSB–4
Page 1 of 1



Logged by: Nate Evenson
Driller: Cascade Drilling
Drilling Method: Direct Push
Sampling Method: Acetate Liner
Casing Type: N/A
Annular Pack: N/A
Slot Size: N/A

Hammer Size: N/A
Date Drilled: 2/24/2020
Hole Diameter: 2.25 inches
Hole Depth: 30 feet
Screened Interval: N/A

Depth to Water (First Encountered): 21 ft bgs
Depth to Water (Static): N/A
(water depths are approximate)

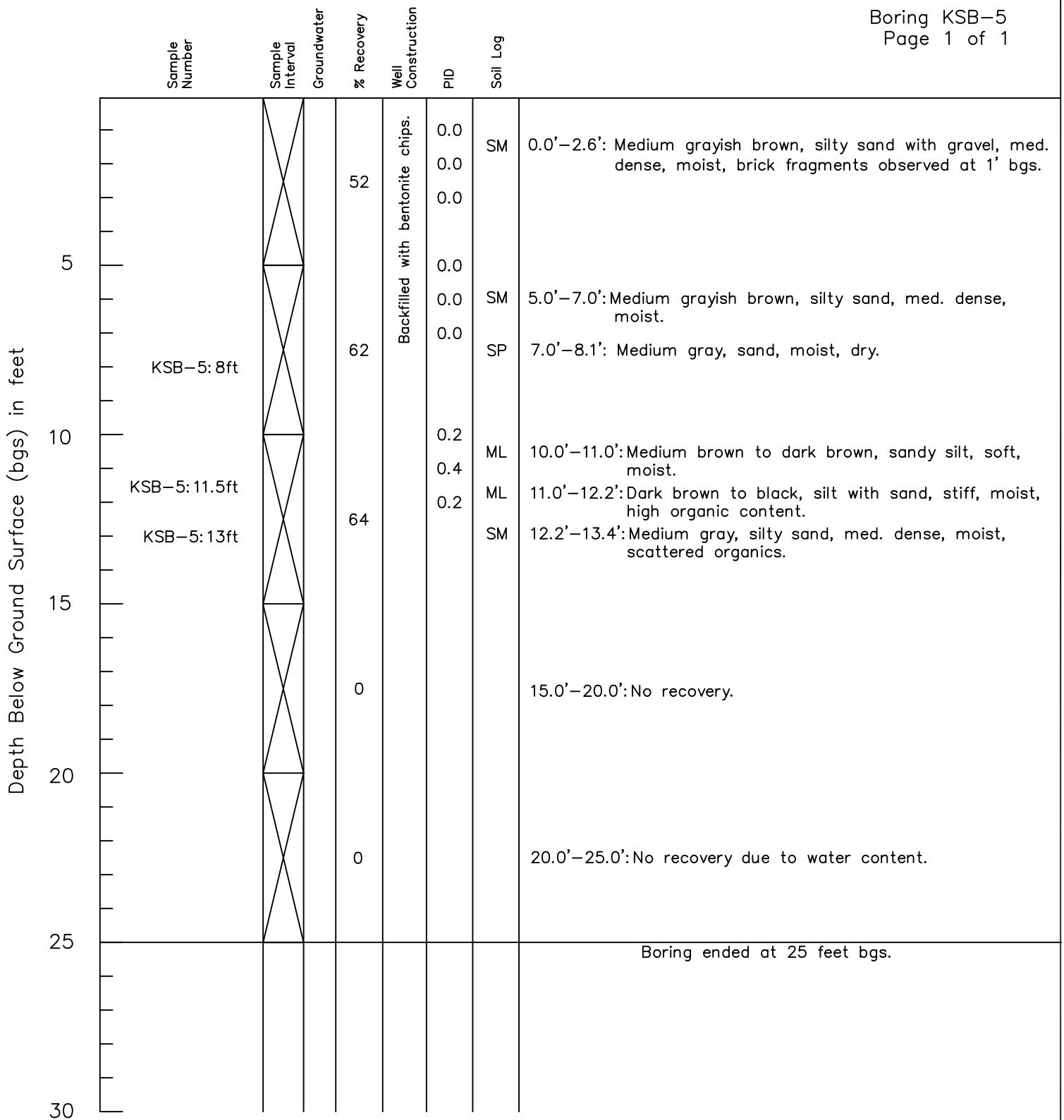
Soils classified visually using the Unified Soils Classification System

KANE ENVIRONMENTAL INC
Project No. 82306

Limited Phase II
Environmental Site Assessment
Riverside HVOC Site
Bothell, Washington

Soil Boring Log

Boring KSB–5
Page 1 of 1



Logged by: Nate Evenson
Driller: Cascade Drilling
Drilling Method: Direct Push
Sampling Method: Acetate Liner
Casing Type: N/A
Annular Pack: N/A
Slot Size: N/A

Hammer Size: N/A
Date Drilled: 2/24/2020
Hole Diameter: 2.25 inches
Hole Depth: 25 feet
Screened Interval: N/A

Depth to Water (First Encountered): 15 ft bgs
Depth to Water (Static): N/A
(water depths are approximate)

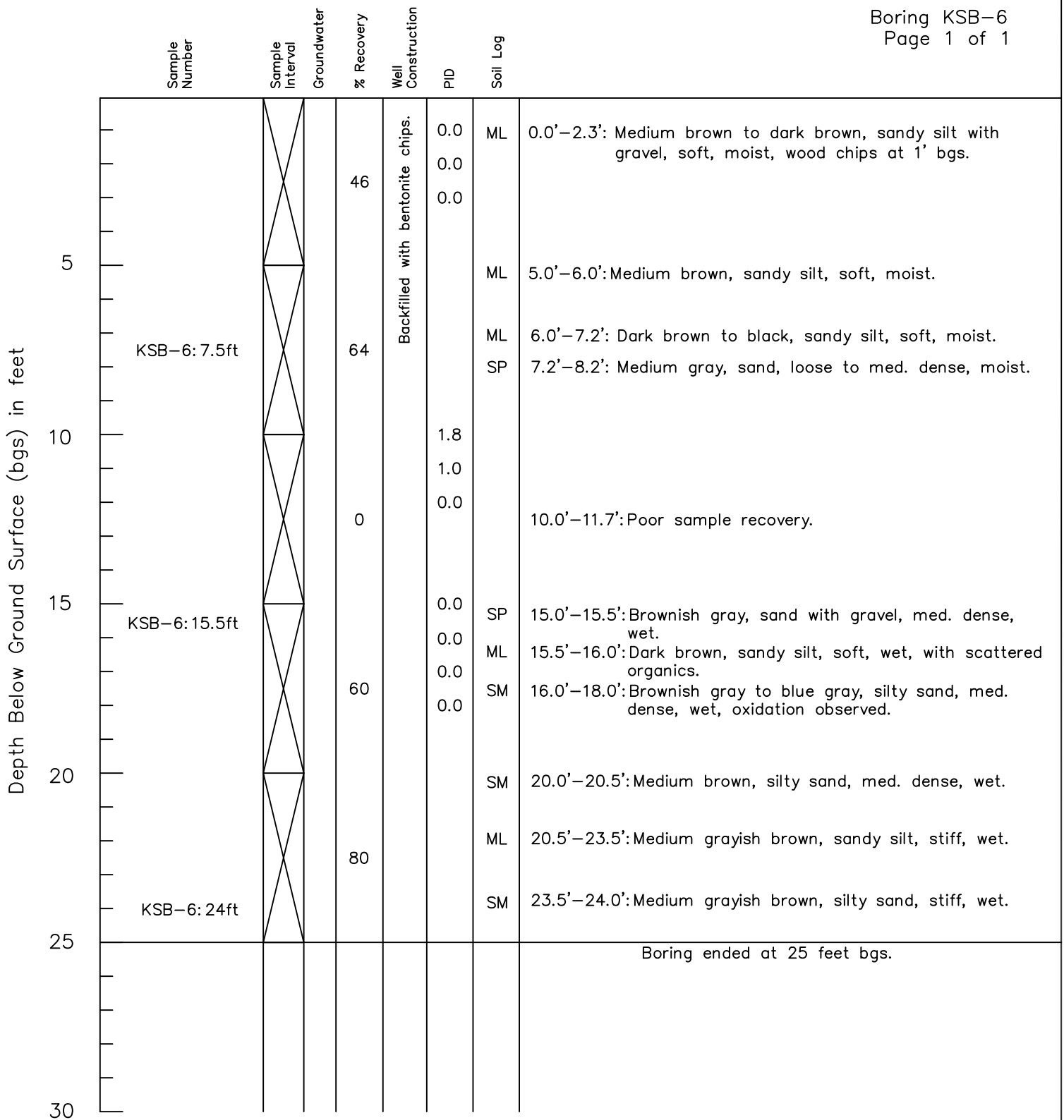
Soils classified visually using the Unified Soils Classification System

KANE ENVIRONMENTAL INC
Project No. 82306

Limited Phase II
Environmental Site Assessment
Riverside HVOC Site
Bothell, Washington

Soil Boring Log

Boring KSB–6
Page 1 of 1



Logged by: Nate Evenson
Driller: Cascade Drilling
Drilling Method: Direct Push
Sampling Method: Acetate Liner
Casing Type: N/A
Annular Pack: N/A
Slot Size: N/A

Hammer Size: N/A
Date Drilled: 2/24/2020
Hole Diameter: 2.25 inches
Hole Depth: 25 feet
Screened Interval: N/A

Depth to Water (First Encountered): 15 ft bgs
Depth to Water (Static): N/A
(water depths are approximate)

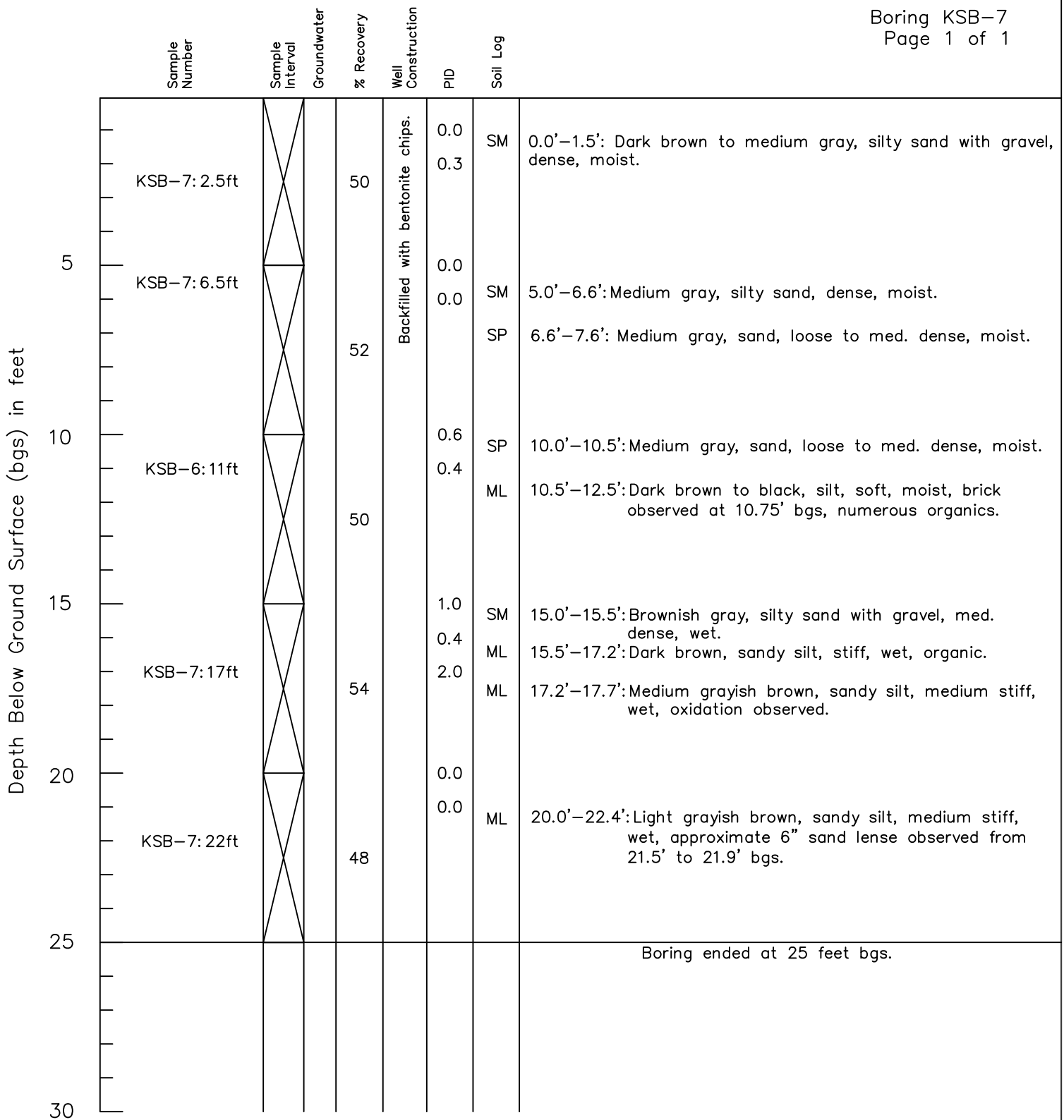
Soils classified visually using the Unified Soils Classification System

KANE ENVIRONMENTAL INC
Project No. 82306

Limited Phase II
Environmental Site Assessment
Riverside HVOC Site
Bothell, Washington

Soil Boring Log

Boring KSB–7
Page 1 of 1



Logged by: Nate Evenson
Driller: Cascade Drilling
Drilling Method: Direct Push
Sampling Method: Acetate Liner
Casing Type: N/A
Annular Pack: N/A
Slot Size: N/A

Hammer Size: N/A
Date Drilled: 2/24/2020
Hole Diameter: 2.25 inches
Hole Depth: 25 feet
Screened Interval: N/A

Depth to Water (First Encountered): 15 ft bgs
Depth to Water (Static): N/A
(water depths are approximate)

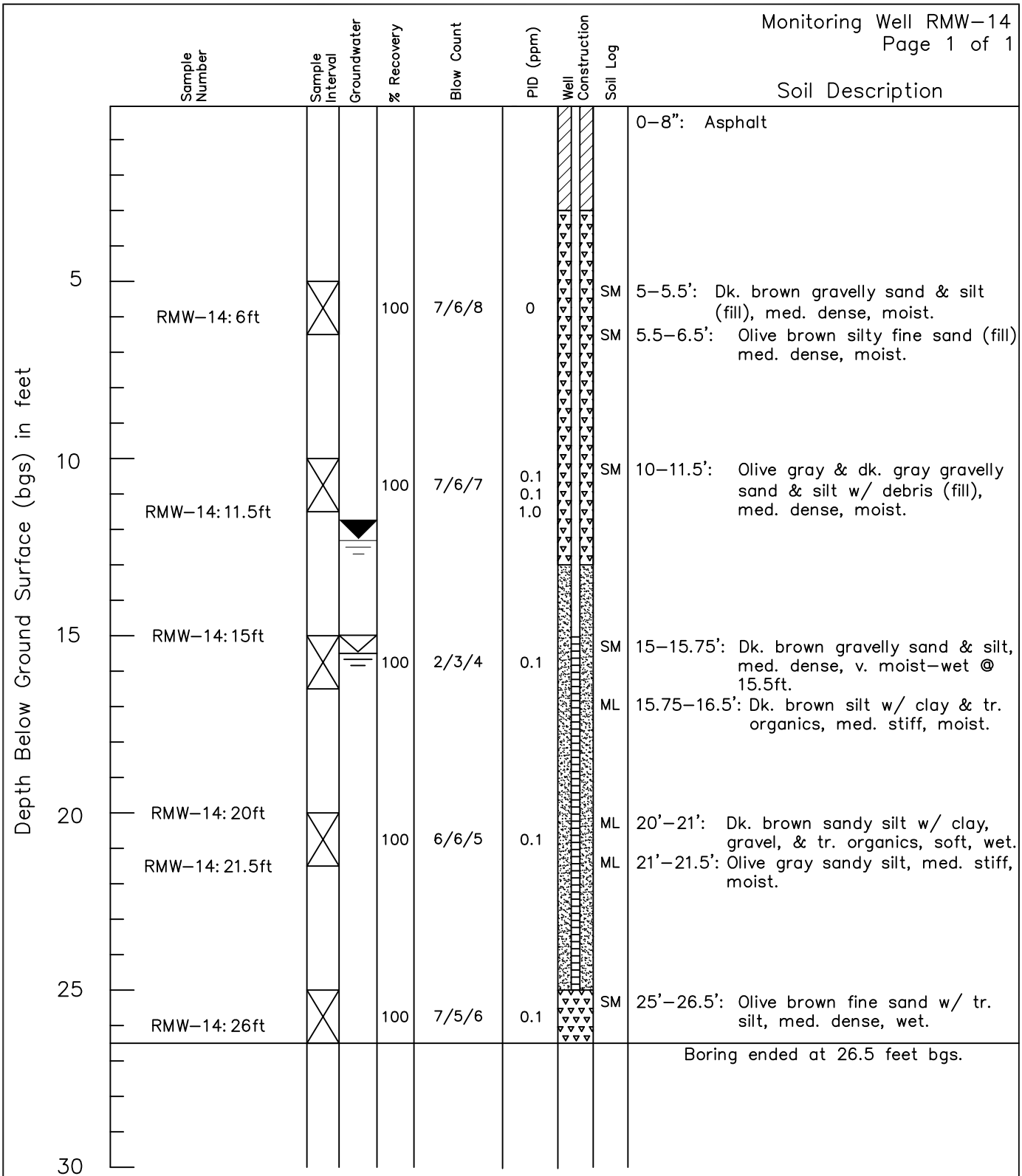
Soils classified visually using the Unified Soils Classification System

KANE ENVIRONMENTAL INC
Project No. 82306

Limited Phase II
Environmental Site Assessment
Riverside HVOC Site
Bothell, Washington

Soil Boring Log

Monitoring Well RMW–14
Page 1 of 1



Logged by: Jeffrey Jensen
Driller: Cascade
Drilling Method: Hollow Stem Auger
Sampling Method: 18" long, 2.25" ID S/S
Casing Type: PVC
Annular Pack: #2/12 Sand
Slot Size: 0.020 inch

Hammer Size: 300 Lbs
Date Drilled: 4/17/20
Hole Diameter: 12 inches
Hole Depth: 26.5 feet
Well Diameter: 4 inch
Well Depth: 25 feet
Screened Interval: 15–25 feet

Depth to Water (First Encountered): 15.5 ft
Depth to Water (Static): 12.36 ft –4/28/20
Well Tag: BLK 784

Concrete
Bentonite
Sand
Well Screen

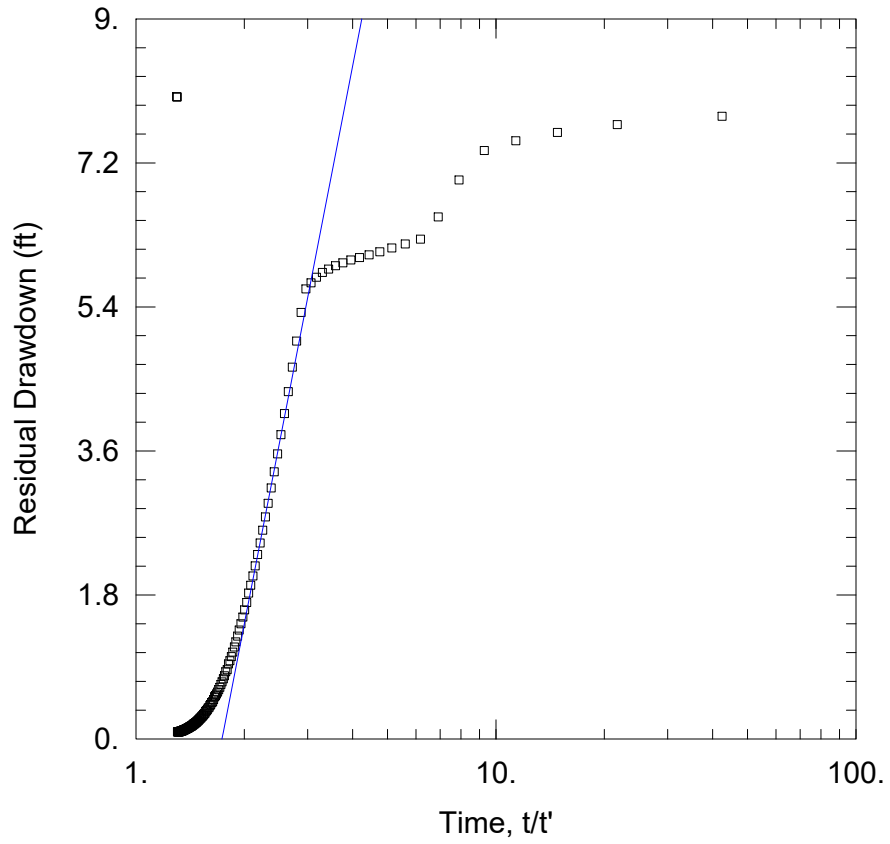
Soils classified visually using the Unified Soils Classification System

KANE ENVIRONMENTAL INC
4015 13th Avenue West
Seattle, WA - 206-691-0476
www.kane-environmental.com

Remedial Investigation / Feasibility Study
Riverside HVOC Site
Bothell, Washington

Groundwater Monitoring Well Log

Attachment C
Pump Testing and Slug Test Data



WELL TEST ANALYSIS

Data Set: K:\...\BC-3 - 5-4-2020_recovery_theis_EarlyTime.aqt
Date: 05/18/20 Time: 16:07:30

PROJECT INFORMATION

Company: Kane Environmental
Client: City of Bothell
Project: 82306
Location: Riverside HVOC
Test Well: BC-3
Test Date: 5/4/2020

SOLUTION

Aquifer Model: Confined
Solution Method: Theis (Recovery)

T = 1.522 ft^2/day
S/S' = 1.734

AQUIFER DATA

Saturated Thickness: 5.223 ft

Anisotropy Ratio (Kz/Kr): 1.

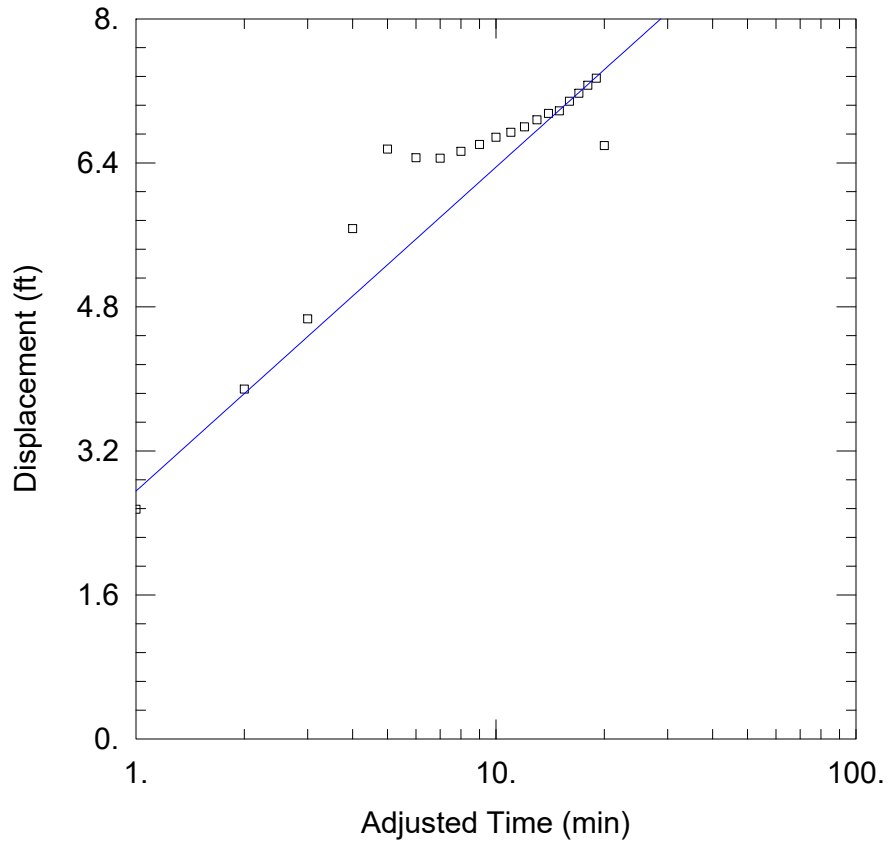
WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
BC3	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
▫ BC3	0	0



WELL TEST ANALYSIS

Data Set: K:\...\RMW-14 DD_Cooper_LateTime.aqt
Date: 05/18/20 Time: 16:04:56

PROJECT INFORMATION

Company: Kane Environmental
Client: City of Bothell
Project: 82306
Location: Riverside HVOC
Test Well: RMW-14
Test Date: 5/4/2020

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Jacob

T = 19.6 ft^2/day
S = 0.021

AQUIFER DATA

Saturated Thickness: 10. ft

Anisotropy Ratio (Kz/Kr): 1.

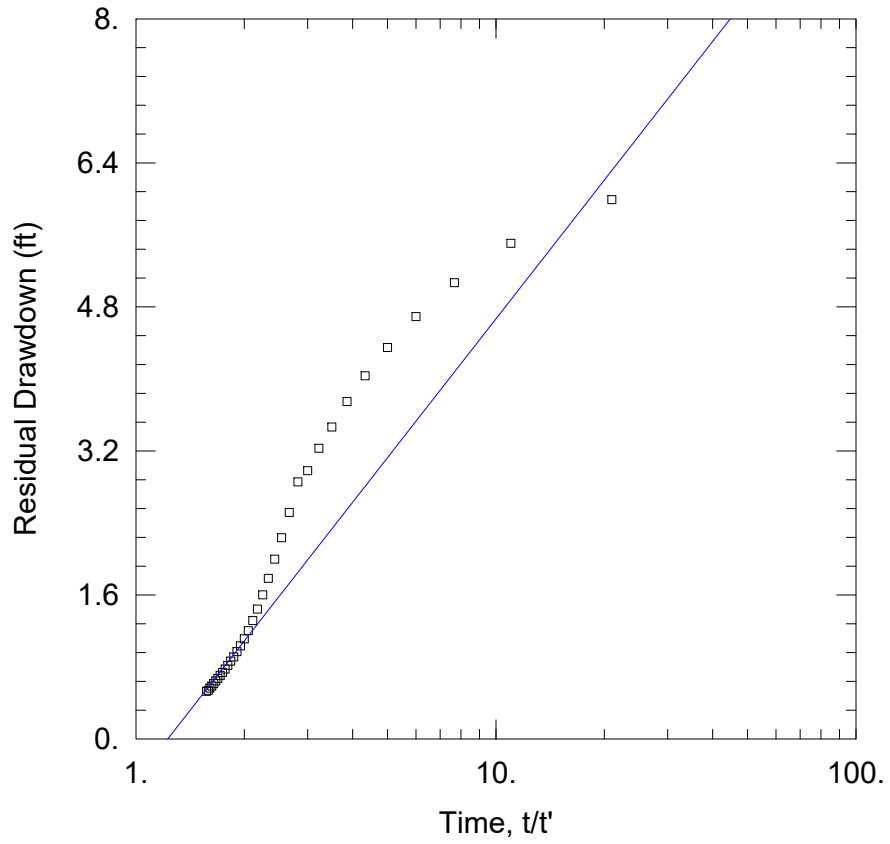
WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
RMW-14	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
▫ RMW-14	0	0



WELL TEST ANALYSIS

Data Set: K:\...\RMW-14 Recovery_Theis_EarlyFit.aqt
Date: 05/18/20 Time: 16:03:17

PROJECT INFORMATION

Company: Kane Environmental
Client: City of Bothell
Project: 82306
Location: Riverside HVOC Site
Test Well: RMW-14
Test Date: 5/4/2020

SOLUTION

Aquifer Model: Confined
Solution Method: Theis (Recovery)

T = 13.78 ft^2/day
S/S' = 1.226

AQUIFER DATA

Saturated Thickness: 10. ft

Anisotropy Ratio (Kz/Kr): 1.

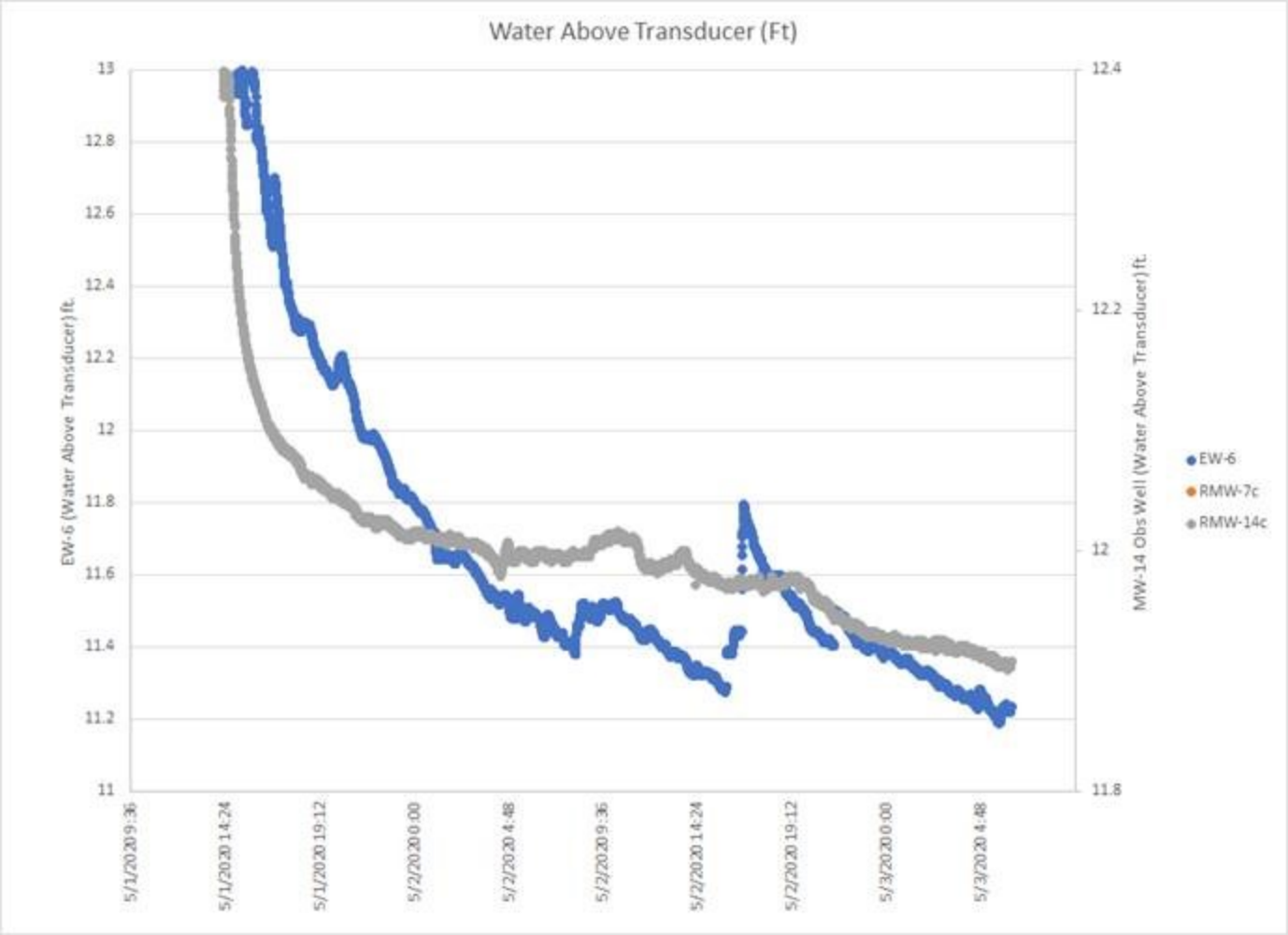
WELL DATA

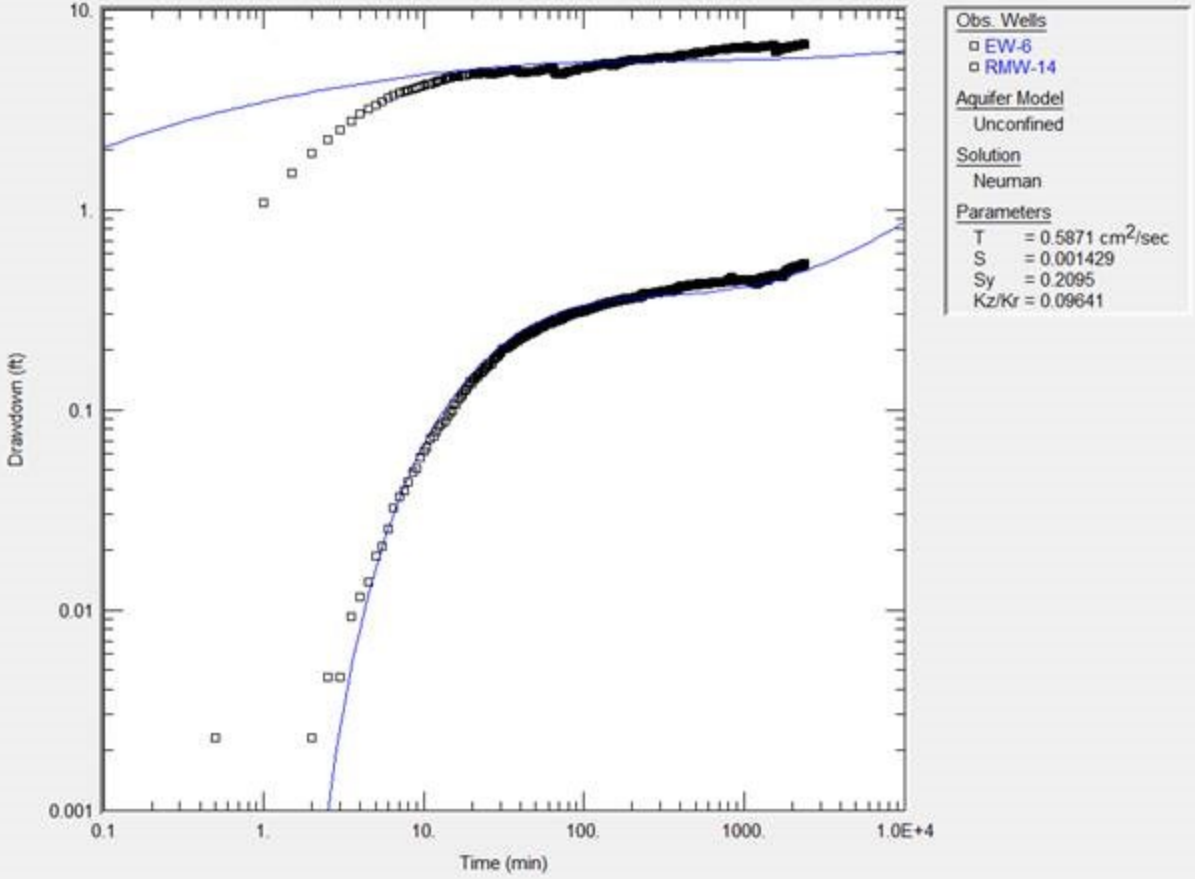
Pumping Wells

Well Name	X (ft)	Y (ft)
RMW-14	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
▫ RMW-14	0	0


Water Above Transducer (Ft)
EW-6 (Water Above Transducer) ft.
MW-14 Obs Well (Water Above Transducer) ft.
13
12.8
12.6
12.4
12.2
12
11.8
11.6
11.4
11.2
11
12.4
12.2
12
11.8
5/1/2020 9:36
5/1/2020 14:24
5/1/2020 19:12
5/2/2020 0:00
5/2/2020 4:48
5/2/2020 9:36
5/2/2020 14:24
5/2/2020 19:12
5/3/2020 0:00
5/3/2020 4:48
EW-6
RMW-7c
RMW-14c


Obs. Wells
EW-6
RMW-14
Aquifer Model
Unconfined
Solution
Neuman
Parameters
T = 0.5871 cm2/sec
S = 0.001429
Sy = 0.2095
Kz/Kr = 0.09641
Drawdown (ft)
10.
1.
0.1
0.01
0.001
0.1
1.
10.
100.
1000.
1.0E+4
Time (min)

Attachment D
Terrestrial Ecological Evaluation Form

Table 749-1

Simplified Terrestrial Ecological Evaluation-Exposure Analysis Procedure

Estimate the area of contiguous (connected) undeveloped land on the site or within 500 feet of any area of the site to the nearest 1/2 acre (1/4 acre if the area is less than 0.5 acre).	
1) From the table below, find the number of points corresponding to the area and enter this number in the field to the right.	
Area (acres) / Points 0.25 or less / 4 0.5 / 5 1.0 / 6 1.5 / 7 2.0 / 8 2.5 / 9 3.0 / 10 3.5 / 11 4.0 or more / 12	7
2) Is this an industrial or commercial property? If yes, enter a score of 3. If no, enter a score of 1	1
3)[a] Enter a score in the box to the right for the habitat quality of the site, using the following rating system[b]. High=1, Intermediate=2, Low=3	2
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2.[c]	1
5) Are there any of the following soil contaminants present: Chlorinated dioxins/furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.	4
6) Add the numbers in the boxes on lines 2-5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified evaluation may be ended.	8

Notes for Table 749-1

[a] It is expected that this habitat evaluation will be undertaken by an experienced field biologist. If this is not the case, enter a conservative score of (1) for questions 3 and 4.

[b] **Habitat rating system.** Rate the quality of the habitat as high, intermediate or low based on your professional judgment as a field biologist. The following are suggested factors to consider in making this evaluation:

> **Low:** Early successional vegetative stands; vegetation predominantly noxious, nonnative, exotic plant species or weeds. Areas severely disturbed by human activity, including intensively cultivated croplands. Areas isolated from other habitat used by wildlife.

High: Area is ecologically significant for one or more of the following reasons: Late-successional native plant communities present; relatively high species diversity; used by an uncommon or rare species; priority habitat (as defined by the Washington Department of fish and Wildlife); part of a larger area of habitat where size or fragmentation may be important for the retention of some species.

Intermediate: Area does not rate as either high or low.

[c] Indicate "yes" if the area attracts wildlife or is likely to do so. Examples: Birds frequently visit the area to feed; evidence of high use b mammals (tracks, scat, etc.); habitat "island" in an industrial area; unusual features of an area that make it important for feeding animals; heavy use during seasonal migrations.

[Area Calculation Aid] [Aerial Photo with Area Designations] [TEE Table 749-1] [Index of Tables]

[Exclusions Main] [TEE Definitions] [Simplified or Site-Specific?] [Simplified Ecological Evaluation] [Site-Specific Ecological Evaluation] [WAC 173-340-7493]

[TEE Home]

Attachment E
Analytical Laboratory Reports

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

October 3, 2019

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 1909-297

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on September 26, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-297
Project: 82306

Case Narrative

Samples were collected on September 26, 2019 and received by the laboratory on September 26, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-297
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	09-297-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloromethane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Vinyl Chloride	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromomethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloroethane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Iodomethane	ND	1.4	EPA 8260D	9-30-19	9-30-19	
Methylene Chloride	ND	1.0	EPA 8260D	9-30-19	9-30-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromochloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloroform	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Trichloroethene	0.45	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Dibromomethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromodichloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	9-30-19	9-30-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-297
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	09-297-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Tetrachloroethene	2.5	0.20	EPA 8260D	9-30-19	9-30-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Dibromochloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromoform	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Bromobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	9-30-19	9-30-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*108*	*75-127*				
Toluene-d8	*89*	*80-127*				
4-Bromofluorobenzene	*109*	*78-125*				

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-297
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	09-297-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloromethane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Vinyl Chloride	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromomethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloroethane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Iodomethane	ND	1.4	EPA 8260D	9-30-19	9-30-19	
Methylene Chloride	ND	1.0	EPA 8260D	9-30-19	9-30-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
(cis) 1,2-Dichloroethene	0.22	0.20	EPA 8260D	9-30-19	9-30-19	
Bromochloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloroform	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Trichloroethene	0.39	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Dibromomethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromodichloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	9-30-19	9-30-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-297
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	09-297-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Tetrachloroethene	2.1	0.20	EPA 8260D	9-30-19	9-30-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Dibromochloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromoform	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Bromobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	9-30-19	9-30-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*106*	*75-127*				
Toluene-d8	*98*	*80-127*				
4-Bromofluorobenzene	*94*	*78-125*				

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-297
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-6:W**					
Laboratory ID:	09-297-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloromethane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Vinyl Chloride	0.57	0.20	EPA 8260D	9-30-19	9-30-19	
Bromomethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloroethane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Iodomethane	ND	1.4	EPA 8260D	9-30-19	9-30-19	
Methylene Chloride	ND	1.0	EPA 8260D	9-30-19	9-30-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
(cis) 1,2-Dichloroethene	3.8	0.20	EPA 8260D	9-30-19	9-30-19	
Bromochloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloroform	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Trichloroethene	1.7	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Dibromomethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromodichloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	9-30-19	9-30-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-297
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-6:W**					
Laboratory ID:	09-297-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Tetrachloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Dibromochloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromoform	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Bromobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	9-30-19	9-30-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*75-127*				
Toluene-d8	*116*	*80-127*				
4-Bromofluorobenzene	*103*	*78-125*				

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-297
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0930W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloromethane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Vinyl Chloride	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromomethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloroethane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Iodomethane	ND	1.4	EPA 8260D	9-30-19	9-30-19	
Methylene Chloride	ND	1.0	EPA 8260D	9-30-19	9-30-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromochloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chloroform	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Trichloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Dibromomethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromodichloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	9-30-19	9-30-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-30-19	9-30-19	

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-297
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0930W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Tetrachloroethene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Dibromochloromethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Chlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Bromoform	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Bromobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	9-30-19	9-30-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	9-30-19	9-30-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	9-30-19	9-30-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*104*	*75-127*				
Toluene-d8	*102*	*80-127*				
4-Bromofluorobenzene	*91*	*78-125*				

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-297
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0930W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.28**	**9.40**	10.0	10.0	93	94	63-130	1	17	
Benzene	**10.2**	**8.61**	10.0	10.0	102	86	76-125	17	19	
Trichloroethene	**9.52**	**9.80**	10.0	10.0	95	98	76-121	3	18	
Toluene	**9.55**	**8.82**	10.0	10.0	96	88	80-124	8	18	
Chlorobenzene	**10.3**	**10.1**	10.0	10.0	103	101	75-120	2	19	
Surrogate:										
Dibromofluoromethane					*106*	*106*	*75-127*			
Toluene-d8					*104*	*96*	*80-127*			
4-Bromofluorobenzene					*104*	*95*	*78-125*			

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

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OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Kane Environmental
Project Number: 82306
Project Name: Riverside HVOC
Project Manager: Jeff Jensen
Sampled by: Jeff Jensen

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-297

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
1	RMW-4:W	9/26/19	1207	GW	3						X																
2	RMW-5:W	↓	1345	↓	↓						X																
3	RMW-6:W	↓	1436	↓	↓						X																

	Signature	Company	Date	Time
Relinquished		Kane	9/26/19	1533
Received		GSE	9/26/19	1533
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☑ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☑

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

October 7, 2019

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 1909-313

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on September 27, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: October 7, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-313
Project: 82306

Case Narrative

Samples were collected on September 27, 2019 and received by the laboratory on September 27, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: October 7, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-313
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-10:W**					
Laboratory ID:	09-313-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloromethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Vinyl Chloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromomethane	ND	0.31	EPA 8260D	10-2-19	10-2-19	
Chloroethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Iodomethane	ND	2.0	EPA 8260D	10-2-19	10-2-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloroform	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Trichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromomethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	

Date of Report: October 7, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-313
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-10:W**					
Laboratory ID:	09-313-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Tetrachloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromoform	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Bromobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*75-127*				
Toluene-d8	*95*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				

Date of Report: October 7, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-313
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	09-313-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloromethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Vinyl Chloride	0.87	0.20	EPA 8260D	10-2-19	10-2-19	
Bromomethane	ND	0.31	EPA 8260D	10-2-19	10-2-19	
Chloroethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Iodomethane	ND	2.0	EPA 8260D	10-2-19	10-2-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(cis) 1,2-Dichloroethene	6.5	0.20	EPA 8260D	10-2-19	10-2-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloroform	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Trichloroethene	3.1	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromomethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	

Date of Report: October 7, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-313
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	09-313-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Tetrachloroethene	15	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromoform	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Bromobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*75-127*				
Toluene-d8	*106*	*80-127*				
4-Bromofluorobenzene	*95*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	09-313-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloromethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Vinyl Chloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromomethane	ND	0.31	EPA 8260D	10-2-19	10-2-19	
Chloroethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Iodomethane	ND	2.0	EPA 8260D	10-2-19	10-2-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(cis) 1,2-Dichloroethene	4.2	0.20	EPA 8260D	10-2-19	10-2-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloroform	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Trichloroethene	1.4	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromomethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	09-313-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Tetrachloroethene	4.7	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromoform	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Bromobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*75-127*				
Toluene-d8	*88*	*80-127*				
4-Bromofluorobenzene	*102*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-2:W**					
Laboratory ID:	09-313-04					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloromethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Vinyl Chloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromomethane	ND	0.31	EPA 8260D	10-2-19	10-2-19	
Chloroethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Iodomethane	ND	2.0	EPA 8260D	10-2-19	10-2-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(cis) 1,2-Dichloroethene	3.2	0.20	EPA 8260D	10-2-19	10-2-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloroform	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Trichloroethene	4.7	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromomethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-2:W**					
Laboratory ID:	09-313-04					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Tetrachloroethene	16	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromoform	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Bromobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*75-127*				
Toluene-d8	*103*	*80-127*				
4-Bromofluorobenzene	*81*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-3:W**					
Laboratory ID:	09-313-05					
Dichlorodifluoromethane	ND	0.27	EPA 8260D	10-3-19	10-3-19	
Chloromethane	ND	1.0	EPA 8260D	10-3-19	10-3-19	
Vinyl Chloride	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Bromomethane	ND	0.37	EPA 8260D	10-3-19	10-3-19	
Chloroethane	ND	1.0	EPA 8260D	10-3-19	10-3-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Iodomethane	ND	2.3	EPA 8260D	10-3-19	10-3-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-3-19	10-3-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
(cis) 1,2-Dichloroethene	0.34	0.20	EPA 8260D	10-3-19	10-3-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Chloroform	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Trichloroethene	1.0	0.20	EPA 8260D	10-3-19	10-3-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Dibromomethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-3-19	10-3-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-3-19	10-3-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-3:W**					
Laboratory ID:	09-313-05					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Tetrachloroethene	4.3	0.20	EPA 8260D	10-3-19	10-3-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Bromoform	ND	1.0	EPA 8260D	10-3-19	10-3-19	
Bromobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-3-19	10-3-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-3-19	10-3-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*75-127*				
Toluene-d8	*95*	*80-127*				
4-Bromofluorobenzene	*100*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-8:W**					
Laboratory ID:	09-313-06					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloromethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Vinyl Chloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromomethane	ND	0.31	EPA 8260D	10-2-19	10-2-19	
Chloroethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Iodomethane	ND	2.0	EPA 8260D	10-2-19	10-2-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloroform	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Trichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromomethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-8:W**					
Laboratory ID:	09-313-06					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Tetrachloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromoform	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Bromobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*75-127*				
Toluene-d8	*97*	*80-127*				
4-Bromofluorobenzene	*92*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-13:W**					
Laboratory ID:	09-313-07					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloromethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Vinyl Chloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromomethane	ND	0.31	EPA 8260D	10-2-19	10-2-19	
Chloroethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Iodomethane	ND	2.0	EPA 8260D	10-2-19	10-2-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(cis) 1,2-Dichloroethene	0.97	0.20	EPA 8260D	10-2-19	10-2-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloroform	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Trichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromomethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-13:W**					
Laboratory ID:	09-313-07					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Tetrachloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromoform	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Bromobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*104*	*75-127*				
Toluene-d8	*98*	*80-127*				
4-Bromofluorobenzene	*117*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	09-313-08					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloromethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Vinyl Chloride	27	0.20	EPA 8260D	10-2-19	10-2-19	
Bromomethane	ND	0.31	EPA 8260D	10-2-19	10-2-19	
Chloroethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Iodomethane	ND	2.0	EPA 8260D	10-2-19	10-2-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(trans) 1,2-Dichloroethene	0.39	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(cis) 1,2-Dichloroethene	33	0.20	EPA 8260D	10-2-19	10-2-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloroform	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Trichloroethene	4.1	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromomethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	09-313-08					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Tetrachloroethene	0.51	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromoform	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Bromobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*75-127*				
Toluene-d8	*101*	*80-127*				
4-Bromofluorobenzene	*102*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	09-313-09					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloromethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Vinyl Chloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromomethane	ND	0.31	EPA 8260D	10-2-19	10-2-19	
Chloroethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Iodomethane	ND	2.0	EPA 8260D	10-2-19	10-2-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloroform	0.40	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Trichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromomethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	09-313-09					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Tetrachloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromoform	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Bromobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*75-127*				
Toluene-d8	*94*	*80-127*				
4-Bromofluorobenzene	*103*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1002W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloromethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Vinyl Chloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromomethane	ND	0.31	EPA 8260D	10-2-19	10-2-19	
Chloroethane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Iodomethane	ND	2.0	EPA 8260D	10-2-19	10-2-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chloroform	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Trichloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromomethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-2-19	10-2-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-2-19	10-2-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1002W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Tetrachloroethene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Bromoform	ND	1.0	EPA 8260D	10-2-19	10-2-19	
Bromobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-2-19	10-2-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-2-19	10-2-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*104*	*75-127*				
Toluene-d8	*100*	*80-127*				
4-Bromofluorobenzene	*105*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1003W2					
Dichlorodifluoromethane	ND	0.27	EPA 8260D	10-3-19	10-3-19	
Chloromethane	ND	1.0	EPA 8260D	10-3-19	10-3-19	
Vinyl Chloride	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Bromomethane	ND	0.37	EPA 8260D	10-3-19	10-3-19	
Chloroethane	ND	1.0	EPA 8260D	10-3-19	10-3-19	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Iodomethane	ND	2.3	EPA 8260D	10-3-19	10-3-19	
Methylene Chloride	ND	1.0	EPA 8260D	10-3-19	10-3-19	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Bromochloromethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Chloroform	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Trichloroethene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Dibromomethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Bromodichloromethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	10-3-19	10-3-19	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-3-19	10-3-19	

Date of Report: October 7, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-313
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1003W2					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Tetrachloroethene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Dibromochloromethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Chlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Bromoform	ND	1.0	EPA 8260D	10-3-19	10-3-19	
Bromobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-3-19	10-3-19	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-3-19	10-3-19	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-3-19	10-3-19	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-3-19	10-3-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*75-127*				
Toluene-d8	*104*	*80-127*				
4-Bromofluorobenzene	*86*	*78-125*				

Date of Report: October 7, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-313
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-304-01										
	MS	MSD	MS	MSD		MS	MSD				
1,1-Dichloroethene	**9.09**	**9.68**	10.0	10.0	ND	91	97	57-135	6	15	
Benzene	**9.48**	**9.77**	10.0	10.0	ND	95	98	73-131	3	16	
Trichloroethene	**10.2**	**9.01**	10.0	10.0	ND	102	90	75-124	12	17	
Toluene	**10.4**	**8.93**	10.0	10.0	ND	104	89	84-123	15	19	
Chlorobenzene	**10.1**	**10.0**	10.0	10.0	ND	101	100	78-122	1	16	
Surrogate:											
Dibromofluoromethane						*104*	*105*	*75-127*			
Toluene-d8						*111*	*96*	*80-127*			
4-Bromofluorobenzene						*100*	*104*	*78-125*			
SPIKE BLANKS											
Laboratory ID:	SB1003W2										
	SB	SBD	SB	SBD		SB	SBD				
1,1-Dichloroethene	**9.86**	**9.89**	10.0	10.0		99	99	63-130	0	17	
Benzene	**9.87**	**9.75**	10.0	10.0		99	98	76-125	1	19	
Trichloroethene	**9.82**	**9.72**	10.0	10.0		98	97	76-121	1	18	
Toluene	**9.42**	**9.58**	10.0	10.0		94	96	80-124	2	18	
Chlorobenzene	**10.1**	**10.1**	10.0	10.0		101	101	75-120	0	19	
Surrogate:											
Dibromofluoromethane						*102*	*100*	*75-127*			
Toluene-d8						*96*	*97*	*80-127*			
4-Bromofluorobenzene						*102*	*102*	*78-125*			

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Kane Environmental
Project Number: 82306
Project Name: Riverside HVOC
Project Manager: Jeff Jensen
Sampled by: JJ + IG

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-313

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
1	RMW-10:W	9/27/19	0830	GW	3						X																
2	RMW-12:W		0940								X																
3	EW-6:W		1017								X																
4	EW-2:W		1037								X																
5	BC-3:W		1100								X																
6	RMW-8:W		1240								X																
7	RMW-13:W		1240								X																
8	RMW-7:W		1412								X																
9	RMW-9R:W		1440								X																

	Signature	Company	Date	Time
Relinquished		Kane	9/27/19	1543
Received		OnSite	9-27-19	1543
Relinquished				
Received				
Relinquished				
Received				

Comments/Special Instructions

Data Package: Standard ☑ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☑

Reviewed/Date

Reviewed/Date

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

February 12, 2020

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 2001-343

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on January 31, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: February 12, 2020
Samples Submitted: January 31, 2020
Laboratory Reference: 2001-343
Project: 82306

Case Narrative

Samples were collected on January 31, 2020 and received by the laboratory on January 31, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: February 12, 2020
Samples Submitted: January 31, 2020
Laboratory Reference: 2001-343
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	01-343-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloromethane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	2-3-20	2-3-20	
Bromomethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloroethane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Iodomethane	ND	1.6	EPA 8260D	2-3-20	2-3-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-3-20	2-3-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloroform	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Trichloroethene	0.54	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Dibromomethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-3-20	2-3-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	

Date of Report: February 12, 2020
Samples Submitted: January 31, 2020
Laboratory Reference: 2001-343
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	01-343-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Tetrachloroethene	3.7	0.20	EPA 8260D	2-3-20	2-3-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromoform	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Bromobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-3-20	2-3-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*104*	*75-127*				
Toluene-d8	*100*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				

Date of Report: February 12, 2020
Samples Submitted: January 31, 2020
Laboratory Reference: 2001-343
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	01-343-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloromethane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Vinyl Chloride	0.024	0.020	EPA 8260D/SIM	2-3-20	2-3-20	
Bromomethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloroethane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Iodomethane	ND	1.6	EPA 8260D	2-3-20	2-3-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-3-20	2-3-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloroform	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Trichloroethene	0.21	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Dibromomethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-3-20	2-3-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	

Date of Report: February 12, 2020
Samples Submitted: January 31, 2020
Laboratory Reference: 2001-343
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	01-343-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Tetrachloroethene	2.5	0.20	EPA 8260D	2-3-20	2-3-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromoform	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Bromobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-3-20	2-3-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*105*	*75-127*				
Toluene-d8	*99*	*80-127*				
4-Bromofluorobenzene	*96*	*78-125*				

Date of Report: February 12, 2020
Samples Submitted: January 31, 2020
Laboratory Reference: 2001-343
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-6:W**					
Laboratory ID:	01-343-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloromethane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Vinyl Chloride	0.70	0.20	EPA 8260D	2-3-20	2-3-20	
Bromomethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloroethane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Iodomethane	ND	1.6	EPA 8260D	2-3-20	2-3-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-3-20	2-3-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
(cis) 1,2-Dichloroethene	2.5	0.20	EPA 8260D	2-3-20	2-3-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloroform	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Trichloroethene	0.52	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Dibromomethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-3-20	2-3-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-6:W**					
Laboratory ID:	01-343-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Tetrachloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromoform	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Bromobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-3-20	2-3-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*104*	*75-127*				
Toluene-d8	*99*	*80-127*				
4-Bromofluorobenzene	*99*	*78-125*				

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QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0203W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloromethane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	2-3-20	2-3-20	
Bromomethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloroethane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Iodomethane	ND	1.6	EPA 8260D	2-3-20	2-3-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-3-20	2-3-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chloroform	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Trichloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Dibromomethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-3-20	2-3-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-3-20	2-3-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0203W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Tetrachloroethene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Bromoform	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Bromobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-3-20	2-3-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-3-20	2-3-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-3-20	2-3-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*75-127*				
Toluene-d8	*100*	*80-127*				
4-Bromofluorobenzene	*99*	*78-125*				

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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0203W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**10.2**	**9.91**	10.0	10.0	102	99	63-130	3	17	
Benzene	**9.81**	**9.58**	10.0	10.0	98	96	76-125	2	19	
Trichloroethene	**10.3**	**9.82**	10.0	10.0	103	98	76-121	5	18	
Toluene	**9.76**	**9.28**	10.0	10.0	98	93	80-124	5	18	
Chlorobenzene	**9.78**	**9.43**	10.0	10.0	98	94	75-120	4	19	
Surrogate:										
Dibromofluoromethane					*103*	*101*	*75-127*			
Toluene-d8					*103*	*101*	*80-127*			
4-Bromofluorobenzene					*102*	*98*	*78-125*			

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TOTAL ORGANIC CARBON
SM 5310B

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	01-343-01					
Total Organic Carbon	**2.5**	1.0	SM 5310B	2-3-20	2-3-20	
Client ID:	**RMW-5:W**					
Laboratory ID:	01-343-02					
Total Organic Carbon	**11**	1.0	SM 5310B	2-3-20	2-3-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	01-343-03					
Total Organic Carbon	**6.1**	1.0	SM 5310B	2-3-20	2-3-20	

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TOTAL ORGANIC CARBON
SM 5310B
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0203W1					
Total Organic Carbon	**ND**	1.0	SM 5310B	2-3-20	2-3-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-276-04								
	ORIG	DUP							
Total Organic Carbon	**2.06**	**1.90**	NA	NA	NA	NA	8	20	
MATRIX SPIKE									
Laboratory ID:	01-276-04								
	MS		MS		MS				
Total Organic Carbon	**12.3**		10.0	2.06	102	85-131	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0203W1								
	SB		SB		SB				
Total Organic Carbon	**10.4**		10.0	NA	104	88-127	NA	NA	

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DISSOLVED IRON
EPA 6010D

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	01-343-01					
Iron	**2800**	56	EPA 6010D	1-31-20	1-31-20	
Client ID:	**RMW-5:W**					
Laboratory ID:	01-343-02					
Iron	**28000**	56	EPA 6010D	1-31-20	1-31-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	01-343-03					
Iron	**4600**	56	EPA 6010D	1-31-20	1-31-20	

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DISSOLVED IRON
EPA 6010D
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0131F1					
Iron	**ND**	56	EPA 6010D	1-31-20	1-31-20	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	01-305-07										
	ORIG	DUP									
Iron	**571**	**563**	NA	NA		NA		NA	1	20	
MATRIX SPIKES											
Laboratory ID:	01-305-07										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**21300**	**21100**	22200	22200	571	**93**	**93**	75-125	1	20	

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CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	01-343-01					
Chloride	**8.6**	2.0	SM 4500-Cl E	2-4-20	2-4-20	
Client ID:	**RMW-5:W**					
Laboratory ID:	01-343-02					
Chloride	**7.4**	2.0	SM 4500-Cl E	2-4-20	2-4-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	01-343-03					
Chloride	**11**	2.0	SM 4500-Cl E	2-4-20	2-4-20	

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CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0204W1					
Chloride	**ND**	2.0	SM 4500-Cl E	2-4-20	2-4-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-342-01								
	ORIG	DUP							
Chloride	**5.62**	**5.53**	NA	NA	NA	NA	2	17	
MATRIX SPIKE									
Laboratory ID:	01-342-01								
	MS		MS		MS				
Chloride	**56.3**		50.0	5.62	101	80-116	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0204W1								
	SB		SB		SB				
Chloride	**47.8**		50.0	NA	96	90-110	NA	NA	

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SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	01-343-01					
Sulfate	**24**	5.0	ASTM D516-11	2-5-20	2-5-20	
Client ID:	**RMW-5:W**					
Laboratory ID:	01-343-02					
Sulfate	**15**	5.0	ASTM D516-11	2-5-20	2-5-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	01-343-03					
Sulfate	**ND**	5.0	ASTM D516-11	2-5-20	2-5-20	

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SULFATE
ASTM D516-11
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0205W1					
Sulfate	**ND**	5.0	ASTM D516-11	2-5-20	2-5-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-342-06								
	ORIG	DUP							
Sulfate	**6.83**	**6.52**	NA	NA	NA	NA	5	10	
MATRIX SPIKE									
Laboratory ID:	01-342-06								
	MS		MS		MS				
Sulfate	**16.5**		10.0	6.83	97	73-134	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0205W1								
	SB		SB		SB				
Sulfate	**9.28**		10.0	NA	93	89-113	NA	NA	

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AMMONIA (as Nitrogen)
SM 4500-NH_3 D

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	01-343-01					
Ammonia	**0.69**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	
Client ID:	**RMW-5:W**					
Laboratory ID:	01-343-02					
Ammonia	**4.2**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	01-343-03					
Ammonia	**0.14**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	

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AMMONIA (as Nitrogen)
SM 4500-NH_3 D
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0206W1					
Ammonia	**ND**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-343-01								
	ORIG	DUP							
Ammonia	**0.689**	**0.659**	NA	NA	NA	NA	4	12	
MATRIX SPIKE									
Laboratory ID:	01-343-01								
	MS		MS		MS				
Ammonia	**5.20**		5.00	0.689	90	75-121	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0206W1								
	SB		SB		SB				
Ammonia	**5.10**		5.00	NA	102	85-110	NA	NA	

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DISSOLVED GASES
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	01-343-01					
Methane	**1200**	8.3	RSK 175	2-10-20	2-10-20	
Ethane	**ND**	0.22	RSK 175	2-10-20	2-10-20	
Ethene	**ND**	0.29	RSK 175	2-10-20	2-10-20	
Client ID:	**RMW-5:W**					
Laboratory ID:	01-343-02					
Methane	**2100**	17	RSK 175	2-10-20	2-10-20	
Ethane	**ND**	0.22	RSK 175	2-10-20	2-10-20	
Ethene	**ND**	0.29	RSK 175	2-10-20	2-10-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	01-343-03					
Methane	**1400**	11	RSK 175	2-10-20	2-10-20	
Ethane	**ND**	0.22	RSK 175	2-10-20	2-10-20	
Ethene	**ND**	0.29	RSK 175	2-10-20	2-10-20	

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DISSOLVED GASES
RSK 175
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0210W1					
Methane	**ND**	0.55	RSK 175	2-10-20	2-10-20	
Ethane	**ND**	0.22	RSK 175	2-10-20	2-10-20	
Ethene	**ND**	0.29	RSK 175	2-10-20	2-10-20	

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANK										
Laboratory ID:	SB0210W1									
	SB	SBD	SB	SBD	SB	SBD				
Methane	**21.6**	**20.8**	22.1	22.1	98	94	75-125	4	25	
Ethane	**38.4**	**37.7**	41.6	41.6	92	91	75-125	2	25	
Ethene	**37.6**	**35.9**	38.8	38.8	97	93	75-125	5	25	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

February 12, 2020

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 2002-009

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on February 3, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

Case Narrative

Samples were collected on February 3, 2020 and received by the laboratory on February 3, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	02-009-01					
Dichlorodifluoromethane	ND	0.28	EPA 8260D	2-4-20	2-4-20	
Chloromethane	ND	1.3	EPA 8260D	2-4-20	2-4-20	
Vinyl Chloride	26	0.20	EPA 8260D	2-4-20	2-4-20	
Bromomethane	ND	0.70	EPA 8260D	2-4-20	2-4-20	
Chloroethane	ND	1.0	EPA 8260D	2-4-20	2-4-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Iodomethane	ND	8.5	EPA 8260D	2-4-20	2-4-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-4-20	2-4-20	
(trans) 1,2-Dichloroethene	0.28	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
(cis) 1,2-Dichloroethene	16	0.20	EPA 8260D	2-4-20	2-4-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Chloroform	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Trichloroethene	0.22	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Dibromomethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-4-20	2-4-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
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Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	02-009-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Tetrachloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Bromoform	ND	1.0	EPA 8260D	2-4-20	2-4-20	
Bromobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dibromo-3-chloropropane	ND	1.6	EPA 8260D	2-4-20	2-4-20	
1,2,4-Trichlorobenzene	ND	0.54	EPA 8260D	2-4-20	2-4-20	
Hexachlorobutadiene	ND	1.6	EPA 8260D	2-4-20	2-4-20	
1,2,3-Trichlorobenzene	ND	0.92	EPA 8260D	2-4-20	2-4-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*75-127*				
Toluene-d8	*101*	*80-127*				
4-Bromofluorobenzene	*101*	*78-125*				

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-8:W**					
Laboratory ID:	02-009-02					
Dichlorodifluoromethane	ND	0.28	EPA 8260D	2-4-20	2-4-20	
Chloromethane	ND	1.3	EPA 8260D	2-4-20	2-4-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	2-4-20	2-4-20	
Bromomethane	ND	0.70	EPA 8260D	2-4-20	2-4-20	
Chloroethane	ND	1.0	EPA 8260D	2-4-20	2-4-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Iodomethane	ND	8.5	EPA 8260D	2-4-20	2-4-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-4-20	2-4-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
(cis) 1,2-Dichloroethene	0.28	0.20	EPA 8260D	2-4-20	2-4-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Chloroform	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Trichloroethene	0.40	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Dibromomethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-4-20	2-4-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
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Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-8:W**					
Laboratory ID:	02-009-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Tetrachloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Bromoform	ND	1.0	EPA 8260D	2-4-20	2-4-20	
Bromobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dibromo-3-chloropropane	ND	1.6	EPA 8260D	2-4-20	2-4-20	
1,2,4-Trichlorobenzene	ND	0.54	EPA 8260D	2-4-20	2-4-20	
Hexachlorobutadiene	ND	1.6	EPA 8260D	2-4-20	2-4-20	
1,2,3-Trichlorobenzene	ND	0.92	EPA 8260D	2-4-20	2-4-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*75-127*				
Toluene-d8	*101*	*80-127*				
4-Bromofluorobenzene	*99*	*78-125*				

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-13:W**					
Laboratory ID:	02-009-03					
Dichlorodifluoromethane	ND	0.28	EPA 8260D	2-4-20	2-4-20	
Chloromethane	ND	1.3	EPA 8260D	2-4-20	2-4-20	
Vinyl Chloride	0.095	0.020	EPA 8260D/SIM	2-4-20	2-4-20	
Bromomethane	ND	0.70	EPA 8260D	2-4-20	2-4-20	
Chloroethane	ND	1.0	EPA 8260D	2-4-20	2-4-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Iodomethane	ND	8.5	EPA 8260D	2-4-20	2-4-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-4-20	2-4-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
(cis) 1,2-Dichloroethene	0.31	0.20	EPA 8260D	2-4-20	2-4-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Chloroform	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Trichloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Dibromomethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-4-20	2-4-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-13:W**					
Laboratory ID:	02-009-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Tetrachloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Bromoform	ND	1.0	EPA 8260D	2-4-20	2-4-20	
Bromobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dibromo-3-chloropropane	ND	1.6	EPA 8260D	2-4-20	2-4-20	
1,2,4-Trichlorobenzene	ND	0.54	EPA 8260D	2-4-20	2-4-20	
Hexachlorobutadiene	ND	1.6	EPA 8260D	2-4-20	2-4-20	
1,2,3-Trichlorobenzene	ND	0.92	EPA 8260D	2-4-20	2-4-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*75-127*				
Toluene-d8	*101*	*80-127*				
4-Bromofluorobenzene	*99*	*78-125*				

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0204W1					
Dichlorodifluoromethane	ND	0.28	EPA 8260D	2-4-20	2-4-20	
Chloromethane	ND	1.3	EPA 8260D	2-4-20	2-4-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	2-4-20	2-4-20	
Bromomethane	ND	0.70	EPA 8260D	2-4-20	2-4-20	
Chloroethane	ND	1.0	EPA 8260D	2-4-20	2-4-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Iodomethane	ND	8.5	EPA 8260D	2-4-20	2-4-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-4-20	2-4-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Chloroform	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Trichloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Dibromomethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-4-20	2-4-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-4-20	2-4-20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0204W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Tetrachloroethene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
Bromoform	ND	1.0	EPA 8260D	2-4-20	2-4-20	
Bromobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-4-20	2-4-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-4-20	2-4-20	
1,2-Dibromo-3-chloropropane	ND	1.6	EPA 8260D	2-4-20	2-4-20	
1,2,4-Trichlorobenzene	ND	0.54	EPA 8260D	2-4-20	2-4-20	
Hexachlorobutadiene	ND	1.6	EPA 8260D	2-4-20	2-4-20	
1,2,3-Trichlorobenzene	ND	0.92	EPA 8260D	2-4-20	2-4-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*75-127*				
Toluene-d8	*104*	*80-127*				
4-Bromofluorobenzene	*103*	*78-125*				

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0204W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.41**	**9.15**	10.0	10.0	94	92	63-130	3	17	
Benzene	**9.16**	**8.88**	10.0	10.0	92	89	76-125	3	19	
Trichloroethene	**9.74**	**9.65**	10.0	10.0	97	97	76-121	1	18	
Toluene	**9.21**	**9.07**	10.0	10.0	92	91	80-124	2	18	
Chlorobenzene	**9.19**	**9.20**	10.0	10.0	92	92	75-120	0	19	
Surrogate:										
Dibromofluoromethane					*97*	*100*	*75-127*			
Toluene-d8					*100*	*103*	*80-127*			
4-Bromofluorobenzene					*99*	*102*	*78-125*			

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

TOTAL ORGANIC CARBON
SM 5310B

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	02-009-01					
Total Organic Carbon	**4.5**	1.0	SM 5310B	2-5-20	2-5-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	02-009-02					
Total Organic Carbon	**3.5**	1.0	SM 5310B	2-5-20	2-5-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	02-009-03					
Total Organic Carbon	**8.7**	1.0	SM 5310B	2-5-20	2-5-20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

TOTAL ORGANIC CARBON
SM 5310B
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0205W1					
Total Organic Carbon	**ND**	1.0	SM 5310B	2-5-20	2-5-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-342-01								
	ORIG	DUP							
Total Organic Carbon	**1.40**	**1.35**	NA	NA	NA	NA	4	20	
MATRIX SPIKE									
Laboratory ID:	01-342-01								
	MS		MS		MS				
Total Organic Carbon	**11.7**		10.0	1.40	103	85-131	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0205W1								
	SB		SB		SB				
Total Organic Carbon	**11.0**		10.0	NA	110	88-127	NA	NA	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

DISSOLVED IRON
EPA 6010D

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	02-009-01					
Iron	**7700**	56	EPA 6010D	2-3-20	2-4-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	02-009-02					
Iron	**750**	56	EPA 6010D	2-3-20	2-4-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	02-009-03					
Iron	**6600**	56	EPA 6010D	2-3-20	2-4-20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

DISSOLVED IRON
EPA 6010D
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0203F1					
Iron	**ND**	56	EPA 6010D	2-3-20	2-4-20	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	02-009-01										
	ORIG	DUP									
Iron	**7680**	**7610**	NA	NA		NA		NA	1	20	
MATRIX SPIKES											
Laboratory ID:	02-009-01										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**28600**	**28200**	22200	22200	7680	**94**	**93**	75-125	1	20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	02-009-01					
Chloride	**16**	2.0	SM 4500-Cl E	2-4-20	2-4-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	02-009-02					
Chloride	**6.4**	2.0	SM 4500-Cl E	2-4-20	2-4-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	02-009-03					
Chloride	**3.2**	2.0	SM 4500-Cl E	2-4-20	2-4-20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0204W2					
Chloride	**ND**	2.0	SM 4500-Cl E	2-4-20	2-4-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	02-009-01								
	ORIG	DUP							
Chloride	**15.9**	**15.6**	NA	NA	NA	NA	2	17	
MATRIX SPIKE									
Laboratory ID:	02-009-01								
	MS		MS		MS				
Chloride	**66.6**		50.0	15.9	101	80-116	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0204W1								
	SB		SB		SB				
Chloride	**47.6**		50.0	NA	95	90-110	NA	NA	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	02-009-01					
Sulfate	**ND**	5.0	ASTM D516-11	2-5-20	2-5-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	02-009-02					
Sulfate	**30**	10	ASTM D516-11	2-5-20	2-5-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	02-009-03					
Sulfate	**14**	5.0	ASTM D516-11	2-5-20	2-5-20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

SULFATE
ASTM D516-11
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0205W1					
Sulfate	**ND**	5.0	ASTM D516-11	2-5-20	2-5-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-342-06								
	ORIG	DUP							
Sulfate	**6.83**	**6.52**	NA	NA	NA	NA	5	10	
MATRIX SPIKE									
Laboratory ID:	01-342-06								
	MS		MS		MS				
Sulfate	**16.5**		10.0	6.83	97	73-134	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0205W1								
	SB		SB		SB				
Sulfate	**9.28**		10.0	NA	93	89-113	NA	NA	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

AMMONIA (as Nitrogen)
SM 4500-NH_3 D

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	02-009-01					
Ammonia	**1.1**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	02-009-02					
Ammonia	**2.4**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	02-009-03					
Ammonia	**2.3**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

AMMONIA (as Nitrogen)
SM 4500-NH_3 D
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0206W1					
Ammonia	**ND**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-343-01								
	ORIG	DUP							
Ammonia	**0.689**	**0.659**	NA	NA	NA	NA	4	12	
MATRIX SPIKE									
Laboratory ID:	01-343-01								
	MS		MS		MS				
Ammonia	**5.20**		5.00	0.689	90	75-121	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0206W1								
	SB		SB		SB				
Ammonia	**5.10**		5.00	NA	102	85-110	NA	NA	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

DISSOLVED GASES
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	02-009-01					
Methane	**1100**	8.3	RSK 175	2-10-20	2-10-20	
Ethane	**ND**	0.22	RSK 175	2-10-20	2-10-20	
Ethene	**2.1**	0.29	RSK 175	2-10-20	2-10-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	02-009-02					
Methane	**2400**	17	RSK 175	2-10-20	2-10-20	
Ethane	**ND**	0.22	RSK 175	2-10-20	2-10-20	
Ethene	**ND**	0.29	RSK 175	2-10-20	2-10-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	02-009-03					
Methane	**210**	1.1	RSK 175	2-10-20	2-10-20	
Ethane	**ND**	0.22	RSK 175	2-10-20	2-10-20	
Ethene	**ND**	0.29	RSK 175	2-10-20	2-10-20	

Date of Report: February 12, 2020
Samples Submitted: February 3, 2020
Laboratory Reference: 2002-009
Project: 82306

DISSOLVED GASES
RSK 175
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0210W1					
Methane	**ND**	0.55	RSK 175	2-10-20	2-10-20	
Ethane	**ND**	0.22	RSK 175	2-10-20	2-10-20	
Ethene	**ND**	0.29	RSK 175	2-10-20	2-10-20	

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANK										
Laboratory ID:	SB0210W1									
	SB	SBD	SB	SBD	SB	SBD				
Methane	**21.6**	**20.8**	22.1	22.1	98	94	75-125	4	25	
Ethane	**38.4**	**37.7**	41.6	41.6	92	91	75-125	2	25	
Ethene	**37.6**	**35.9**	38.8	38.8	97	93	75-125	5	25	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Kane Environmental
Project Number: 82306
Project Name: Riverside
Project Manager: Jeff Jensen
Sampled by: Mike Espinoza

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☑ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 02-009

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	~~NEM (oil and grease) 1664A~~ TOC	dissolved Fe	Chloride	Sulfate	Ammonia - N	% Moisture RSK
1	RMW-7:W	2/3/20	11:40	GW	9						X											X	X	X	X	X	X
2	RMW-8:W	2/3/20	14:00	GW	9						X											X	X	X	X	X	X
3	RMW-13:W	2/3/20	10:25	GW	9						X											X	X	X	X	X	X

mE

	Signature	Company	Date	Time
Relinquished	Mike Espinoza	Kane Env.	2/3/20	15:15
Received		COSE	2/3/20	1575
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Lab filter
RSK = methane, ethane, ethene
↳ detection limit low (3-4 µg/L)
low detection limit for vinyl chloride

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

February 12, 2020

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 2002-030

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on February 4, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

Case Narrative

Samples were collected on February 4, 2020 and received by the laboratory on February 4, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	02-030-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chloromethane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	2-5-20	2-5-20	
Bromomethane	ND	0.46	EPA 8260D	2-5-20	2-5-20	
Chloroethane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Iodomethane	ND	1.9	EPA 8260D	2-5-20	2-5-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-5-20	2-5-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chloroform	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Trichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Dibromomethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-5-20	2-5-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	02-030-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Tetrachloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromoform	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Bromobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-5-20	2-5-20	
1,2,3-Trichlorobenzene	ND	0.25	EPA 8260D	2-5-20	2-5-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*75-127*				
Toluene-d8	*99*	*80-127*				
4-Bromofluorobenzene	*96*	*78-125*				

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-3:W**					
Laboratory ID:	02-030-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chloromethane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	2-5-20	2-5-20	
Bromomethane	ND	0.46	EPA 8260D	2-5-20	2-5-20	
Chloroethane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Iodomethane	ND	1.9	EPA 8260D	2-5-20	2-5-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-5-20	2-5-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
(cis) 1,2-Dichloroethene	0.43	0.20	EPA 8260D	2-5-20	2-5-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chloroform	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Trichloroethene	1.3	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Dibromomethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-5-20	2-5-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-3:W**					
Laboratory ID:	02-030-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Tetrachloroethene	5.2	0.20	EPA 8260D	2-5-20	2-5-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromoform	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Bromobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-5-20	2-5-20	
1,2,3-Trichlorobenzene	ND	0.25	EPA 8260D	2-5-20	2-5-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*75-127*				
Toluene-d8	*100*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
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Project: 82306

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-10:W**					
Laboratory ID:	02-030-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chloromethane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	2-5-20	2-5-20	
Bromomethane	ND	0.46	EPA 8260D	2-5-20	2-5-20	
Chloroethane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Iodomethane	ND	1.9	EPA 8260D	2-5-20	2-5-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-5-20	2-5-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chloroform	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Trichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Dibromomethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-5-20	2-5-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-10:W**					
Laboratory ID:	02-030-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Tetrachloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromoform	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Bromobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-5-20	2-5-20	
1,2,3-Trichlorobenzene	ND	0.25	EPA 8260D	2-5-20	2-5-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*75-127*				
Toluene-d8	*101*	*80-127*				
4-Bromofluorobenzene	*96*	*78-125*				

Date of Report: February 12, 2020
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	02-030-04					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chloromethane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Vinyl Chloride	2.8	0.20	EPA 8260D	2-5-20	2-5-20	
Bromomethane	ND	0.46	EPA 8260D	2-5-20	2-5-20	
Chloroethane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Iodomethane	ND	1.9	EPA 8260D	2-5-20	2-5-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-5-20	2-5-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
(cis) 1,2-Dichloroethene	6.1	0.20	EPA 8260D	2-5-20	2-5-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chloroform	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Trichloroethene	3.7	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Dibromomethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-5-20	2-5-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	02-030-04					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Tetrachloroethene	13	0.20	EPA 8260D	2-5-20	2-5-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromoform	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Bromobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-5-20	2-5-20	
1,2,3-Trichlorobenzene	ND	0.25	EPA 8260D	2-5-20	2-5-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*75-127*				
Toluene-d8	*99*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0205W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chloromethane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	2-5-20	2-5-20	
Bromomethane	ND	0.46	EPA 8260D	2-5-20	2-5-20	
Chloroethane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Iodomethane	ND	1.9	EPA 8260D	2-5-20	2-5-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-5-20	2-5-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chloroform	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Trichloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Dibromomethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-5-20	2-5-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-5-20	2-5-20	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0205W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Tetrachloroethene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Bromoform	ND	1.0	EPA 8260D	2-5-20	2-5-20	
Bromobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-5-20	2-5-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-5-20	2-5-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-5-20	2-5-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-5-20	2-5-20	
1,2,3-Trichlorobenzene	ND	0.25	EPA 8260D	2-5-20	2-5-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*75-127*				
Toluene-d8	*105*	*80-127*				
4-Bromofluorobenzene	*100*	*78-125*				

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Samples Submitted: February 4, 2020
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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0205W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**10.2**	**9.85**	10.0	10.0	102	99	63-130	3	17	
Benzene	**9.43**	**9.27**	10.0	10.0	94	93	76-125	2	19	
Trichloroethene	**9.97**	**10.2**	10.0	10.0	100	102	76-121	2	18	
Toluene	**9.53**	**9.69**	10.0	10.0	95	97	80-124	2	18	
Chlorobenzene	**10.1**	**10.0**	10.0	10.0	101	100	75-120	1	19	
Surrogate:										
Dibromofluoromethane					*102*	*100*	*75-127*			
Toluene-d8					*105*	*104*	*80-127*			
4-Bromofluorobenzene					*103*	*101*	*78-125*			

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

TOTAL ORGANIC CARBON
SM 5310B

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	02-030-01					
Total Organic Carbon	**ND**	1.0	SM 5310B	2-5-20	2-5-20	
Client ID:	**BC-3:W**					
Laboratory ID:	02-030-02					
Total Organic Carbon	**1.2**	1.0	SM 5310B	2-5-20	2-5-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	02-030-03					
Total Organic Carbon	**ND**	1.0	SM 5310B	2-5-20	2-5-20	
Client ID:	**RMW-12:W**					
Laboratory ID:	02-030-04					
Total Organic Carbon	**4.2**	1.0	SM 5310B	2-5-20	2-5-20	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

TOTAL ORGANIC CARBON
SM 5310B
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0205W1					
Total Organic Carbon	**ND**	1.0	SM 5310B	2-5-20	2-5-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-342-01								
	ORIG	DUP							
Total Organic Carbon	**1.40**	**1.35**	NA	NA	NA	NA	4	20	
MATRIX SPIKE									
Laboratory ID:	01-342-01								
	MS		MS		MS				
Total Organic Carbon	**11.7**		10.0	1.40	103	85-131	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0205W1								
	SB		SB		SB				
Total Organic Carbon	**11.0**		10.0	NA	110	88-127	NA	NA	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

DISSOLVED IRON
EPA 6010D

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	02-030-01					
Iron	**ND**	56	EPA 6010D	2-4-20	2-10-20	
Client ID:	**BC-3:W**					
Laboratory ID:	02-030-02					
Iron	**ND**	56	EPA 6010D	2-4-20	2-10-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	02-030-03					
Iron	**ND**	56	EPA 6010D	2-4-20	2-10-20	
Client ID:	**RMW-12:W**					
Laboratory ID:	02-030-04					
Iron	**130**	56	EPA 6010D	2-4-20	2-10-20	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

DISSOLVED IRON
EPA 6010D
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0204F1					
Iron	**ND**	56	EPA 6010D	2-4-20	2-10-20	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	02-010-03										
	ORIG	DUP									
Iron	**ND**	**56.5**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	02-010-03										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**22000**	**21300**	22200	22200	ND	**99**	**96**	75-125	3	20	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
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Project: 82306

CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	02-030-01					
Chloride	**7.0**	2.0	SM 4500-Cl E	2-6-20	2-6-20	
Client ID:	**BC-3:W**					
Laboratory ID:	02-030-02					
Chloride	**13**	2.0	SM 4500-Cl E	2-6-20	2-6-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	02-030-03					
Chloride	**13**	2.0	SM 4500-Cl E	2-6-20	2-6-20	
Client ID:	**RMW-12:W**					
Laboratory ID:	02-030-04					
Chloride	**14**	2.0	SM 4500-Cl E	2-6-20	2-6-20	

Date of Report: February 12, 2020
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Project: 82306

CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0206W1					
Chloride	**ND**	2.0	SM 4500-Cl E	2-6-20	2-6-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	02-029-01								
	ORIG	DUP							
Chloride	**11.8**	**10.0**	NA	NA	NA	NA	17	17	
MATRIX SPIKE									
Laboratory ID:	02-029-01								
	MS		MS		MS				
Chloride	**58.4**		50.0	11.8	93	80-116	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0206W1								
	SB		SB		SB				
Chloride	**46.3**		50.0	NA	93	90-110	NA	NA	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
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Project: 82306

SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	02-030-01					
Sulfate	**16**	5.0	ASTM D516-11	2-5-20	2-5-20	
Client ID:	**BC-3:W**					
Laboratory ID:	02-030-02					
Sulfate	**14**	5.0	ASTM D516-11	2-5-20	2-5-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	02-030-03					
Sulfate	**15**	5.0	ASTM D516-11	2-5-20	2-5-20	
Client ID:	**RMW-12:W**					
Laboratory ID:	02-030-04					
Sulfate	**19**	5.0	ASTM D516-11	2-5-20	2-5-20	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
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Project: 82306

SULFATE
ASTM D516-11
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0205W1					
Sulfate	**ND**	5.0	ASTM D516-11	2-5-20	2-5-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-342-06								
	ORIG	DUP							
Sulfate	**6.83**	**6.52**	NA	NA	NA	NA	5	10	
MATRIX SPIKE									
Laboratory ID:	01-342-06								
	MS		MS		MS				
Sulfate	**16.5**		10.0	6.83	97	73-134	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0205W1								
	SB		SB		SB				
Sulfate	**9.28**		10.0	NA	93	89-113	NA	NA	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
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AMMONIA (as Nitrogen)
SM 4500-NH_3 D

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	02-030-01					
Ammonia	**ND**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	
Client ID:	**BC-3:W**					
Laboratory ID:	02-030-02					
Ammonia	**ND**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	02-030-03					
Ammonia	**ND**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	
Client ID:	**RMW-12:W**					
Laboratory ID:	02-030-04					
Ammonia	**0.063**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

AMMONIA (as Nitrogen)
SM 4500-NH_3 D
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0206W1					
Ammonia	**ND**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-343-01								
	ORIG	DUP							
Ammonia	**0.689**	**0.659**	NA	NA	NA	NA	4	12	
MATRIX SPIKE									
Laboratory ID:	01-343-01								
	MS		MS		MS				
Ammonia	**5.20**		5.00	0.689	90	75-121	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0206W1								
	SB		SB		SB				
Ammonia	**5.10**		5.00	NA	102	85-110	NA	NA	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

DISSOLVED GASES
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	02-030-01					
Methane	**ND**	0.55	RSK 175	2-12-20	2-12-20	
Ethane	**ND**	0.22	RSK 175	2-12-20	2-12-20	
Ethene	**ND**	0.29	RSK 175	2-12-20	2-12-20	
Client ID:	**BC-3:W**					
Laboratory ID:	02-030-02					
Methane	**3.9**	0.55	RSK 175	2-12-20	2-12-20	
Ethane	**ND**	0.22	RSK 175	2-12-20	2-12-20	
Ethene	**ND**	0.29	RSK 175	2-12-20	2-12-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	02-030-03					
Methane	**ND**	0.55	RSK 175	2-12-20	2-12-20	
Ethane	**ND**	0.22	RSK 175	2-12-20	2-12-20	
Ethene	**ND**	0.29	RSK 175	2-12-20	2-12-20	
Client ID:	**RMW-12:W**					
Laboratory ID:	02-030-04					
Methane	**66**	0.55	RSK 175	2-12-20	2-12-20	
Ethane	**ND**	0.22	RSK 175	2-12-20	2-12-20	
Ethene	**ND**	0.29	RSK 175	2-12-20	2-12-20	

Date of Report: February 12, 2020
Samples Submitted: February 4, 2020
Laboratory Reference: 2002-030
Project: 82306

DISSOLVED GASES
RSK 175
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0212W1					
Methane	**ND**	0.55	RSK 175	2-12-20	2-12-20	
Ethane	**ND**	0.22	RSK 175	2-12-20	2-12-20	
Ethene	**ND**	0.29	RSK 175	2-12-20	2-12-20	

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANK										
Laboratory ID:	SB0212W1									
	SB	SBD	SB	SBD	SB	SBD				
Methane	**25.6**	**24.9**	22.1	22.1	116	113	75-125	3	25	
Ethane	**42.3**	**42.3**	41.6	41.6	102	102	75-125	0	25	
Ethene	**38.9**	**38.9**	38.8	38.8	100	100	75-125	0	25	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Kane Environmental
Project Number: 82306
Project Name: Riverside
Project Manager: Jeff Jensen
Sampled by: Mike Espinoza

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 02-030

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Water Only) RMW 2/4/20	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	TPH (Oil and grease) 1664A	TOC	dissolved Fe	Chloride	Sulfate	Ammonia-N	% Moisture	RSK
1	RMW-9R:W	2/4/20	14:50	GW	9						X	X										X	X	X	X	X	X	
2	BC-3:W	2/4/20	10:40	GW	9						↓	X										X	X	X	X	X	X	
3	RMW-10:W	2/4/20	12:00	GW	9							X										X	X	X	X	X	X	
4	RMW-12:W	2/4/20	13:10	GW	9							X										X	X	X	X	X	X	

	Signature	Company	Date	Time
Relinquished	Mike Espinoza	Kane Env.	2/4/20	15:50
Received		CORE	2/4/20	1552
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Lab filter
RSK = methane, ethene, ethane
↳ ~~lower detection~~ detection limits low (3-4 µg/L)
low detection limit for vinyl chloride

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

February 12, 2020

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 2002-039

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on February 5, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: February 12, 2020
Samples Submitted: February 5, 2020
Laboratory Reference: 2002-039
Project: 82306

Case Narrative

Samples were collected on February 5, 2020 and received by the laboratory on February 5, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: February 12, 2020
Samples Submitted: February 5, 2020
Laboratory Reference: 2002-039
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	02-039-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Chloromethane	ND	1.0	EPA 8260D	2-6-20	2-6-20	
Vinyl Chloride	0.16	0.020	EPA 8260D/SIM	2-6-20	2-6-20	
Bromomethane	ND	0.32	EPA 8260D	2-6-20	2-6-20	
Chloroethane	ND	1.0	EPA 8260D	2-6-20	2-6-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Iodomethane	ND	1.8	EPA 8260D	2-6-20	2-6-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-6-20	2-6-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
(cis) 1,2-Dichloroethene	4.0	0.20	EPA 8260D	2-6-20	2-6-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Chloroform	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Trichloroethene	1.0	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Dibromomethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-6-20	2-6-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-6-20	2-6-20	

Date of Report: February 12, 2020
Samples Submitted: February 5, 2020
Laboratory Reference: 2002-039
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	02-039-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Tetrachloroethene	3.1	0.20	EPA 8260D	2-6-20	2-6-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Bromoform	ND	1.0	EPA 8260D	2-6-20	2-6-20	
Bromobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-6-20	2-6-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-6-20	2-6-20	
1,2,3-Trichlorobenzene	ND	0.26	EPA 8260D	2-6-20	2-6-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*75-127*				
Toluene-d8	*100*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				

Date of Report: February 12, 2020
Samples Submitted: February 5, 2020
Laboratory Reference: 2002-039
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-2:W**					
Laboratory ID:	02-039-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Chloromethane	ND	1.0	EPA 8260D	2-6-20	2-6-20	
Vinyl Chloride	0.39	0.20	EPA 8260D	2-6-20	2-6-20	
Bromomethane	ND	0.32	EPA 8260D	2-6-20	2-6-20	
Chloroethane	ND	1.0	EPA 8260D	2-6-20	2-6-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Iodomethane	ND	1.8	EPA 8260D	2-6-20	2-6-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-6-20	2-6-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
(cis) 1,2-Dichloroethene	6.2	0.20	EPA 8260D	2-6-20	2-6-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Chloroform	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Trichloroethene	7.9	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Dibromomethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-6-20	2-6-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-6-20	2-6-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-2:W**					
Laboratory ID:	02-039-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Tetrachloroethene	26	0.20	EPA 8260D	2-6-20	2-6-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Bromoform	ND	1.0	EPA 8260D	2-6-20	2-6-20	
Bromobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-6-20	2-6-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-6-20	2-6-20	
1,2,3-Trichlorobenzene	ND	0.26	EPA 8260D	2-6-20	2-6-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*75-127*				
Toluene-d8	*100*	*80-127*				
4-Bromofluorobenzene	*95*	*78-125*				

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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0206W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Chloromethane	ND	1.0	EPA 8260D	2-6-20	2-6-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	2-6-20	2-6-20	
Bromomethane	ND	0.32	EPA 8260D	2-6-20	2-6-20	
Chloroethane	ND	1.0	EPA 8260D	2-6-20	2-6-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Iodomethane	ND	1.8	EPA 8260D	2-6-20	2-6-20	
Methylene Chloride	ND	1.0	EPA 8260D	2-6-20	2-6-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Bromochloromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Chloroform	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Trichloroethene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Dibromomethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Bromodichloromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	2-6-20	2-6-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	2-6-20	2-6-20	

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QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0206W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Tetrachloroethene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Dibromochloromethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Chlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Bromoform	ND	1.0	EPA 8260D	2-6-20	2-6-20	
Bromobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	2-6-20	2-6-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	2-6-20	2-6-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	2-6-20	2-6-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	2-6-20	2-6-20	
1,2,3-Trichlorobenzene	ND	0.26	EPA 8260D	2-6-20	2-6-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*75-127*				
Toluene-d8	*103*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				

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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0206W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**10.3**	**10.5**	10.0	10.0	103	105	63-130	2	17	
Benzene	**9.45**	**9.69**	10.0	10.0	95	97	76-125	3	19	
Trichloroethene	**10.4**	**10.4**	10.0	10.0	104	104	76-121	0	18	
Toluene	**9.74**	**10.0**	10.0	10.0	97	100	80-124	3	18	
Chlorobenzene	**10.0**	**10.2**	10.0	10.0	100	102	75-120	2	19	
Surrogate:										
Dibromofluoromethane					*100*	*99*	*75-127*			
Toluene-d8					*104*	*101*	*80-127*			
4-Bromofluorobenzene					*101*	*100*	*78-125*			

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TOTAL ORGANIC CARBON
SM 5310B

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	02-039-01					
Total Organic Carbon	**1.4**	1.0	SM 5310B	2-5-20	2-5-20	
Client ID:	**EW-2:W**					
Laboratory ID:	02-039-02					
Total Organic Carbon	**1.1**	1.0	SM 5310B	2-5-20	2-5-20	

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TOTAL ORGANIC CARBON
SM 5310B
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0205W2					
Total Organic Carbon	**ND**	1.0	SM 5310B	2-5-20	2-5-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	02-010-01								
	ORIG	DUP							
Total Organic Carbon	**ND**	**ND**	NA	NA	NA	NA	NA	20	
MATRIX SPIKE									
Laboratory ID:	02-010-01								
	MS		MS		MS				
Total Organic Carbon	**11.1**		10.0	ND	111	85-131	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0205W2								
	SB		SB		SB				
Total Organic Carbon	**11.0**		10.0	NA	110	88-127	NA	NA	

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DISSOLVED IRON
EPA 6010D

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	02-039-01					
Iron	**93**	56	EPA 6010D	2-5-20	2-10-20	
Client ID:	**EW-2:W**					
Laboratory ID:	02-039-02					
Iron	**ND**	56	EPA 6010D	2-5-20	2-10-20	

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Project: 82306

DISSOLVED IRON
EPA 6010D
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0205F1					
Iron	**ND**	56	EPA 6010D	2-5-20	2-10-20	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	02-010-03										
	ORIG	DUP									
Iron	**ND**	**56.5**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	02-010-03										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**22000**	**21300**	22200	22200	ND	**99**	**96**	75-125	3	20	

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CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	02-039-01					
Chloride	**11**	2.0	SM 4500-Cl E	2-6-20	2-6-20	
Client ID:	**EW-2:W**					
Laboratory ID:	02-039-02					
Chloride	**9.7**	2.0	SM 4500-Cl E	2-6-20	2-6-20	

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CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0206W1					
Chloride	**ND**	2.0	SM 4500-Cl E	2-6-20	2-6-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	02-029-01								
	ORIG	DUP							
Chloride	**11.8**	**10.0**	NA	NA	NA	NA	17	17	
MATRIX SPIKE									
Laboratory ID:	02-029-01								
	MS		MS		MS				
Chloride	**58.4**		50.0	11.8	93	80-116	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0206W1								
	SB		SB		SB				
Chloride	**46.3**		50.0	NA	93	90-110	NA	NA	

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SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	02-039-01					
Sulfate	**19**	5.0	ASTM D516-11	2-10-20	2-10-20	
Client ID:	**EW-2:W**					
Laboratory ID:	02-039-02					
Sulfate	**18**	5.0	ASTM D516-11	2-10-20	2-10-20	

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SULFATE
ASTM D516-11
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0210W1					
Sulfate	**ND**	5.0	ASTM D516-11	2-10-20	2-10-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	02-010-01								
	ORIG	DUP							
Sulfate	**12.8**	**12.9**	NA	NA	NA	NA	1	10	
MATRIX SPIKE									
Laboratory ID:	02-010-01								
	MS		MS		MS				
Sulfate	**22.4**		10.0	12.8	96	73-134	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0210W1								
	SB		SB		SB				
Sulfate	**9.94**		10.0	NA	99	89-113	NA	NA	

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AMMONIA (as Nitrogen)
SM 4500-NH_3 D

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	02-039-01					
Ammonia	**0.14**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	
Client ID:	**EW-2:W**					
Laboratory ID:	02-039-02					
Ammonia	**0.074**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	

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AMMONIA (as Nitrogen)
SM 4500-NH_3 D
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0206W1					
Ammonia	**ND**	0.050	SM 4500-NH3 D	2-6-20	2-6-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-343-01								
	ORIG	DUP							
Ammonia	**0.689**	**0.659**	NA	NA	NA	NA	4	12	
MATRIX SPIKE									
Laboratory ID:	01-343-01								
	MS		MS		MS				
Ammonia	**5.20**		5.00	0.689	90	75-121	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0206W1								
	SB		SB		SB				
Ammonia	**5.10**		5.00	NA	102	85-110	NA	NA	

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DISSOLVED GASES
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	02-039-01					
Methane	**120**	1.1	RSK 175	2-12-20	2-12-20	
Ethane	**ND**	0.22	RSK 175	2-12-20	2-12-20	
Ethene	**ND**	0.29	RSK 175	2-12-20	2-12-20	
Client ID:	**EW-2:W**					
Laboratory ID:	02-039-02					
Methane	**63**	0.55	RSK 175	2-12-20	2-12-20	
Ethane	**ND**	0.22	RSK 175	2-12-20	2-12-20	
Ethene	**ND**	0.29	RSK 175	2-12-20	2-12-20	

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DISSOLVED GASES
RSK 175
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0212W1					
Methane	**ND**	0.55	RSK 175	2-12-20	2-12-20	
Ethane	**ND**	0.22	RSK 175	2-12-20	2-12-20	
Ethene	**ND**	0.29	RSK 175	2-12-20	2-12-20	

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANK										
Laboratory ID:	SB0212W1									
	SB	SBD	SB	SBD	SB	SBD				
Methane	**25.6**	**24.9**	22.1	22.1	116	113	75-125	3	25	
Ethane	**42.3**	**42.3**	41.6	41.6	102	102	75-125	0	25	
Ethene	**38.9**	**38.9**	38.8	38.8	100	100	75-125	0	25	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

OnSite Environmental Inc.
Analytical Laboratory Testing Services
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Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Laboratory Number: 02-039

Company: Kane Environmental
Project Number: ~~[illegible]~~ 82306
Project Name: Riverside
Project Manager: Jeff Jensen
Sampled by: Mike Espinoza

Turnaround Request (in working days) (Check One)
- [ ] Same Day
- [ ] 1 Day
- [ ] 2 Days
- [ ] 3 Days
- [x] Standard (7 Days)
- [ ] ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	~~HEM (oil and grease) 1664A~~ TOC	dissolved Fe	Chloride	Sulfate	Ammonia-N	~~% Moisture~~ RSK
1	EW-6:W	2/5/20	9:45	GW	9						X											X	X	X	X	X	X
2	EW-2:W	2/5/20	10:15	GW	9						X											X	X	X	X	X	X

	Signature	Company	Date	Time
Relinquished	Mike Espinoza	Kane Env.	2/5/20	11:35
Received	[signature]	[illegible]	2/5/20	1135
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Lab filter
RSK = methane, ethene, ethane
↳ detection limit low (3-4 ug/L)
low detection limit for vinyl chloride

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

February 26, 2020

John Kane
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 2002-229

Dear John:

Enclosed are the analytical results and associated quality control data for samples submitted on February 24, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

Case Narrative

Samples were collected on February 24, 2020 and received by the laboratory on February 24, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-1:12ft**					
Laboratory ID:	02-229-03					
Dichlorodifluoromethane	ND	0.0015	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0070	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0049	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0049	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0063	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0074	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
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Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-1:12ft**					
Laboratory ID:	02-229-03					
1,1,2-Trichloroethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0049	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0049	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0049	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00099	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*113*	*76-131*				
Toluene-d8	*96*	*78-128*				
4-Bromofluorobenzene	*100*	*71-130*				

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-1:15ft**					
Laboratory ID:	02-229-04					
Dichlorodifluoromethane	ND	0.0019	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0092	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0018	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0065	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0065	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0083	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	0.0014	0.0013	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0097	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
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Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-1:15ft**					
Laboratory ID:	02-229-04					
1,1,2-Trichloroethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0065	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0065	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0065	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*112*	*76-131*				
Toluene-d8	*95*	*78-128*				
4-Bromofluorobenzene	*93*	*71-130*				

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-1:23ft**					
Laboratory ID:	02-229-05					
Dichlorodifluoromethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0067	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0060	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0070	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-1:23ft**					
Laboratory ID:	02-229-05					
1,1,2-Trichloroethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	0.0052	0.00094	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00094	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*112*	*76-131*				
Toluene-d8	*100*	*78-128*				
4-Bromofluorobenzene	*98*	*71-130*				

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-2:12ft**					
Laboratory ID:	02-229-08					
Dichlorodifluoromethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0068	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0062	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0072	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-2:12ft**					
Laboratory ID:	02-229-08					
1,1,2-Trichloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	0.0017	0.00096	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*111*	*76-131*				
Toluene-d8	*98*	*78-128*				
4-Bromofluorobenzene	*97*	*71-130*				

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-2:18:75ft**					
Laboratory ID:	02-229-09					
Dichlorodifluoromethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Chloromethane	ND	0.0047	EPA 8260D	2-26-20	2-26-20	
Vinyl Chloride	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Bromomethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Chloroethane	ND	0.0047	EPA 8260D	2-26-20	2-26-20	
Trichlorofluoromethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloroethene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Iodomethane	ND	0.0047	EPA 8260D	2-26-20	2-26-20	
Methylene Chloride	ND	0.0047	EPA 8260D	2-26-20	2-26-20	
(trans) 1,2-Dichloroethene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloroethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
2,2-Dichloropropane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
(cis) 1,2-Dichloroethene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Bromochloromethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Chloroform	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,1,1-Trichloroethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Carbon Tetrachloride	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloropropene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,2-Dichloroethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Trichloroethene	0.0012	0.00093	EPA 8260D	2-26-20	2-26-20	
1,2-Dichloropropane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Dibromomethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Bromodichloromethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
2-Chloroethyl Vinyl Ether	ND	0.0047	EPA 8260D	2-26-20	2-26-20	
(cis) 1,3-Dichloropropene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
(trans) 1,3-Dichloropropene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-2:18:75ft**					
Laboratory ID:	02-229-09					
1,1,2-Trichloroethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Tetrachloroethene	0.0051	0.00093	EPA 8260D	2-26-20	2-26-20	
1,3-Dichloropropane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Dibromochloromethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,2-Dibromoethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Chlorobenzene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,1,1,2-Tetrachloroethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Bromoform	ND	0.0047	EPA 8260D	2-26-20	2-26-20	
Bromobenzene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,1,2,2-Tetrachloroethane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichloropropane	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
2-Chlorotoluene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
4-Chlorotoluene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,3-Dichlorobenzene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,4-Dichlorobenzene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,2-Dichlorobenzene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
1,2-Dibromo-3-chloropropane	ND	0.0047	EPA 8260D	2-26-20	2-26-20	
1,2,4-Trichlorobenzene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Hexachlorobutadiene	ND	0.0047	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichlorobenzene	ND	0.00093	EPA 8260D	2-26-20	2-26-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*76-131*				
Toluene-d8	*99*	*78-128*				
4-Bromofluorobenzene	*98*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-2:25ft**					
Laboratory ID:	02-229-10					
Dichlorodifluoromethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0062	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0012	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0044	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0044	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0056	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	0.0020	0.00088	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0066	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-2:25ft**					
Laboratory ID:	02-229-10					
1,1,2-Trichloroethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	0.055	0.00088	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0044	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	0.0014	0.00088	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0044	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0044	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00088	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*113*	*76-131*				
Toluene-d8	*98*	*78-128*				
4-Bromofluorobenzene	*91*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-3:11.5ft**					
Laboratory ID:	02-229-13					
Dichlorodifluoromethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0067	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0061	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0071	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-3:11.5ft**					
Laboratory ID:	02-229-13					
1,1,2-Trichloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	0.0074	0.00095	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*114*	*76-131*				
Toluene-d8	*94*	*78-128*				
4-Bromofluorobenzene	*94*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-3:19ft**					
Laboratory ID:	02-229-14					
Dichlorodifluoromethane	ND	0.0015	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0071	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	0.0048	0.00091	EPA 8260D	2-26-20	2-26-20	
Bromomethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0064	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	0.033	0.0010	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	0.029	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0075	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-3:19ft**					
Laboratory ID:	02-229-14					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	0.058	0.0010	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*107*	*76-131*				
Toluene-d8	*98*	*78-128*				
4-Bromofluorobenzene	*97*	*71-130*				

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
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Project: 82306

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-3:25.5ft**					
Laboratory ID:	02-229-15					
Dichlorodifluoromethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0064	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0057	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	0.0061	0.00090	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0067	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-3:25.5ft**					
Laboratory ID:	02-229-15					
1,1,2-Trichloroethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	1.0	0.063	EPA 8260D	2-26-20	2-26-20	
1,3-Dichloropropane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00090	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*112*	*76-131*				
Toluene-d8	*96*	*78-128*				
4-Bromofluorobenzene	*88*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-4:12ft**					
Laboratory ID:	02-229-16					
Dichlorodifluoromethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0064	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0057	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0067	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-4:12ft**					
Laboratory ID:	02-229-16					
1,1,2-Trichloroethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	0.021	0.00089	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00089	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*115*	*76-131*				
Toluene-d8	*98*	*78-128*				
4-Bromofluorobenzene	*99*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-4:23.5ft**					
Laboratory ID:	02-229-17					
Dichlorodifluoromethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0060	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0012	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0042	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0042	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0054	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0064	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-4:23.5ft**					
Laboratory ID:	02-229-17					
1,1,2-Trichloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	0.0028	0.00085	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0042	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0042	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0042	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*111*	*76-131*				
Toluene-d8	*99*	*78-128*				
4-Bromofluorobenzene	*98*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-4:30ft**					
Laboratory ID:	02-229-18					
Dichlorodifluoromethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0068	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0062	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	0.0018	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0072	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-4:30ft**					
Laboratory ID:	02-229-18					
1,1,2-Trichloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	0.13	0.00096	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00096	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*113*	*76-131*				
Toluene-d8	*97*	*78-128*				
4-Bromofluorobenzene	*94*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-5:8ft**					
Laboratory ID:	02-229-19					
Dichlorodifluoromethane	ND	0.0013	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0060	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0012	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0042	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0042	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0054	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0064	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-5:8ft**					
Laboratory ID:	02-229-19					
1,1,2-Trichloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	0.0011	0.00085	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0042	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0042	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0042	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00085	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*108*	*76-131*				
Toluene-d8	*98*	*78-128*				
4-Bromofluorobenzene	*98*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-5:13ft**					
Laboratory ID:	02-229-20					
Dichlorodifluoromethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	0.0012	0.00097	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-5:13ft**					
Laboratory ID:	02-229-20					
1,1,2-Trichloroethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0048	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00097	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*76-131*				
Toluene-d8	*101*	*78-128*				
4-Bromofluorobenzene	*101*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-5:11.5ft**					
Laboratory ID:	02-229-21					
Dichlorodifluoromethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.013	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	0.0046	0.0025	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.013	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.013	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.013	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.013	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.0025	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-5:11.5ft**					
Laboratory ID:	02-229-21					
1,1,2-Trichloroethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.0025	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.013	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.15	EPA 8260D	2-26-20	2-26-20	
1,1,2,2-Tetrachloroethane	ND	0.15	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichloropropane	ND	0.15	EPA 8260D	2-26-20	2-26-20	
2-Chlorotoluene	ND	0.15	EPA 8260D	2-26-20	2-26-20	
4-Chlorotoluene	ND	0.15	EPA 8260D	2-26-20	2-26-20	
1,3-Dichlorobenzene	ND	0.15	EPA 8260D	2-26-20	2-26-20	
1,4-Dichlorobenzene	ND	0.15	EPA 8260D	2-26-20	2-26-20	
1,2-Dichlorobenzene	ND	0.15	EPA 8260D	2-26-20	2-26-20	
1,2-Dibromo-3-chloropropane	ND	0.76	EPA 8260D	2-26-20	2-26-20	
1,2,4-Trichlorobenzene	ND	0.15	EPA 8260D	2-26-20	2-26-20	
Hexachlorobutadiene	ND	0.76	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichlorobenzene	ND	0.15	EPA 8260D	2-26-20	2-26-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*76-131*				
Toluene-d8	*89*	*78-128*				
4-Bromofluorobenzene	*83*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-6:15.5ft**					
Laboratory ID:	02-229-23					
Dichlorodifluoromethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0072	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0072	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0072	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0072	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	0.020	0.0014	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	0.30	0.0014	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0072	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-6:15.5ft**					
Laboratory ID:	02-229-23					
1,1,2-Trichloroethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	1.5	0.090	EPA 8260D	2-26-20	2-26-20	
1,3-Dichloropropane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0072	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0072	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0072	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*76-131*				
Toluene-d8	*97*	*78-128*				
4-Bromofluorobenzene	*88*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-6:24ft**					
Laboratory ID:	02-229-24					
Dichlorodifluoromethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Chloromethane	ND	0.0052	EPA 8260D	2-26-20	2-26-20	
Vinyl Chloride	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Bromomethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Chloroethane	ND	0.0052	EPA 8260D	2-26-20	2-26-20	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Iodomethane	ND	0.0052	EPA 8260D	2-26-20	2-26-20	
Methylene Chloride	ND	0.0052	EPA 8260D	2-26-20	2-26-20	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Bromochloromethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Chloroform	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Trichloroethene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Dibromomethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Bromodichloromethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
2-Chloroethyl Vinyl Ether	ND	0.0052	EPA 8260D	2-26-20	2-26-20	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-6:24ft**					
Laboratory ID:	02-229-24					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Tetrachloroethene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Dibromochloromethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Chlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Bromoform	ND	0.0052	EPA 8260D	2-26-20	2-26-20	
Bromobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
2-Chlorotoluene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
4-Chlorotoluene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2-Dibromo-3-chloropropane	ND	0.0052	EPA 8260D	2-26-20	2-26-20	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Hexachlorobutadiene	ND	0.0052	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*112*	*76-131*				
Toluene-d8	*95*	*78-128*				
4-Bromofluorobenzene	*95*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-7:11ft**					
Laboratory ID:	02-229-27					
Dichlorodifluoromethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.022	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.022	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.022	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.022	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.022	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-7:11ft**					
Laboratory ID:	02-229-27					
1,1,2-Trichloroethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.0045	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.022	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.27	EPA 8260D	2-26-20	2-26-20	
1,1,2,2-Tetrachloroethane	ND	0.27	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	2-26-20	2-26-20	
2-Chlorotoluene	ND	0.27	EPA 8260D	2-26-20	2-26-20	
4-Chlorotoluene	ND	0.27	EPA 8260D	2-26-20	2-26-20	
1,3-Dichlorobenzene	ND	0.27	EPA 8260D	2-26-20	2-26-20	
1,4-Dichlorobenzene	ND	0.27	EPA 8260D	2-26-20	2-26-20	
1,2-Dichlorobenzene	ND	0.27	EPA 8260D	2-26-20	2-26-20	
1,2-Dibromo-3-chloropropane	ND	1.3	EPA 8260D	2-26-20	2-26-20	
1,2,4-Trichlorobenzene	ND	0.27	EPA 8260D	2-26-20	2-26-20	
Hexachlorobutadiene	ND	1.3	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichlorobenzene	ND	0.27	EPA 8260D	2-26-20	2-26-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*76-131*				
Toluene-d8	*93*	*78-128*				
4-Bromofluorobenzene	*85*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-7:17ft**					
Laboratory ID:	02-229-28					
Dichlorodifluoromethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	0.011	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-7:17ft**					
Laboratory ID:	02-229-28					
1,1,2-Trichloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	0.17	0.00095	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0047	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.00095	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*76-131*				
Toluene-d8	*98*	*78-128*				
4-Bromofluorobenzene	*102*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-7:22ft**					
Laboratory ID:	02-229-29					
Dichlorodifluoromethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Chloromethane	ND	0.0040	EPA 8260D	2-26-20	2-26-20	
Vinyl Chloride	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Bromomethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Chloroethane	ND	0.0040	EPA 8260D	2-26-20	2-26-20	
Trichlorofluoromethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloroethene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Iodomethane	ND	0.0040	EPA 8260D	2-26-20	2-26-20	
Methylene Chloride	ND	0.0040	EPA 8260D	2-26-20	2-26-20	
(trans) 1,2-Dichloroethene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloroethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
2,2-Dichloropropane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
(cis) 1,2-Dichloroethene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Bromochloromethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Chloroform	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,1,1-Trichloroethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Carbon Tetrachloride	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloropropene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,2-Dichloroethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Trichloroethene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,2-Dichloropropane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Dibromomethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Bromodichloromethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
2-Chloroethyl Vinyl Ether	ND	0.0040	EPA 8260D	2-26-20	2-26-20	
(cis) 1,3-Dichloropropene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
(trans) 1,3-Dichloropropene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**KSB-7:22ft**					
Laboratory ID:	02-229-29					
1,1,2-Trichloroethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Tetrachloroethene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,3-Dichloropropane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Dibromochloromethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,2-Dibromoethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Chlorobenzene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,1,1,2-Tetrachloroethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Bromoform	ND	0.0040	EPA 8260D	2-26-20	2-26-20	
Bromobenzene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,1,2,2-Tetrachloroethane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichloropropane	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
2-Chlorotoluene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
4-Chlorotoluene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,3-Dichlorobenzene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,4-Dichlorobenzene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,2-Dichlorobenzene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
1,2-Dibromo-3-chloropropane	ND	0.0040	EPA 8260D	2-26-20	2-26-20	
1,2,4-Trichlorobenzene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Hexachlorobutadiene	ND	0.0040	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichlorobenzene	ND	0.00081	EPA 8260D	2-26-20	2-26-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*106*	*76-131*				
Toluene-d8	*97*	*78-128*				
4-Bromofluorobenzene	*99*	*71-130*				

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QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0225S1					
Dichlorodifluoromethane	ND	0.0015	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0071	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0014	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0064	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0075	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	

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QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0225S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*105*	*76-131*				
Toluene-d8	*95*	*78-128*				
4-Bromofluorobenzene	*97*	*71-130*				

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0225S2					
Dichlorodifluoromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Chloromethane	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
Vinyl Chloride	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Bromomethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Chloroethane	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Iodomethane	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
Methylene Chloride	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Bromochloromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Chloroform	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Trichloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Dibromomethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Bromodichloromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0225S2					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Tetrachloroethene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Dibromochloromethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Chlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Bromoform	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
Bromobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
2-Chlorotoluene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
4-Chlorotoluene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Hexachlorobutadiene	ND	0.0050	EPA 8260D	2-25-20	2-25-20	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	2-25-20	2-25-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*87*	*76-131*				
Toluene-d8	*97*	*78-128*				
4-Bromofluorobenzene	*103*	*71-130*				

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

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QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0226S2					
Dichlorodifluoromethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Chloromethane	ND	0.0050	EPA 8260D	2-26-20	2-26-20	
Vinyl Chloride	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Bromomethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Chloroethane	ND	0.0050	EPA 8260D	2-26-20	2-26-20	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Iodomethane	ND	0.0050	EPA 8260D	2-26-20	2-26-20	
Methylene Chloride	ND	0.0066	EPA 8260D	2-26-20	2-26-20	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Bromochloromethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Chloroform	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Trichloroethene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Dibromomethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Bromodichloromethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260D	2-26-20	2-26-20	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0226S2					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Tetrachloroethene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Dibromochloromethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Chlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Bromoform	ND	0.0050	EPA 8260D	2-26-20	2-26-20	
Bromobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
2-Chlorotoluene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
4-Chlorotoluene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260D	2-26-20	2-26-20	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Hexachlorobutadiene	ND	0.0050	EPA 8260D	2-26-20	2-26-20	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	2-26-20	2-26-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*95*	*76-131*				
Toluene-d8	*101*	*78-128*				
4-Bromofluorobenzene	*105*	*71-130*				

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
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Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0225S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0422**	**0.0432**	0.0500	0.0500	84	86	57-133	2	18	
Benzene	**0.0406**	**0.0413**	0.0500	0.0500	81	83	71-129	2	16	
Trichloroethene	**0.0478**	**0.0483**	0.0500	0.0500	96	97	71-122	1	16	
Toluene	**0.0447**	**0.0450**	0.0500	0.0500	89	90	74-125	1	15	
Chlorobenzene	**0.0474**	**0.0472**	0.0500	0.0500	95	94	72-120	0	14	
Surrogate:										
Dibromofluoromethane					*99*	*103*	*76-131*			
Toluene-d8					*97*	*98*	*78-128*			
4-Bromofluorobenzene					*96*	*98*	*71-130*			
Laboratory ID:	SB0225S2									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0500**	**0.0471**	0.0500	0.0500	100	94	57-133	6	18	
Benzene	**0.0491**	**0.0482**	0.0500	0.0500	98	96	71-129	2	16	
Trichloroethene	**0.0500**	**0.0507**	0.0500	0.0500	100	101	71-122	1	16	
Toluene	**0.0502**	**0.0505**	0.0500	0.0500	100	101	74-125	1	15	
Chlorobenzene	**0.0480**	**0.0485**	0.0500	0.0500	96	97	72-120	1	14	
Surrogate:										
Dibromofluoromethane					*100*	*98*	*76-131*			
Toluene-d8					*97*	*98*	*78-128*			
4-Bromofluorobenzene					*105*	*104*	*71-130*			
Laboratory ID:	SB0226S2									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0475**	**0.0444**	0.0500	0.0500	95	89	57-133	7	18	
Benzene	**0.0439**	**0.0411**	0.0500	0.0500	88	82	71-129	7	16	
Trichloroethene	**0.0499**	**0.0506**	0.0500	0.0500	100	101	71-122	1	16	
Toluene	**0.0470**	**0.0479**	0.0500	0.0500	94	96	74-125	2	15	
Chlorobenzene	**0.0484**	**0.0499**	0.0500	0.0500	97	100	72-120	3	14	
Surrogate:										
Dibromofluoromethane					*102*	*92*	*76-131*			
Toluene-d8					*104*	*100*	*78-128*			
4-Bromofluorobenzene					*104*	*102*	*71-130*			

Date of Report: February 26, 2020
Samples Submitted: February 24, 2020
Laboratory Reference: 2002-229
Project: 82306

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
KSB-1:12ft	02-229-03	**6**	2-25-20
KSB-1:15ft	02-229-04	**38**	2-25-20
KSB-1:23ft	02-229-05	**18**	2-25-20
KSB-2:12ft	02-229-08	**5**	2-25-20
KSB-2:18:75ft	02-229-09	**19**	2-25-20
KSB-2:25ft	02-229-10	**19**	2-25-20
KSB-3:11.5ft	02-229-13	**6**	2-25-20
KSB-3:19ft	02-229-14	**20**	2-25-20
KSB-3:25.5ft	02-229-15	**17**	2-25-20
KSB-4:12ft	02-229-16	**12**	2-25-20
KSB-4:23.5ft	02-229-17	**12**	2-25-20
KSB-4:30ft	02-229-18	**19**	2-25-20
KSB-5:8ft	02-229-19	**8**	2-25-20
KSB-5:13ft	02-229-20	**15**	2-25-20
KSB-5:11.5ft	02-229-21	**52**	2-25-20
KSB-6:15.5ft	02-229-23	**32**	2-25-20
KSB-6:24ft	02-229-24	**22**	2-25-20
KSB-7:11ft	02-229-27	**70**	2-25-20
KSB-7:17ft	02-229-28	**16**	2-25-20
KSB-7:22ft	02-229-29	**16**	2-25-20

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Kane Environmental
Project Number: 82306
Project Name: Riverside
Project Manager: John Kane
Sampled by: Nate Evenson

Turnaround Request (in working days)
(Check One)
☐ Same Day ☑ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 02-229

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
1	KSB-1:3ft	2/24/20	0850	S	5																						
2	KSB-1:6.75ft		0905																								
3	KSB-1:12ft		0913								X																X
4	KSB-1:15ft		0924								X																X
5	KSB-1:23ft		0935								X																X
6	KSB-2:3ft		0949																								
7	KSB-2:8.5ft		0955																								
8	KSB-2:12ft		1005								X																X
9	KSB-2:18.75ft		1020								X																X
10	KSB-2:25ft		1030								X																X

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	Nate Evenson	Kane Environmental	2/24/20	1717	
Received		CORE	2/24/20	1717	
Relinquished					
Received					
Relinquished					
Received					Data Package: Standard ☐ Level III ☐ Level IV ☐
Reviewed/Date		Reviewed/Date			Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Kane Environmental
Project Number: 82306
Project Name: Riverside
Project Manager: John Kane
Sampled by: Nate Evenson

Turnaround Request (in working days)
(Check One)
☐ Same Day ☑ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 02-229

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
11	KSB-2:30ft	2/24/20	1046	S	5						X																X
12	KSB-3: 7.5ft		1059																								
13	KSB-3: 11.5ft		1104								X																X
14	KSB-3: 19ft		1124								X																X
15	KSB-3: 25.5ft		1143								X																X
16	KSB-4: 12ft		1230								X																X
17	KSB-4: 23.5ft		1246								X																X
18	KSB-4: 30ft		1300								X																X
19	KSB-5: 8ft		1323								X																X
20	KSB-5: 13ft		1333								X																X

	Signature	Company	Date	Time
Relinquished	[signature]	Kane Environmental	2/24/20	1717
Received	[signature]	OSE	2/24/20	1717
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Kane Environmental
Project Number: 82306
Project Name: Riverside
Project Manager: John Kane
Sampled by: nate Everson

Turnaround Request (in working days)
(Check One)
☐ Same Day ☑ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 02-229

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
21	KSB-5: 11.5 ft	2/24/20	1329	S	5						X																X
22	KSB-6: 7.5 ft		1354																								
23	KSB-6: ~~15FT~~ 15.5 ft DB		1404								X																X
24	KSB-6: 24 ft		1414								X																X
25	KSB-7: 2.5 ft		1427																								
26	KSB-7: 6.5 ft		1434																								
27	KSB-7: 11 ft		1440								X																X
28	KSB-7: 17 ft		1454								X																X
29	KSB-7: 22ft		1508								X																X
ONE		ONE		ONE																							

	Signature	Company	Date	Time
Relinquished	Nate Everson	Kane Environmental	2/24/20	1717
Received		ONE	2/24/20	1717
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

April 22, 2020

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306-0.2
Laboratory Reference No. 2004-116

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on April 17, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: April 22, 2020
Samples Submitted: April 17, 2020
Laboratory Reference: 2004-116
Project: 82306-0.2

Case Narrative

Samples were collected on April 17, 2020 and received by the laboratory on April 17, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: April 22, 2020
Samples Submitted: April 17, 2020
Laboratory Reference: 2004-116
Project: 82306-0.2

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 6ft**					
Laboratory ID:	04-116-01					
Dichlorodifluoromethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Chloromethane	ND	0.0038	EPA 8260D	4-21-20	4-21-20	
Vinyl Chloride	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Bromomethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Chloroethane	ND	0.0038	EPA 8260D	4-21-20	4-21-20	
Trichlorofluoromethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Iodomethane	ND	0.0038	EPA 8260D	4-21-20	4-21-20	
Methylene Chloride	ND	0.0038	EPA 8260D	4-21-20	4-21-20	
(trans) 1,2-Dichloroethene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
2,2-Dichloropropane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
(cis) 1,2-Dichloroethene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Bromochloromethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Chloroform	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,1,1-Trichloroethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Carbon Tetrachloride	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloropropene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloroethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Trichloroethene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloropropane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Dibromomethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Bromodichloromethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
2-Chloroethyl Vinyl Ether	ND	0.0038	EPA 8260D	4-21-20	4-21-20	
(cis) 1,3-Dichloropropene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
(trans) 1,3-Dichloropropene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	

Date of Report: April 22, 2020
Samples Submitted: April 17, 2020
Laboratory Reference: 2004-116
Project: 82306-0.2

VOLATILE ORGANICS EPA 8260D
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 6ft**					
Laboratory ID:	04-116-01					
1,1,2-Trichloroethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Tetrachloroethene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,3-Dichloropropane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Dibromochloromethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromoethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Chlorobenzene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,1,1,2-Tetrachloroethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Bromoform	ND	0.0038	EPA 8260D	4-21-20	4-21-20	
Bromobenzene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,1,2,2-Tetrachloroethane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichloropropane	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
2-Chlorotoluene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
4-Chlorotoluene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,3-Dichlorobenzene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,4-Dichlorobenzene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,2-Dichlorobenzene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromo-3-chloropropane	ND	0.0038	EPA 8260D	4-21-20	4-21-20	
1,2,4-Trichlorobenzene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Hexachlorobutadiene	ND	0.0038	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichlorobenzene	ND	0.00077	EPA 8260D	4-21-20	4-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*76-131*				
Toluene-d8	*99*	*78-128*				
4-Bromofluorobenzene	*100*	*71-130*				

Date of Report: April 22, 2020
Samples Submitted: April 17, 2020
Laboratory Reference: 2004-116
Project: 82306-0.2

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 11.5ft**					
Laboratory ID:	04-116-02					
Dichlorodifluoromethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Chloromethane	ND	0.0040	EPA 8260D	4-21-20	4-21-20	
Vinyl Chloride	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Bromomethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Chloroethane	ND	0.0040	EPA 8260D	4-21-20	4-21-20	
Trichlorofluoromethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Iodomethane	ND	0.0040	EPA 8260D	4-21-20	4-21-20	
Methylene Chloride	ND	0.0040	EPA 8260D	4-21-20	4-21-20	
(trans) 1,2-Dichloroethene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
2,2-Dichloropropane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
(cis) 1,2-Dichloroethene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Bromochloromethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Chloroform	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,1,1-Trichloroethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Carbon Tetrachloride	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloropropene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloroethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Trichloroethene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloropropane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Dibromomethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Bromodichloromethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
2-Chloroethyl Vinyl Ether	ND	0.0040	EPA 8260D	4-21-20	4-21-20	
(cis) 1,3-Dichloropropene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
(trans) 1,3-Dichloropropene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	

Date of Report: April 22, 2020
Samples Submitted: April 17, 2020
Laboratory Reference: 2004-116
Project: 82306-0.2

VOLATILE ORGANICS EPA 8260D
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 11.5ft**					
Laboratory ID:	04-116-02					
1,1,2-Trichloroethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Tetrachloroethene	0.0073	0.00080	EPA 8260D	4-21-20	4-21-20	
1,3-Dichloropropane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Dibromochloromethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromoethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Chlorobenzene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,1,1,2-Tetrachloroethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Bromoform	ND	0.0040	EPA 8260D	4-21-20	4-21-20	
Bromobenzene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,1,2,2-Tetrachloroethane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichloropropane	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
2-Chlorotoluene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
4-Chlorotoluene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,3-Dichlorobenzene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,4-Dichlorobenzene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,2-Dichlorobenzene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromo-3-chloropropane	ND	0.0040	EPA 8260D	4-21-20	4-21-20	
1,2,4-Trichlorobenzene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Hexachlorobutadiene	ND	0.0040	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichlorobenzene	ND	0.00080	EPA 8260D	4-21-20	4-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*107*	*76-131*				
Toluene-d8	*95*	*78-128*				
4-Bromofluorobenzene	*82*	*71-130*				

Date of Report: April 22, 2020
Samples Submitted: April 17, 2020
Laboratory Reference: 2004-116
Project: 82306-0.2

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 15ft**					
Laboratory ID:	04-116-03					
Dichlorodifluoromethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Chloromethane	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
Vinyl Chloride	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Bromomethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Chloroethane	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
Trichlorofluoromethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Iodomethane	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
Methylene Chloride	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
(trans) 1,2-Dichloroethene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
2,2-Dichloropropane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
(cis) 1,2-Dichloroethene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Bromochloromethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Chloroform	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,1,1-Trichloroethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Carbon Tetrachloride	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloropropene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloroethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Trichloroethene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloropropane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Dibromomethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Bromodichloromethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
2-Chloroethyl Vinyl Ether	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
(cis) 1,3-Dichloropropene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
(trans) 1,3-Dichloropropene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	

Date of Report: April 22, 2020
Samples Submitted: April 17, 2020
Laboratory Reference: 2004-116
Project: 82306-0.2

VOLATILE ORGANICS EPA 8260D
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 15ft**					
Laboratory ID:	04-116-03					
1,1,2-Trichloroethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Tetrachloroethene	0.00093	0.00075	EPA 8260D	4-21-20	4-21-20	
1,3-Dichloropropane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Dibromochloromethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromoethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Chlorobenzene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,1,1,2-Tetrachloroethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Bromoform	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
Bromobenzene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,1,2,2-Tetrachloroethane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichloropropane	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
2-Chlorotoluene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
4-Chlorotoluene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,3-Dichlorobenzene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,4-Dichlorobenzene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,2-Dichlorobenzene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromo-3-chloropropane	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
1,2,4-Trichlorobenzene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Hexachlorobutadiene	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichlorobenzene	ND	0.00075	EPA 8260D	4-21-20	4-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*105*	*76-131*				
Toluene-d8	*98*	*78-128*				
4-Bromofluorobenzene	*95*	*71-130*				

Date of Report: April 22, 2020
Samples Submitted: April 17, 2020
Laboratory Reference: 2004-116
Project: 82306-0.2

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 20ft**					
Laboratory ID:	04-116-04					
Dichlorodifluoromethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Chloromethane	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
Vinyl Chloride	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Bromomethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Chloroethane	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
Trichlorofluoromethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Iodomethane	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
Methylene Chloride	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
(trans) 1,2-Dichloroethene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
2,2-Dichloropropane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
(cis) 1,2-Dichloroethene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Bromochloromethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Chloroform	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,1,1-Trichloroethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Carbon Tetrachloride	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloropropene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloroethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Trichloroethene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloropropane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Dibromomethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Bromodichloromethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
2-Chloroethyl Vinyl Ether	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
(cis) 1,3-Dichloropropene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
(trans) 1,3-Dichloropropene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 20ft**					
Laboratory ID:	04-116-04					
1,1,2-Trichloroethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Tetrachloroethene	0.0012	0.00074	EPA 8260D	4-21-20	4-21-20	
1,3-Dichloropropane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Dibromochloromethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromoethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Chlorobenzene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,1,1,2-Tetrachloroethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Bromoform	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
Bromobenzene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,1,2,2-Tetrachloroethane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichloropropane	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
2-Chlorotoluene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
4-Chlorotoluene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,3-Dichlorobenzene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,4-Dichlorobenzene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,2-Dichlorobenzene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromo-3-chloropropane	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
1,2,4-Trichlorobenzene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Hexachlorobutadiene	ND	0.0037	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichlorobenzene	ND	0.00074	EPA 8260D	4-21-20	4-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*104*	*76-131*				
Toluene-d8	*99*	*78-128*				
4-Bromofluorobenzene	*84*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 21.5ft**					
Laboratory ID:	04-116-05					
Dichlorodifluoromethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Chloromethane	ND	0.0041	EPA 8260D	4-21-20	4-21-20	
Vinyl Chloride	0.0017	0.00081	EPA 8260D	4-21-20	4-21-20	
Bromomethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Chloroethane	ND	0.0041	EPA 8260D	4-21-20	4-21-20	
Trichlorofluoromethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Iodomethane	ND	0.0041	EPA 8260D	4-21-20	4-21-20	
Methylene Chloride	ND	0.0041	EPA 8260D	4-21-20	4-21-20	
(trans) 1,2-Dichloroethene	0.0012	0.00081	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
2,2-Dichloropropane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
(cis) 1,2-Dichloroethene	0.029	0.00081	EPA 8260D	4-21-20	4-21-20	
Bromochloromethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Chloroform	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,1,1-Trichloroethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Carbon Tetrachloride	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloropropene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloroethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Trichloroethene	0.27	0.054	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloropropane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Dibromomethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Bromodichloromethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
2-Chloroethyl Vinyl Ether	ND	0.0041	EPA 8260D	4-21-20	4-21-20	
(cis) 1,3-Dichloropropene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
(trans) 1,3-Dichloropropene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 21.5ft**					
Laboratory ID:	04-116-05					
1,1,2-Trichloroethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Tetrachloroethene	0.13	0.054	EPA 8260D	4-21-20	4-21-20	
1,3-Dichloropropane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Dibromochloromethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromoethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Chlorobenzene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,1,1,2-Tetrachloroethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Bromoform	ND	0.0041	EPA 8260D	4-21-20	4-21-20	
Bromobenzene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,1,2,2-Tetrachloroethane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichloropropane	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
2-Chlorotoluene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
4-Chlorotoluene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,3-Dichlorobenzene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,4-Dichlorobenzene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,2-Dichlorobenzene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromo-3-chloropropane	ND	0.0041	EPA 8260D	4-21-20	4-21-20	
1,2,4-Trichlorobenzene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Hexachlorobutadiene	ND	0.0041	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichlorobenzene	ND	0.00081	EPA 8260D	4-21-20	4-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*76-131*				
Toluene-d8	*99*	*78-128*				
4-Bromofluorobenzene	*94*	*71-130*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 26ft**					
Laboratory ID:	04-116-06					
Dichlorodifluoromethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Chloromethane	ND	0.0043	EPA 8260D	4-21-20	4-21-20	
Vinyl Chloride	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Bromomethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Chloroethane	ND	0.0043	EPA 8260D	4-21-20	4-21-20	
Trichlorofluoromethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Iodomethane	ND	0.0043	EPA 8260D	4-21-20	4-21-20	
Methylene Chloride	ND	0.0043	EPA 8260D	4-21-20	4-21-20	
(trans) 1,2-Dichloroethene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
2,2-Dichloropropane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
(cis) 1,2-Dichloroethene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Bromochloromethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Chloroform	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,1,1-Trichloroethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Carbon Tetrachloride	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloropropene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloroethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Trichloroethene	0.00087	0.00086	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloropropane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Dibromomethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Bromodichloromethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
2-Chloroethyl Vinyl Ether	ND	0.0043	EPA 8260D	4-21-20	4-21-20	
(cis) 1,3-Dichloropropene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
(trans) 1,3-Dichloropropene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14: 26ft**					
Laboratory ID:	04-116-06					
1,1,2-Trichloroethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Tetrachloroethene	0.0014	0.00086	EPA 8260D	4-21-20	4-21-20	
1,3-Dichloropropane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Dibromochloromethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromoethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Chlorobenzene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,1,1,2-Tetrachloroethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Bromoform	ND	0.0043	EPA 8260D	4-21-20	4-21-20	
Bromobenzene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,1,2,2-Tetrachloroethane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichloropropane	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
2-Chlorotoluene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
4-Chlorotoluene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,3-Dichlorobenzene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,4-Dichlorobenzene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,2-Dichlorobenzene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromo-3-chloropropane	ND	0.0043	EPA 8260D	4-21-20	4-21-20	
1,2,4-Trichlorobenzene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Hexachlorobutadiene	ND	0.0043	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichlorobenzene	ND	0.00086	EPA 8260D	4-21-20	4-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*76-131*				
Toluene-d8	*96*	*78-128*				
4-Bromofluorobenzene	*98*	*71-130*				

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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0421S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Chloromethane	ND	0.0050	EPA 8260D	4-21-20	4-21-20	
Vinyl Chloride	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Bromomethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Chloroethane	ND	0.0050	EPA 8260D	4-21-20	4-21-20	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Iodomethane	ND	0.0050	EPA 8260D	4-21-20	4-21-20	
Methylene Chloride	ND	0.0050	EPA 8260D	4-21-20	4-21-20	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Bromochloromethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Chloroform	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Trichloroethene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Dibromomethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Bromodichloromethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260D	4-21-20	4-21-20	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	

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Project: 82306-0.2

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QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0421S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Tetrachloroethene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Dibromochloromethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Chlorobenzene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Bromoform	ND	0.0050	EPA 8260D	4-21-20	4-21-20	
Bromobenzene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
2-Chlorotoluene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
4-Chlorotoluene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260D	4-21-20	4-21-20	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Hexachlorobutadiene	ND	0.0050	EPA 8260D	4-21-20	4-21-20	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	4-21-20	4-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*76-131*				
Toluene-d8	*99*	*78-128*				
4-Bromofluorobenzene	*93*	*71-130*				

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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0421S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0497**	**0.0509**	0.0500	0.0500	99	102	57-133	2	18	
Benzene	**0.0516**	**0.0525**	0.0500	0.0500	103	105	71-129	2	16	
Trichloroethene	**0.0521**	**0.0516**	0.0500	0.0500	104	103	71-122	1	16	
Toluene	**0.0505**	**0.0514**	0.0500	0.0500	101	103	74-125	2	15	
Chlorobenzene	**0.0506**	**0.0514**	0.0500	0.0500	101	103	72-120	2	14	
Surrogate:										
Dibromofluoromethane					*100*	*99*	*76-131*			
Toluene-d8					*99*	*98*	*78-128*			
4-Bromofluorobenzene					*99*	*97*	*71-130*			

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% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
RMW-14: 6ft	04-116-01	**17**	4-20-20
RMW-14: 11.5ft	04-116-02	**13**	4-20-20
RMW-14: 15ft	04-116-03	**15**	4-20-20
RMW-14: 20ft	04-116-04	**17**	4-20-20
RMW-14: 21.5ft	04-116-05	**19**	4-20-20
RMW-14: 26ft	04-116-06	**20**	4-20-20

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Kane Environmental
Project Number: 82306-0.2
Project Name: Riverside HVOC
Project Manager: Jeff Jensen
Sampled by: Jeff Jensen

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 04-116

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
1	RMW-14: 6ft	4/17/20	0900	S	4						X																X
2	RMW-14: 11.5ft		0907								X																X
3	RMW-14: 15ft		0915								X																X
4	RMW-14: 20ft		0925								X																X
5	RMW-14: 21.5ft		0930								X																X
6	RMW-14: 26ft	↓	0937	↓	↓						X																X

	Signature	Company	Date	Time
Relinquished		Kane	4/17/20	1234
Received		OSE	4/17/20	1234
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☒ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

May 12, 2020

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 2005-016

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on May 4, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

Case Narrative

Samples were collected on May 4, 2020 and received by the laboratory on May 4, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	05-016-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloromethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	5-7-20	5-7-20	
Bromomethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloroethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Iodomethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-7-20	5-7-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloroform	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Trichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Dibromomethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-7-20	5-7-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	05-016-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Tetrachloroethene	2.3	0.20	EPA 8260D	5-7-20	5-7-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromoform	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Bromobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-7-20	5-7-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*75-127*				
Toluene-d8	*105*	*80-127*				
4-Bromofluorobenzene	*103*	*78-125*				

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

VOLATILE ORGANICS EPA 8260D
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-6:W**					
Laboratory ID:	05-016-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloromethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Vinyl Chloride	0.21	0.20	EPA 8260D	5-7-20	5-7-20	
Bromomethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloroethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Iodomethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-7-20	5-7-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
(cis) 1,2-Dichloroethene	1.5	0.20	EPA 8260D	5-7-20	5-7-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloroform	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Trichloroethene	0.45	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Dibromomethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-7-20	5-7-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-6:W**					
Laboratory ID:	05-016-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Tetrachloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromoform	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Bromobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-7-20	5-7-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*75-127*				
Toluene-d8	*105*	*80-127*				
4-Bromofluorobenzene	*106*	*78-125*				

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	05-016-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloromethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	5-7-20	5-7-20	
Bromomethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloroethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Iodomethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-7-20	5-7-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloroform	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Trichloroethene	0.82	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Dibromomethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-7-20	5-7-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-4:W**					
Laboratory ID:	05-016-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Tetrachloroethene	3.2	0.20	EPA 8260D	5-7-20	5-7-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromoform	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Bromobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-7-20	5-7-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*75-127*				
Toluene-d8	*106*	*80-127*				
4-Bromofluorobenzene	*106*	*78-125*				

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0507W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloromethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	5-7-20	5-7-20	
Bromomethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloroethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Iodomethane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-7-20	5-7-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chloroform	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Trichloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Dibromomethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-7-20	5-7-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-7-20	5-7-20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0507W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Tetrachloroethene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Bromoform	ND	1.0	EPA 8260D	5-7-20	5-7-20	
Bromobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-7-20	5-7-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-7-20	5-7-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-7-20	5-7-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-7-20	5-7-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*95*	*75-127*				
Toluene-d8	*106*	*80-127*				
4-Bromofluorobenzene	*102*	*78-125*				

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0507W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.98**	**11.4**	10.0	10.0	100	114	65-126	13	17	
Benzene	**9.21**	**10.7**	10.0	10.0	92	107	71-119	15	19	
Trichloroethene	**11.1**	**12.2**	10.0	10.0	111	122	82-123	9	18	
Toluene	**10.4**	**11.4**	10.0	10.0	104	114	77-119	9	18	
Chlorobenzene	**10.4**	**11.8**	10.0	10.0	104	118	80-120	13	19	
Surrogate:										
Dibromofluoromethane					*95*	*95*	*75-127*			
Toluene-d8					*108*	*106*	*80-127*			
4-Bromofluorobenzene					*94*	*100*	*78-125*			

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

TOTAL ORGANIC CARBON
SM 5310B

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	05-016-01					
Total Organic Carbon	**8.4**	1.0	SM 5310B	5-7-20	5-7-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	05-016-02					
Total Organic Carbon	**5.3**	1.0	SM 5310B	5-7-20	5-7-20	
Client ID:	**RMW-4:W**					
Laboratory ID:	05-016-03					
Total Organic Carbon	**3.5**	1.0	SM 5310B	5-7-20	5-7-20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

TOTAL ORGANIC CARBON
SM 5310B
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0507W1					
Total Organic Carbon	**ND**	1.0	SM 5310B	5-7-20	5-7-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-016-01								
	ORIG	DUP							
Total Organic Carbon	**8.43**	**8.60**	NA	NA	NA	NA	2	12	
MATRIX SPIKE									
Laboratory ID:	05-016-01								
	MS		MS		MS				
Total Organic Carbon	**19.5**		10.0	8.43	111	80-124	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0507W1								
	SB		SB		SB				
Total Organic Carbon	**10.9**		10.0	NA	109	80-124	NA	NA	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

DISSOLVED IRON
EPA 6010D

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	05-016-01					
Iron	**16000**	56	EPA 6010D	5-4-20	5-4-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	05-016-02					
Iron	**1400**	56	EPA 6010D	5-4-20	5-4-20	
Client ID:	**RMW-4:W**					
Laboratory ID:	05-016-03					
Iron	**4000**	56	EPA 6010D	5-4-20	5-4-20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

DISSOLVED IRON
EPA 6010D
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0504F1					
Iron	**ND**	56	EPA 6010D	5-4-20	5-4-20	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	05-016-02										
	ORIG	DUP									
Iron	**1370**	**1370**	NA	NA		NA		NA	0	20	
MATRIX SPIKES											
Laboratory ID:	05-016-02										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**21200**	**21700**	22200	22200	1370	**89**	**92**	75-125	2	20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	05-016-01					
Chloride	**11**	2.0	SM 4500-Cl E	5-7-20	5-7-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	05-016-02					
Chloride	**12**	2.0	SM 4500-Cl E	5-7-20	5-7-20	
Client ID:	**RMW-4:W**					
Laboratory ID:	05-016-03					
Chloride	**9.2**	2.0	SM 4500-Cl E	5-7-20	5-7-20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0507W1					
Chloride	**ND**	2.0	SM 4500-Cl E	5-7-20	5-7-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-041-01								
	ORIG	DUP							
Chloride	**18.6**	**18.8**	NA	NA	NA	NA	1	14	
MATRIX SPIKE									
Laboratory ID:	05-041-01								
	MS		MS		MS				
Chloride	**67.5**		50.0	18.6	98	86-110	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0507W1								
	SB		SB		SB				
Chloride	**47.1**		50.0	NA	94	86-110	NA	NA	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	05-016-01					
Sulfate	**25**	10	ASTM D516-11	5-5-20	5-5-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	05-016-02					
Sulfate	**ND**	5.0	ASTM D516-11	5-5-20	5-5-20	
Client ID:	**RMW-4:W**					
Laboratory ID:	05-016-03					
Sulfate	**26**	10	ASTM D516-11	5-5-20	5-5-20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
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Project: 82306

SULFATE
ASTM D516-11
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0505W1					
Sulfate	**ND**	5.0	ASTM D516-11	5-5-20	5-5-20	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	05-016-02							
	ORIG DUP							
Sulfate	**ND** **ND**	NA	NA	NA	NA	NA	11	
MATRIX SPIKE								
Laboratory ID:	05-016-02							
	MS	MS		MS				
Sulfate	**11.3**	10.0	ND	113	61-148	NA	NA	
SPIKE BLANK								
Laboratory ID:	SB0505W1							
	SB	SB		SB				
Sulfate	**9.84**	10.0	NA	98	86-116	NA	NA	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

AMMONIA (as Nitrogen)
SM 4500-NH_3 D

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	05-016-01					
Ammonia	**2.8**	0.050	SM 4500-NH3 D	5-6-20	5-6-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	05-016-02					
Ammonia	**0.056**	0.050	SM 4500-NH3 D	5-6-20	5-6-20	
Client ID:	**RMW-4:W**					
Laboratory ID:	05-016-03					
Ammonia	**0.93**	0.050	SM 4500-NH3 D	5-6-20	5-6-20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

AMMONIA (as Nitrogen)
SM 4500-NH_3 D
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0506W1					
Ammonia	**ND**	0.050	SM 4500-NH3 D	5-6-20	5-6-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-016-02								
	ORIG	DUP							
Ammonia	**0.0560**	**0.0506**	NA	NA	NA	NA	10	11	
MATRIX SPIKE									
Laboratory ID:	05-016-02								
	MS		MS		MS				
Ammonia	**4.69**		5.00	0.0560	93	76-118	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0506W1								
	SB		SB		SB				
Ammonia	**4.71**		5.00	NA	94	88-110	NA	NA	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

DISSOLVED GASES
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-5:W**					
Laboratory ID:	05-016-01					
Methane	**2300**	17	RSK 175	5-6-20	5-6-20	
Ethane	**ND**	0.22	RSK 175	5-6-20	5-6-20	
Ethene	**ND**	0.29	RSK 175	5-6-20	5-6-20	
Client ID:	**RMW-6:W**					
Laboratory ID:	05-016-02					
Methane	**750**	5.5	RSK 175	5-6-20	5-6-20	
Ethane	**ND**	0.22	RSK 175	5-6-20	5-6-20	
Ethene	**ND**	0.29	RSK 175	5-6-20	5-6-20	
Client ID:	**RMW-4:W**					
Laboratory ID:	05-016-03					
Methane	**1800**	11	RSK 175	5-6-20	5-6-20	
Ethane	**ND**	0.22	RSK 175	5-6-20	5-6-20	
Ethene	**ND**	0.29	RSK 175	5-6-20	5-6-20	

Date of Report: May 12, 2020
Samples Submitted: May 4, 2020
Laboratory Reference: 2005-016
Project: 82306

DISSOLVED GASES
RSK 175
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0506W1					
Methane	**ND**	0.55	RSK 175	5-6-20	5-6-20	
Ethane	**ND**	0.22	RSK 175	5-6-20	5-6-20	
Ethene	**ND**	0.29	RSK 175	5-6-20	5-6-20	

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANK										
Laboratory ID:	SB0506W1									
	SB	SBD	SB	SBD	SB	SBD				
Methane	**22.1**	**19.1**	22.1	22.1	100	86	75-125	15	25	
Ethane	**39.1**	**34.1**	41.6	41.6	94	82	75-125	14	25	
Ethene	**41.0**	**36.2**	38.8	38.8	106	93	75-125	12	25	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Laboratory Number: 05-016

Company: Kane Environmental
Project Number: 82306
Project Name: Riverside
Project Manager: Jeff Jensen
Sampled by: Mike Espinoza

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☑ Standard (7 Days)
☐ ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	~~HEM (oil and grease) 1664A~~ TOC	dissolved Fe	chloride	Sulfate	Ammonia-N	~~% Moisture~~ RSK
1	RMW-5:W	5/4/20	1017	GW	9						X											X	X	X	X	X	X
2	RMW-6:W	5/4/20	1145	GW	9						X											X	X	X	X	X	X
3	RMW-4:W	5/4/20	1311	GW	9						X											X	X	X	X	X	X

	Signature	Company	Date	Time
Relinquished	Mike Espinoza	Kane Env.	5/4/20	1410
Received	Nichelle B[illegible]	OSE	5/4/20	1410
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Lab filter
RSK = methane, ethane, ethene
↳ low detection limit (3-4 µg/L)
low detection limit for vinyl chloride

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

May 13, 2020

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 2005-029

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on May 5, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

Case Narrative

Samples were collected on May 5, 2020 and received by the laboratory on May 5, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

VOLATILE ORGANICS EPA 8260D/SIM
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14:W**					
Laboratory ID:	05-029-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	0.15	0.020	EPA 8260D/SIM	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	4.0	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	5.6	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

VOLATILE ORGANICS EPA 8260D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14:W**					
Laboratory ID:	05-029-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	15	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*75-127*				
Toluene-d8	*107*	*80-127*				
4-Bromofluorobenzene	*110*	*78-125*				

Date of Report: May 13, 2020
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	05-029-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	28	0.20	EPA 8260D	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	0.31	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	20	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	0.88	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-7:W**					
Laboratory ID:	05-029-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	0.32	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*105*	*75-127*				
Toluene-d8	*104*	*80-127*				
4-Bromofluorobenzene	*105*	*78-125*				

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-13:W**					
Laboratory ID:	05-029-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	0.060	0.020	EPA 8260D/SIM	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	0.30	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-13:W**					
Laboratory ID:	05-029-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*75-127*				
Toluene-d8	*111*	*80-127*				
4-Bromofluorobenzene	*109*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-10:W**					
Laboratory ID:	05-029-04					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-10:W**					
Laboratory ID:	05-029-04					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*95*	*75-127*				
Toluene-d8	*104*	*80-127*				
4-Bromofluorobenzene	*99*	*78-125*				

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
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QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0509W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

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QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0509W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*75-127*				
Toluene-d8	*104*	*80-127*				
4-Bromofluorobenzene	*109*	*78-125*				

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
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Project: 82306

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0509W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**10.0**	**10.3**	10.0	10.0	100	103	65-126	3	17	
Benzene	**10.0**	**10.1**	10.0	10.0	100	101	71-119	1	19	
Trichloroethene	**11.1**	**11.0**	10.0	10.0	111	110	82-123	1	18	
Toluene	**10.7**	**10.8**	10.0	10.0	107	108	77-119	1	18	
Chlorobenzene	**10.9**	**11.0**	10.0	10.0	109	110	80-120	1	19	
Surrogate:										
Dibromofluoromethane					*96*	*99*	*75-127*			
Toluene-d8					*107*	*107*	*80-127*			
4-Bromofluorobenzene					*97*	*95*	*78-125*			

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

TOTAL ORGANIC CARBON
SM 5310B

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14:W**					
Laboratory ID:	05-029-01					
Total Organic Carbon	**3.3**	1.0	SM 5310B	5-7-20	5-7-20	
Client ID:	**RMW-7:W**					
Laboratory ID:	05-029-02					
Total Organic Carbon	**5.1**	1.0	SM 5310B	5-7-20	5-7-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	05-029-03					
Total Organic Carbon	**7.2**	1.0	SM 5310B	5-7-20	5-7-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	05-029-04					
Total Organic Carbon	**ND**	1.0	SM 5310B	5-7-20	5-7-20	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

TOTAL ORGANIC CARBON
SM 5310B
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0507W1					
Total Organic Carbon	**ND**	1.0	SM 5310B	5-7-20	5-7-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-016-01								
	ORIG	DUP							
Total Organic Carbon	**8.43**	**8.60**	NA	NA	NA	NA	2	12	
MATRIX SPIKE									
Laboratory ID:	05-016-01								
	MS		MS		MS				
Total Organic Carbon	**19.5**		10.0	8.43	111	80-124	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0507W1								
	SB		SB		SB				
Total Organic Carbon	**10.9**		10.0	NA	109	80-124	NA	NA	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

DISSOLVED IRON
EPA 6010D

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14:W**					
Laboratory ID:	05-029-01					
Iron	**66**	56	EPA 6010D	5-5-20	5-12-20	
Client ID:	**RMW-7:W**					
Laboratory ID:	05-029-02					
Iron	**5900**	56	EPA 6010D	5-5-20	5-12-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	05-029-03					
Iron	**5900**	56	EPA 6010D	5-5-20	5-12-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	05-029-04					
Iron	**110**	56	EPA 6010D	5-5-20	5-12-20	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

DISSOLVED IRON
EPA 6010D
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0505F1					
Iron	**ND**	56	EPA 6010D	5-5-20	5-12-20	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	05-029-04										
	ORIG	DUP									
Iron	**112**	**84.8**	NA	NA		NA		NA	28	20	C
MATRIX SPIKES											
Laboratory ID:	05-029-04										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**23700**	**23800**	22200	22200	112	**106**	**107**	75-125	0	20	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14:W**					
Laboratory ID:	05-029-01					
Chloride	**9.4**	2.0	SM 4500-Cl E	5-7-20	5-7-20	
Client ID:	**RMW-7:W**					
Laboratory ID:	05-029-02					
Chloride	**13**	2.0	SM 4500-Cl E	5-7-20	5-7-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	05-029-03					
Chloride	**6.9**	2.0	SM 4500-Cl E	5-7-20	5-7-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	05-029-04					
Chloride	**6.0**	2.0	SM 4500-Cl E	5-7-20	5-7-20	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0507W1					
Chloride	**ND**	2.0	SM 4500-Cl E	5-7-20	5-7-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-041-01								
	ORIG	DUP							
Chloride	**18.6**	**18.8**	NA	NA	NA	NA	1	14	
MATRIX SPIKE									
Laboratory ID:	05-041-01								
	MS		MS		MS				
Chloride	**67.5**		50.0	18.6	98	86-110	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0507W1								
	SB		SB		SB				
Chloride	**47.1**		50.0	NA	94	86-110	NA	NA	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14:W**					
Laboratory ID:	05-029-01					
Sulfate	**45**	25	ASTM D516-11	5-8-20	5-8-20	
Client ID:	**RMW-7:W**					
Laboratory ID:	05-029-02					
Sulfate	**11**	5.0	ASTM D516-11	5-8-20	5-8-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	05-029-03					
Sulfate	**100**	50	ASTM D516-11	5-8-20	5-8-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	05-029-04					
Sulfate	**23**	5.0	ASTM D516-11	5-8-20	5-8-20	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

SULFATE
ASTM D516-11
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0508W1					
Sulfate	**ND**	5.0	ASTM D516-11	5-8-20	5-8-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-036-02								
	ORIG	DUP							
Sulfate	**5.58**	**6.11**	NA	NA	NA	NA	9	11	
MATRIX SPIKE									
Laboratory ID:	05-036-02								
	MS		MS		MS				
Sulfate	**15.7**		10.0	5.58	101	61-148	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0508W1								
	SB		SB		SB				
Sulfate	**9.60**		10.0	NA	96	86-116	NA	NA	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

AMMONIA (as Nitrogen)
SM 4500-NH_3 D

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14:W**					
Laboratory ID:	05-029-01					
Ammonia	**0.89**	0.050	SM 4500-NH3 D	5-6-20	5-6-20	
Client ID:	**RMW-7:W**					
Laboratory ID:	05-029-02					
Ammonia	**1.3**	0.050	SM 4500-NH3 D	5-6-20	5-6-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	05-029-03					
Ammonia	**1.5**	0.050	SM 4500-NH3 D	5-6-20	5-6-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	05-029-04					
Ammonia	**0.057**	0.050	SM 4500-NH3 D	5-6-20	5-6-20	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

AMMONIA (as Nitrogen)
SM 4500-NH_3 D
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0506W1					
Ammonia	**ND**	0.050	SM 4500-NH3 D	5-6-20	5-6-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-016-02								
	ORIG	DUP							
Ammonia	**0.0560**	**0.0506**	NA	NA	NA	NA	10	11	
MATRIX SPIKE									
Laboratory ID:	05-016-02								
	MS		MS		MS				
Ammonia	**4.69**		5.00	0.0560	93	76-118	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0506W1								
	SB		SB		SB				
Ammonia	**4.71**		5.00	NA	94	88-110	NA	NA	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

DISSOLVED GASES
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-14:W**					
Laboratory ID:	05-029-01					
Methane	**210**	1.7	RSK 175	5-6-20	5-6-20	
Ethane	**ND**	0.22	RSK 175	5-6-20	5-6-20	
Ethene	**ND**	0.29	RSK 175	5-6-20	5-6-20	
Client ID:	**RMW-7:W**					
Laboratory ID:	05-029-02					
Methane	**830**	5.5	RSK 175	5-6-20	5-6-20	
Ethane	**ND**	0.22	RSK 175	5-6-20	5-6-20	
Ethene	**0.85**	0.29	RSK 175	5-6-20	5-6-20	
Client ID:	**RMW-13:W**					
Laboratory ID:	05-029-03					
Methane	**54**	0.55	RSK 175	5-6-20	5-6-20	
Ethane	**ND**	0.22	RSK 175	5-6-20	5-6-20	
Ethene	**ND**	0.29	RSK 175	5-6-20	5-6-20	
Client ID:	**RMW-10:W**					
Laboratory ID:	05-029-04					
Methane	**ND**	0.55	RSK 175	5-6-20	5-6-20	
Ethane	**ND**	0.22	RSK 175	5-6-20	5-6-20	
Ethene	**ND**	0.29	RSK 175	5-6-20	5-6-20	

Date of Report: May 13, 2020
Samples Submitted: May 5, 2020
Laboratory Reference: 2005-029
Project: 82306

DISSOLVED GASES
RSK 175
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0506W1					
Methane	**ND**	0.55	RSK 175	5-6-20	5-6-20	
Ethane	**ND**	0.22	RSK 175	5-6-20	5-6-20	
Ethene	**ND**	0.29	RSK 175	5-6-20	5-6-20	

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANK										
Laboratory ID:	SB0506W1									
	SB	SBD	SB	SBD	SB	SBD				
Methane	**22.1**	**19.1**	22.1	22.1	100	86	75-125	15	25	
Ethane	**39.1**	**34.1**	41.6	41.6	94	82	75-125	14	25	
Ethene	**41.0**	**36.2**	38.8	38.8	106	93	75-125	12	25	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Kane Environmental
Project Number: 823010
Project Name: Riverside
Project Manager: Jeff Jensen
Sampled by: Mike Espinoza

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☑ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 05-029

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A ~~TPH~~	dissolved Fe	Chloride	Sulfate	Ammonia-N	% Moisture RSK
1	RMW-14:W	5/5/20	0900	GW	9						X											X	X	X	X	X	X
2	RMW-7:W	5/5/20	1024	GW	9						X											X	X	X	X	X	X
3	RMW-13:W	5/5/20	1200	GW	9						X											X	X	X	X	X	X
4	RMW-10:W	5/5/20	1300	GW	9						X											X	X	X	X	X	X

	Signature	Company	Date	Time
Relinquished	Mike Espinoza	Kane Env.	5/5/20	1345
Received		CDE	5/5/20	1345
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Lab filter
RSK = methane, ethane, ethene
↳ detection limit Low (3-4 ug/L)
Low detection limit for vinyl chloride

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

May 14, 2020

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 2005-041

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on May 6, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: May 14, 2020
Samples Submitted: May 6, 2020
Laboratory Reference: 2005-041
Project: 82306

Case Narrative

Samples were collected on May 6, 2020 and received by the laboratory on May 6, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: May 14, 2020
Samples Submitted: May 6, 2020
Laboratory Reference: 2005-041
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	05-041-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	0.50	0.20	EPA 8260D	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	5.4	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	4.6	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

Date of Report: May 14, 2020
Samples Submitted: May 6, 2020
Laboratory Reference: 2005-041
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	05-041-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	19	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*75-127*				
Toluene-d8	*102*	*80-127*				
4-Bromofluorobenzene	*106*	*78-125*				

Date of Report: May 14, 2020
Samples Submitted: May 6, 2020
Laboratory Reference: 2005-041
Project: 82306

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-3:W**					
Laboratory ID:	05-041-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	0.52	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	1.7	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-3:W**					
Laboratory ID:	05-041-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	6.7	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*75-127*				
Toluene-d8	*97*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-8:W**					
Laboratory ID:	05-041-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-8:W**					
Laboratory ID:	05-041-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*75-127*				
Toluene-d8	*110*	*80-127*				
4-Bromofluorobenzene	*109*	*78-125*				

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QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0509W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0509W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*75-127*				
Toluene-d8	*104*	*80-127*				
4-Bromofluorobenzene	*109*	*78-125*				

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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0509W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**10.0**	**10.3**	10.0	10.0	100	103	65-126	3	17	
Benzene	**10.0**	**10.1**	10.0	10.0	100	101	71-119	1	19	
Trichloroethene	**11.1**	**11.0**	10.0	10.0	111	110	82-123	1	18	
Toluene	**10.7**	**10.8**	10.0	10.0	107	108	77-119	1	18	
Chlorobenzene	**10.9**	**11.0**	10.0	10.0	109	110	80-120	1	19	
Surrogate:										
Dibromofluoromethane					*96*	*99*	*75-127*			
Toluene-d8					*107*	*107*	*80-127*			
4-Bromofluorobenzene					*97*	*95*	*78-125*			

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TOTAL ORGANIC CARBON
SM 5310B

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	05-041-01					
Total Organic Carbon	**3.3**	1.0	SM 5310B	5-7-20	5-7-20	
Client ID:	**BC-3:W**					
Laboratory ID:	05-041-02					
Total Organic Carbon	**1.6**	1.0	SM 5310B	5-7-20	5-7-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	05-041-03					
Total Organic Carbon	**3.5**	1.0	SM 5310B	5-7-20	5-7-20	

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TOTAL ORGANIC CARBON
SM 5310B
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0507W1					
Total Organic Carbon	**ND**	1.0	SM 5310B	5-7-20	5-7-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-016-01								
	ORIG	DUP							
Total Organic Carbon	**8.43**	**8.60**	NA	NA	NA	NA	2	12	
MATRIX SPIKE									
Laboratory ID:	05-016-01								
	MS		MS		MS				
Total Organic Carbon	**19.5**		10.0	8.43	111	80-124	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0507W1								
	SB		SB		SB				
Total Organic Carbon	**10.9**		10.0	NA	109	80-124	NA	NA	

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DISSOLVED IRON
EPA 6010D

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	05-041-01					
Iron	**ND**	56	EPA 6010D	5-6-20	5-6-20	
Client ID:	**BC-3:W**					
Laboratory ID:	05-041-02					
Iron	**ND**	56	EPA 6010D	5-6-20	5-6-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	05-041-03					
Iron	**210**	56	EPA 6010D	5-6-20	5-6-20	

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DISSOLVED IRON
EPA 6010D
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0506F1					
Iron	**ND**	56	EPA 6010D	5-6-20	5-6-20	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	05-029-01										
	ORIG	DUP									
Iron	**58.8**	**72.9**	NA	NA		NA		NA	21	20	C
MATRIX SPIKES											
Laboratory ID:	05-029-01										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**23000**	**23200**	22200	22200	58.8	**103**	**104**	75-125	1	20	

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CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	05-041-01					
Chloride	**19**	2.0	SM 4500-Cl E	5-7-20	5-7-20	
Client ID:	**BC-3:W**					
Laboratory ID:	05-041-02					
Chloride	**24**	2.0	SM 4500-Cl E	5-7-20	5-7-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	05-041-03					
Chloride	**20**	2.0	SM 4500-Cl E	5-7-20	5-7-20	

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CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0507W1					
Chloride	**ND**	2.0	SM 4500-Cl E	5-7-20	5-7-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-041-01								
	ORIG	DUP							
Chloride	**18.6**	**18.8**	NA	NA	NA	NA	1	14	
MATRIX SPIKE									
Laboratory ID:	05-041-01								
	MS		MS		MS				
Chloride	**67.5**		50.0	18.6	98	86-110	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0507W1								
	SB		SB		SB				
Chloride	**47.1**		50.0	NA	94	86-110	NA	NA	

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SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	05-041-01					
Sulfate	**13**	5.0	ASTM D516-11	5-8-20	5-8-20	
Client ID:	**BC-3:W**					
Laboratory ID:	05-041-02					
Sulfate	**24**	5.0	ASTM D516-11	5-8-20	5-8-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	05-041-03					
Sulfate	**18**	5.0	ASTM D516-11	5-8-20	5-8-20	

Date of Report: May 14, 2020
Samples Submitted: May 6, 2020
Laboratory Reference: 2005-041
Project: 82306

SULFATE
ASTM D516-11
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0508W1					
Sulfate	**ND**	5.0	ASTM D516-11	5-8-20	5-8-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-036-02								
	ORIG	DUP							
Sulfate	**5.58**	**6.11**	NA	NA	NA	NA	9	11	
MATRIX SPIKE									
Laboratory ID:	05-036-02								
	MS		MS		MS				
Sulfate	**15.7**		10.0	5.58	101	61-148	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0508W1								
	SB		SB		SB				
Sulfate	**9.60**		10.0	NA	96	86-116	NA	NA	

Date of Report: May 14, 2020
Samples Submitted: May 6, 2020
Laboratory Reference: 2005-041
Project: 82306

AMMONIA (as Nitrogen)
SM 4500-NH_3 D

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	05-041-01					
Ammonia	**ND**	0.050	SM 4500-NH3 D	5-13-20	5-13-20	
Client ID:	**BC-3:W**					
Laboratory ID:	05-041-02					
Ammonia	**ND**	0.050	SM 4500-NH3 D	5-13-20	5-13-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	05-041-03					
Ammonia	**2.4**	0.050	SM 4500-NH3 D	5-13-20	5-13-20	

Date of Report: May 14, 2020
Samples Submitted: May 6, 2020
Laboratory Reference: 2005-041
Project: 82306

AMMONIA (as Nitrogen)
SM 4500-NH_3 D
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0513W1					
Ammonia	**ND**	0.050	SM 4500-NH3 D	5-13-20	5-13-20	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	05-041-01							
	ORIG DUP							
Ammonia	**ND** **ND**	NA	NA	NA	NA	NA	11	
MATRIX SPIKE								
Laboratory ID:	05-041-01							
	MS	MS		MS				
Ammonia	**4.79**	5.00	ND	96	76-118	NA	NA	
SPIKE BLANK								
Laboratory ID:	SB0513W1							
	SB	SB		SB				
Ammonia	**4.85**	5.00	NA	97	88-110	NA	NA	

Date of Report: May 14, 2020
Samples Submitted: May 6, 2020
Laboratory Reference: 2005-041
Project: 82306

DISSOLVED GASES
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-12:W**					
Laboratory ID:	05-041-01					
Methane	**24**	0.55	RSK 175	5-8-20	5-8-20	
Ethane	**ND**	0.22	RSK 175	5-8-20	5-8-20	
Ethene	**ND**	0.29	RSK 175	5-8-20	5-8-20	
Client ID:	**BC-3:W**					
Laboratory ID:	05-041-02					
Methane	**ND**	0.55	RSK 175	5-8-20	5-8-20	
Ethane	**ND**	0.22	RSK 175	5-8-20	5-8-20	
Ethene	**ND**	0.29	RSK 175	5-8-20	5-8-20	
Client ID:	**RMW-8:W**					
Laboratory ID:	05-041-03					
Methane	**1700**	11	RSK 175	5-8-20	5-8-20	
Ethane	**ND**	0.22	RSK 175	5-8-20	5-8-20	
Ethene	**ND**	0.29	RSK 175	5-8-20	5-8-20	

Date of Report: May 14, 2020
Samples Submitted: May 6, 2020
Laboratory Reference: 2005-041
Project: 82306

DISSOLVED GASES
RSK 175
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0508W1					
Methane	**ND**	0.55	RSK 175	5-8-20	5-8-20	
Ethane	**ND**	0.22	RSK 175	5-8-20	5-8-20	
Ethene	**ND**	0.29	RSK 175	5-8-20	5-8-20	

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANK										
Laboratory ID:	SB0508W1									
	SB	SBD	SB	SBD	SB	SBD				
Methane	**26.5**	**27.4**	22.1	22.1	120	124	75-125	3	25	
Ethane	**47.7**	**48.1**	41.6	41.6	115	116	75-125	1	25	
Ethene	**43.0**	**43.0**	38.8	38.8	111	111	75-125	0	25	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Laboratory Number: 05-041

Company: Kane Environmental
Project Number: 82306
Project Name: Riverside
Project Manager: Jeff Jensen
Sampled by: Mike Espinoza

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☑ Standard (7 Days)
☐ _____ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A TOC	dissolved Fe	Chloride	Sulfate	Ammonia-N	% Moisture RSK
1	RMW-12:W	5/6/20	0920	GW	9						X											X	X	X	X	X	X
2	BC-3:W	5/6/20	1035	GW	9						X											X	X	X	X	X	X
3	RMW-8:W	5/6/20	1255	GW	9						X											X	X	X	X	X	X

	Signature	Company	Date	Time
Relinquished	Mike Espinoza	Kane Env.	5/6/20	1345
Received	[illegible]	OSE	5/6/20	1345
Relinquished				
Received				
Relinquished				
Received				

Reviewed/Date

Reviewed/Date

Comments/Special Instructions
Lab filter
RSK = methane, ethane, ethene
↳ low detection limit (3-4 µg/L)
low detection limit for vinyl chloride

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

May 14, 2020

Jeff Jensen
Kane Environmental, Inc.
4015 13th Avenue West
Seattle, WA 98119

Re: Analytical Data for Project 82306
Laboratory Reference No. 2005-053

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on May 7, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: May 14, 2020
Samples Submitted: May 7, 2020
Laboratory Reference: 2005-053
Project: 82306

Case Narrative

Samples were collected on May 7, 2020 and received by the laboratory on May 7, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: May 14, 2020
Samples Submitted: May 7, 2020
Laboratory Reference: 2005-053
Project: 82306

VOLATILE ORGANICS EPA 8260D/SIM
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	05-053-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	0.35	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

Date of Report: May 14, 2020
Samples Submitted: May 7, 2020
Laboratory Reference: 2005-053
Project: 82306

VOLATILE ORGANICS EPA 8260D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	05-053-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*75-127*				
Toluene-d8	*105*	*80-127*				
4-Bromofluorobenzene	*102*	*78-125*				

Date of Report: May 14, 2020
Samples Submitted: May 7, 2020
Laboratory Reference: 2005-053
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	05-053-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	0.36	0.20	EPA 8260D	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	7.6	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	5.3	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

Date of Report: May 14, 2020
Samples Submitted: May 7, 2020
Laboratory Reference: 2005-053
Project: 82306

VOLATILE ORGANICS EPA 8260D
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6:W**					
Laboratory ID:	05-053-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	12	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*94*	*75-127*				
Toluene-d8	*104*	*80-127*				
4-Bromofluorobenzene	*100*	*78-125*				

Date of Report: May 14, 2020
Samples Submitted: May 7, 2020
Laboratory Reference: 2005-053
Project: 82306

VOLATILE ORGANICS EPA 8260D/SIM
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-3:W**					
Laboratory ID:	05-053-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	0.023	0.020	EPA 8260D/SIM	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	11	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	23	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-3:W**					
Laboratory ID:	05-053-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	25	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*75-127*				
Toluene-d8	*109*	*80-127*				
4-Bromofluorobenzene	*107*	*78-125*				

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QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0509W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloromethane	ND	1.3	EPA 8260D	5-9-20	5-9-20	
Vinyl Chloride	ND	0.020	EPA 8260D/SIM	5-9-20	5-9-20	
Bromomethane	ND	0.26	EPA 8260D	5-9-20	5-9-20	
Chloroethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Iodomethane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Methylene Chloride	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chloroform	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Trichloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromomethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromodichloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	5-9-20	5-9-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	5-9-20	5-9-20	

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QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0509W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Tetrachloroethene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Dibromochloromethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Chlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Bromoform	ND	1.0	EPA 8260D	5-9-20	5-9-20	
Bromobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	5-9-20	5-9-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	5-9-20	5-9-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	5-9-20	5-9-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*75-127*				
Toluene-d8	*104*	*80-127*				
4-Bromofluorobenzene	*109*	*78-125*				

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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0509W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**10.0**	**10.3**	10.0	10.0	100	103	65-126	3	17	
Benzene	**10.0**	**10.1**	10.0	10.0	100	101	71-119	1	19	
Trichloroethene	**11.1**	**11.0**	10.0	10.0	111	110	82-123	1	18	
Toluene	**10.7**	**10.8**	10.0	10.0	107	108	77-119	1	18	
Chlorobenzene	**10.9**	**11.0**	10.0	10.0	109	110	80-120	1	19	
Surrogate:										
Dibromofluoromethane					*96*	*99*	*75-127*			
Toluene-d8					*107*	*107*	*80-127*			
4-Bromofluorobenzene					*97*	*95*	*78-125*			

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TOTAL ORGANIC CARBON
SM 5310B

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	05-053-01					
Total Organic Carbon	**ND**	1.0	SM 5310B	5-7-20	5-7-20	
Client ID:	**EW-6:W**					
Laboratory ID:	05-053-02					
Total Organic Carbon	**1.4**	1.0	SM 5310B	5-7-20	5-7-20	
Client ID:	**EW-3:W**					
Laboratory ID:	05-053-03					
Total Organic Carbon	**1.7**	1.0	SM 5310B	5-7-20	5-7-20	

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TOTAL ORGANIC CARBON
SM 5310B
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0507W1					
Total Organic Carbon	**ND**	1.0	SM 5310B	5-7-20	5-7-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-016-01								
	ORIG	DUP							
Total Organic Carbon	**8.43**	**8.60**	NA	NA	NA	NA	2	12	
MATRIX SPIKE									
Laboratory ID:	05-016-01								
	MS		MS		MS				
Total Organic Carbon	**19.5**		10.0	8.43	111	80-124	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0507W1								
	SB		SB		SB				
Total Organic Carbon	**10.9**		10.0	NA	109	80-124	NA	NA	

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DISSOLVED IRON
EPA 6010D

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	05-053-01					
Iron	**ND**	56	EPA 6010D	5-7-20	5-12-20	
Client ID:	**EW-6:W**					
Laboratory ID:	05-053-02					
Iron	**390**	56	EPA 6010D	5-7-20	5-12-20	
Client ID:	**EW-3:W**					
Laboratory ID:	05-053-03					
Iron	**350**	56	EPA 6010D	5-7-20	5-12-20	

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DISSOLVED IRON
EPA 6010D
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0507F1					
Iron	**ND**	56	EPA 6010D	5-7-20	5-12-20	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	05-029-04										
	ORIG	DUP									
Iron	**112**	**84.8**	NA	NA		NA		NA	28	20	C
MATRIX SPIKES											
Laboratory ID:	05-029-04										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**23700**	**23800**	22200	22200	112	**106**	**107**	75-125	0	20	

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CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	05-053-01					
Chloride	**20**	2.0	SM 4500-Cl E	5-11-20	5-11-20	
Client ID:	**EW-6:W**					
Laboratory ID:	05-053-02					
Chloride	**14**	2.0	SM 4500-Cl E	5-11-20	5-11-20	
Client ID:	**EW-3:W**					
Laboratory ID:	05-053-03					
Chloride	**13**	2.0	SM 4500-Cl E	5-11-20	5-11-20	

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CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0511W1					
Chloride	**ND**	2.0	SM 4500-Cl E	5-11-20	5-11-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-053-01								
	ORIG	DUP							
Chloride	**19.8**	**20.2**	NA	NA	NA	NA	2	14	
MATRIX SPIKE									
Laboratory ID:	05-053-01								
	MS		MS		MS				
Chloride	**65.8**		50.0	19.8	92	86-110	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0511W1								
	SB		SB		SB				
Chloride	**49.5**		50.0	NA	99	86-110	NA	NA	

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SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	05-053-01					
Sulfate	**37**	10	ASTM D516-11	5-8-20	5-8-20	
Client ID:	**EW-6:W**					
Laboratory ID:	05-053-02					
Sulfate	**17**	5.0	ASTM D516-11	5-8-20	5-8-20	
Client ID:	**EW-3:W**					
Laboratory ID:	05-053-03					
Sulfate	**17**	5.0	ASTM D516-11	5-8-20	5-8-20	

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SULFATE
ASTM D516-11
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0508W2					
Sulfate	**ND**	5.0	ASTM D516-11	5-8-20	5-8-20	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-053-03								
	ORIG	DUP							
Sulfate	**16.5**	**16.0**	NA	NA	NA	NA	3	11	
MATRIX SPIKE									
Laboratory ID:	05-053-03								
	MS		MS		MS				
Sulfate	**37.2**		20.0	16.5	104	61-148	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0508W2								
	SB		SB		SB				
Sulfate	**10.6**		10.0	NA	106	86-116	NA	NA	

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AMMONIA (as Nitrogen)
SM 4500-NH_3 D

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	05-053-01					
Ammonia	**ND**	0.050	SM 4500-NH3 D	5-13-20	5-13-20	
Client ID:	**EW-6:W**					
Laboratory ID:	05-053-02					
Ammonia	**0.20**	0.050	SM 4500-NH3 D	5-13-20	5-13-20	
Client ID:	**EW-3:W**					
Laboratory ID:	05-053-03					
Ammonia	**0.21**	0.050	SM 4500-NH3 D	5-13-20	5-13-20	

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AMMONIA (as Nitrogen)
SM 4500-NH_3 D
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0513W1					
Ammonia	**ND**	0.050	SM 4500-NH3 D	5-13-20	5-13-20	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	05-041-01							
	ORIG DUP							
Ammonia	**ND** **ND**	NA	NA	NA	NA	NA	11	
MATRIX SPIKE								
Laboratory ID:	05-041-01							
	MS	MS		MS				
Ammonia	**4.79**	5.00	ND	96	76-118	NA	NA	
SPIKE BLANK								
Laboratory ID:	SB0513W1							
	SB	SB		SB				
Ammonia	**4.85**	5.00	NA	97	88-110	NA	NA	

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DISSOLVED GASES
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RMW-9R:W**					
Laboratory ID:	05-053-01					
Methane	**ND**	0.55	RSK 175	5-8-20	5-8-20	
Ethane	**ND**	0.22	RSK 175	5-8-20	5-8-20	
Ethene	**ND**	0.29	RSK 175	5-8-20	5-8-20	
Client ID:	**EW-6:W**					
Laboratory ID:	05-053-02					
Methane	**96**	0.55	RSK 175	5-8-20	5-8-20	
Ethane	**ND**	0.22	RSK 175	5-8-20	5-8-20	
Ethene	**ND**	0.29	RSK 175	5-8-20	5-8-20	
Client ID:	**EW-3:W**					
Laboratory ID:	05-053-03					
Methane	**180**	1.1	RSK 175	5-8-20	5-8-20	
Ethane	**ND**	0.22	RSK 175	5-8-20	5-8-20	
Ethene	**ND**	0.29	RSK 175	5-8-20	5-8-20	

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DISSOLVED GASES
RSK 175
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0508W1					
Methane	**ND**	0.55	RSK 175	5-8-20	5-8-20	
Ethane	**ND**	0.22	RSK 175	5-8-20	5-8-20	
Ethene	**ND**	0.29	RSK 175	5-8-20	5-8-20	

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANK										
Laboratory ID:	SB0508W1									
	SB	SBD	SB	SBD	SB	SBD				
Methane	**26.5**	**27.4**	22.1	22.1	120	124	75-125	3	25	
Ethane	**47.7**	**48.1**	41.6	41.6	115	116	75-125	1	25	
Ethene	**43.0**	**43.0**	38.8	38.8	111	111	75-125	0	25	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

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Analytical Laboratory Testing Services
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Company: Kane Environmental
Project Number: 82306
Project Name: Riverside
Project Manager: Jeff Jensen
Sampled by: Mike Espinoza

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☑ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 05-053

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	NEM (Oil and grease) 1664A	TOC	dissolved Fe	chloride	sulfate	Ammonia-N	% Moisture	RSK
1	RMW-9R:W	5/7/20	0852	GW	9						X											X	X	X	X	X	X	X
2	EW-6:W	5/7/20	0942	GW	9						X											X	X	X	X	X	X	X
3	EW-3:W	5/7/20	1005	GW	9						X											X	X	X	X	X	X	X

	Signature	Company	Date	Time
Relinquished	Mike Espinoza	Kane Env.	5/7/20	1105
Received	[signature]	OSE	5/7/20	1105
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

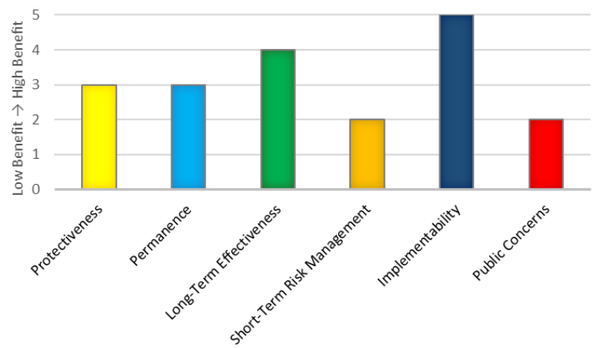
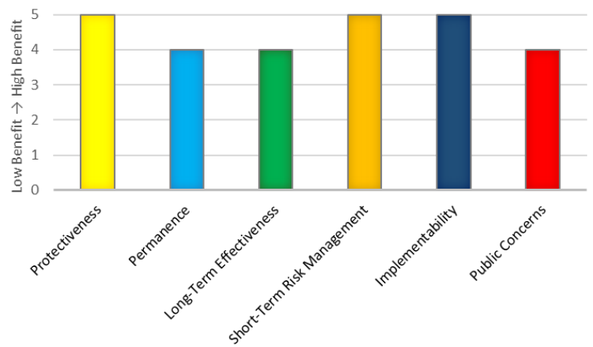
Comments/Special Instructions
lab filter
RSK = methane, ethane, ethene
↳ low detection limits (3-4 µg/L)
low detection for vinyl chloride

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Attachment F
Disproportionate Cost Analysis

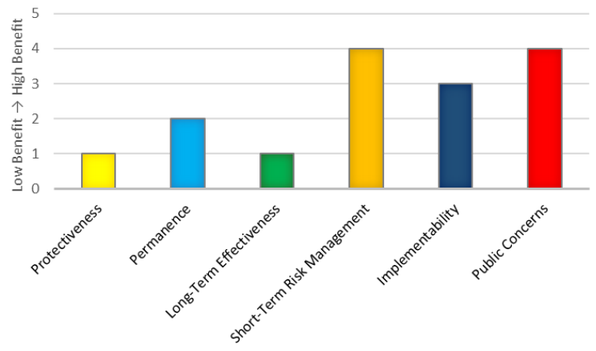
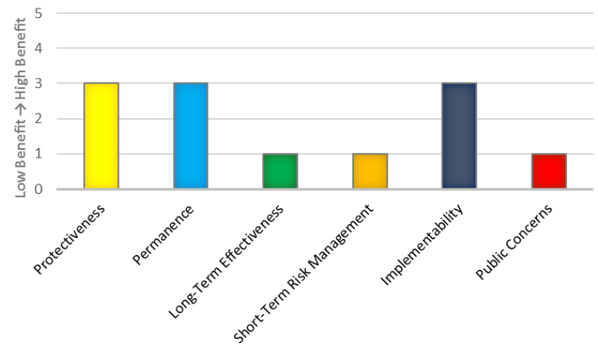
Riverside HVOC Site - Supplemental RI/FS
Detailed Alternative Comparison

	Alternative 1	Alternative 2
Description	**Limited Source Soil Excavation and EOS Bioremediation** Excavation of impacted soils up to 15 feet below ground surface (bgs) beneath the former subject building source area footprint. Excavation to 15 feet bgs requires dewatering. During excavation, geotechnical pilings or posts would support the north slope near State Highway 522. Following soil removal, the excavations would be backfilled to grade. Some impacted soil would be left in place. EOS®, an emulsion of lactate, soybean oil and nutrients, will be injected into downgradient wells to treat chlorinated solvent contaminated groundwater. - Will achieve the protection. - Reduces volume of impacted soil by removal of vadose zone impacted soils and shallow groundwater with highest PCE soil concentrations located in the source area. - Use of removal and off-site disposal. - Most disturbance of impacted soil and groundwater, most short-term risk. - Implementable; current use of property is vacant with full access - Excavation does not remove all impacted soil and groundwater from the site.	**Bioremediation with Carbstrate/Groundwater Recirculation** No soil excavation, except for trenching for product injection and groundwater recirculation lines. Substrate will be injected into vertical wells to treat chlorinated solvent contaminated groundwater. - Will achieve overall protection. - Reduces volume contaminated groundwater - Ongoing groundwater treatment with groundwater recirculation using bioremediation product - Partial disturbance of impacted soils has short-term risk during drilling. - Implementable; current use of property is vacant and bioremediation system/groundwater recirculation can be conducted without significant impact to public park use and vehicle parking.
Area of Containment	0 square feet	0 square feet
Approximate Volume of Soil Removal	4,000 tons of PCE Soil	500 tons of PCE Soil
Compliance with MTCA Threshold Requirements	Yes – Alternative protects human health and the environment.	Yes – Alternative protects human health and the environment.
Restoration Time Frame	10+ years – Potential risk to workers from airborne exposure to chlorinated solvents in soil. Surrounding area includes other retail operations, residences and public park with potential for affected by release during excavation activities. May require institutional controls and hazardous substances may remain.	5 years – Practical due to current and future use for public park and vehicle parking. Shortest restoration timeframe. Minimizes soil excavation to trenching only for underground piping. May require an environmental covenant with long-term monitoring.
Total Score	**19**	**27**
Total Score Summary Comparison	**ALTERNATIVE 1** 	**ALTERNATIVE 2** 
Criteria	Total Score[a]	Total Score[a]
Overall Protectiveness	3	5
Permanence	3	4
Long-Term Effectiveness	4	4
Short-Term Risk Management[b]	2	5
Implementability	5	5
Public Concerns	2	4
Total	**19**	**27**
Estimated Cost	**$2,800,000**	**$1,200,000**

a – Total benefit score on a scale of 1-5, with 5 being the most beneficial

b – Low risk equals high score

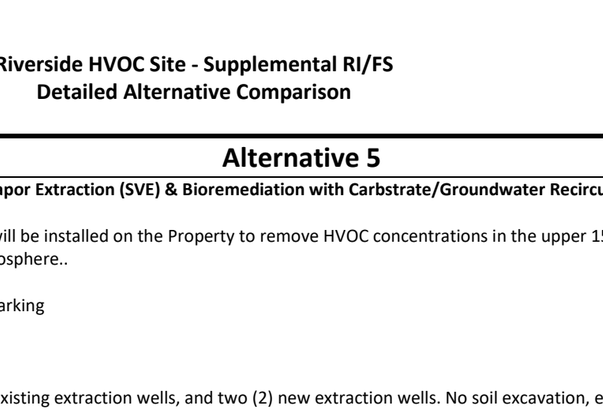
Riverside HVOC Site - Supplemental RI/FS
Detailed Alternative Comparison

	Alternative 3	Alternative 4
Description	**Air Sparging (AS) and Soil Vapor Extraction (SVE)** A series of approximately up to fifteen (15) soil vapor extraction (SVE) wells will be installed on the Property to remove HVOC concentrations in the upper 15 feet of the Site. The wells will be connected to an air blower system, with the HVOC-laden air run through carbon filters prior to discharge into the atmosphere. Air sparging (AS) will be conducted in approximately fifteen (15) wells that contain groundwater using a compressor, and SVE wells will remove HVOC–laden vapor. May not achieve overall protection. - No disturbance of impacted soils, low amount of short-term risk. - Implementable; no restrictions to implement for public park and vehicle parking - Groundwater impacts contained. No access concerns. - Significant Operations & Maintenance requirements. - High degree of uncertainty that sparging would impact deeper portion of the aquifer.	**Soil Excavation and Monitored Natural Attenuation (MNA)** Excavation of impacted soils to 30 feet below ground surface (bgs) beneath the subject building source area footprint. During excavation, geotechnical pilings around the perimeter would support the excavation. Following soil removal, the excavations would be backfilled to grade. Some impacted soil may be left in place. Monitored natural attenuation would be implemented for long-term groundwater monitoring. - Will achieve the protection but through long term monitoring. - Reduces volume of impacted soil by complete removal of vadose zone impacted soils and groundwater with highest PCE soil concentrations located in the source area. - Greatest use of removal and off-site disposal. - Most disturbance of impacted soil and groundwater, most short-term risk. - Significant construction health and safety concerns for workers - Very difficult implementation; current use of property is used for parking and close proximity to State Highway 522. - Excavation may not remove all impacted soil and groundwater from the site.
Area of Containment	0 square feet	0 square feet
Approximate Volume of Soil Removal	500 tons of Soil	45,000 tons of PCE Soil
Compliance with MTCA Threshold Requirements	Yes – Alternative protects human health and the environment.	Yes – Alternative protects human health and the environment.
Restoration Time Frame	10+ years or more – Low exposure to public from airborne exposure. Long restoration timeframe.	10+ years – Potential risk to workers from airborne exposure to chlorinated solvents in soil. Surrounding area includes other retail operations, residences and public park with potential for affected by release during excavation activities. May require institutional controls and hazardous substances may remain.
Total Score	**15**	**12**
Total Score Summary Comparison	**ALTERNATIVE 3** 	**ALTERNATIVE 4** 
Criteria	Total Score[a]	Total Score[a]
Overall Protectiveness	1	3
Permanence	2	3
Long-Term Effectiveness	1	1
Short-Term Risk Management[b]	4	1
Implementability	3	3
Public Concerns	4	1
Total	**15**	**12**
Estimated Cost	**$1,900,000**	**$3,800,000**

a – Total benefit score on a scale of 1-5, with 5 being the most beneficial

b – Low risk equals high score

Riverside HVOC Site - Supplemental RI/FS
Detailed Alternative Comparison

	Alternative 5
Description	**Soil Vapor Extraction (SVE) & Bioremediation with Carbstrate/Groundwater Recirculation** A series of approximately up to twelve (12) soil vapor extraction (SVE) wells will be installed on the Property to remove HVOC concentrations in the upper 15 feet of the Site. The wells will be connected to an air blower system, with the HVOC-laden air run through carbon filters prior to discharge into the atmosphere.. - No disturbance of impacted soils, low amount of short-term risk. - Implementable; no restrictions to implement for public park and vehicle parking - Groundwater impacts contained. No access concerns. - Significant Operations & Maintenance requirements. Up to six (6) new injection wells, three (3) converted injection wells, two (2) existing extraction wells, and two (2) new extraction wells. No soil excavation, except for trenching for product injection and groundwater recirculation lines. Substrate will be injected into vertical wells to treat chlorinated solvent contaminated groundwater. - Will achieve overall protection. - Reduces volume contaminated groundwater - Ongoing groundwater treatment with groundwater recirculation using bioremediation product - Partial disturbance of impacted soils has short-term risk during drilling. - Implementable; current use of property is vacant and bioremediation system/groundwater recirculation can be conducted without significant impact to public park use and vehicle parking.
Area of Containment	0 square feet
Approximate Volume of Soil Removal	50 tons of Soil
Compliance with MTCA Threshold Requirements	Yes – Alternative protects human health and the environment.
Restoration Time Frame	2+ years or more – Low exposure to public from airborne exposure. Shorter restoration timeframe.
Total Score	**28**
Total Score Summary Comparison	
Criteria	Total Score[a]
Overall Protectiveness	5
Permanence	5
Long-Term Effectiveness	4
Short-Term Risk Management[b]	5
Implementability	5
Public Concerns	4
Total	**28**
Estimated Cost	**$1,600,000**