DRAFT FINAL REMEDIAL INVESTIGATION / FEASIBILITY STUDY REPORT
BOTHELL FORMER HERTZ FACILITY
BOTHELL, WASHINGTON

HWA Project No. 2007-098-2019

Prepared for
City of Bothell
August 10, 2017

HWA GEOSCIENCES INC.

- *Geotechnical Engineering*
- *Hydrogeology*
- *Geoenvironmental Services*
- *Inspection & Testing*

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1.0 INTRODUCTION

This Draft Remedial Investigation/Feasibility Study Report (RI/FS) has been prepared for the Bothell Former Hertz Facility (the "Site") located in Bothell, Washington (Figure1). The RI/FS was conducted under Agreed Order number DE 8375, dated May 12, 2011, between the City of Bothell (City) and the Washington State Department of Ecology (Ecology) to address contamination from hazardous substances related to historical releases of hazardous substances at the Site. Requirements under the Agreed Order include preparation of an RI/FS report, followed by the development of a draft Cleanup Action Plan (dCAP) after approval of the final RI/FS report.

The City acquired the Bothell Hertz property in 2009 for construction of the SR 522 realignment, and entered into an Agreed Order with Ecology in 2011. Investigative activities were initiated in 2008, including a pre-purchase phase II Site Assessment, and explorations in support of the roadway design. RI activities were finalized in 2016. Interim action soil cleanups were conducted in 2010, 2012 and 2013 at the Site.

More recent RI activities were performed between February 2013 and March 2015 following Ecology's approval of the final RI/FS Work Plan and Addendum#1 (Ecology letter dated January 11, 2013) , and in accordance with the Ecology-approved project work plans (HWA 2010a, b; Sep 2012 & Nov 2012). Due to accessibility issues (the presence of an active roadway at the time, SR 522/Main Street/SR 527 intersection), Ecology approved a phased approach to conduct limited RI's whose results would ultimately be incorporated in this final RI/FS report. This report documents the results of all prior investigations and interim action soil cleanups conducted at the Site. The City owns the Site, a portion of which accommodates realigned SR. Figure 2 depicts the alignment of SR 522 and Bothell Way NE through the Site and adjacent properties. The realignment of SR 522 split the Site into three areas as shown on Figure 2. The two new lots north and south of the new SR 522 roadway will be redeveloped as part of the City's overall Downtown Revitalization Plan.

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The interim action TPH-soil cleanups conducted prior to and concurrent with this RI were completed in three phases; the first one in 2010, before the roadway realignment; the second in March 2012 during utility work prior to the SR 522 roadway realignment, and the third in February/March 2013 during the roadway realignment. This phasing was necessary in order to effectively manage access to contaminated soils beneath the old (operational in 2010) and the new roadways and utilities (operational in 2013), with minimal impacts to traffic and construction activities. Tasks performed to date include:

1. Preparation and submittal to Ecology of Deliverable 6 - *Interim Action Work Plan* (HWA, 2010b)
2. Preparation and submittal to Ecology of *Documentation of Soil Cleanup at Bothell Former Hertz Facility* (HWA, 2011)
3. Preparation and submittal to Ecology of Deliverable 1 - *Remedial Investigation Feasibility Study Final Work Plan* (HWA, August 2011 draft & September 2012 final); and Technical Memorandum *Amendment 1 to the RI/FS Work Plan* (December 2012)
4. Implementation of the *Remedial Investigation Feasibility Study* - Deliverable 2 (City of Bothell Letter February 4, 2013 & HWA Technical Memorandum, Implementation of RI report Phase 1B May 31, 2013)
5. Test pit sampling Letter Report for *Results for Construction - Soil Characterization & Limited Remedial Action* (HWA, 2012b)
6. Completion of interim action soil cleanup, and submittal of interim action report (HWA, 2014)
7. Completion of four Quarterly Ground Water Letter Reports submitted as part of the area-wide ground water monitoring task being performed under the Bothell Landing Agreed Order (HWA, 2014b, 2014c, 2015a, 2015b).

Remaining tasks to fulfill terms and conditions of the Agreed Order include preparation of this RI/FS report (Deliverable 4), and draft cleanup action plan (dCAP, Deliverable 5).

1.1 Site Location and Description

The City acquired the Former Hertz Facility from Odegard and Boseck, LLC in June 2009. The Site is generally located at 18030 Bothell Way NE in Bothell, Washington between downtown Bothell and the Sammamish River (Figures 1 and 2a, 2d). The Site is listed by Ecology under Facility Site ID No. 11687976 as the AA Rentals of Bothell facility. The Site is also known as the former Hertz Rentals Property because Hertz Equipment Rentals Corporation was the last tenant. The general latitude of the site is 47.75899 and the general longitude is -122.20927. The former King County Tax Parcel number for the Site is 9457200050.

The legal description of the former Hertz property is:

> TRACTS 5 AND 6 WSILSON GARDEN TRACTS ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 22 OF PLATS PAGE 91 RECORDS OF KING COUNTY WASHINGTON EXCEPT THOSE PORTIONS OF SAID TRACTS 5 AND 6 CONVEYED TO THE STATE OF WASHINGTON FOR ROAD PURPOSES RECORDED

UNDER RECORDING NUMBERS 2783219 AND 2783222 AND EXCEPT PORTION OF SAID TRACTS CONVEYED TO CITY OF BOTHELL BY DEED RECORDED JANUARY 24 1997 UNDER RECORDING NO 9701240290

The 1.92-acre former parcel was located south of the former Bothell Way Northeast (SR 522) but now bisected by the realigned SR 522. The 1.92-acre parcel no longer exists in its original configuration (as depicted in the Agreed Order, see Figure 2c), although the City currently still owns the land, which includes public right-of-way for the newly constructed and re-aligned SR 522 as well as two newly conjugated parcels one of which is currently being marketed for sale to a developer (Lot D, a portion of which is located on the northern half of this Site, see Figure 2A) and the other which the city will retain as part of the extended park property. The property was formerly developed with a combined office warehouse and shop building that occupied approximately one quarter of the property, as well as three smaller buildings along the east side of the property, with asphalt-paved parking and storage constituting most of the remainder of the property. All buildings were demolished in May 2010, in advance of the soil cleanup work, subsequent construction of the new roadway, and redevelopment of the Site as part of the City's overall Downtown Revitalization Plan.

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*." Information about Site boundaries is obtained and evaluated through the RI process. Whereas the Site was originally defined as a 1.92-acre property (which no longer exists due to re-platting of parcels and construction of the new roadways) the findings of this RI demonstrate that hazardous substances at the Bothell Former Hertz Facility have come to be located in the area identified in red as the "site" on Figure 2B.

1.2 AUTHORIZATION / SCOPE OF WORK

HWA GeoSciences' (HWA) work for this project was authorized under an On-Call Hazardous Materials Services Consultant Agreement with the City dated April 2010. HWA's scope of work for this portion of the project included:

- Perform environmental assessments, prepare technical documentation and develop remedial designs for cleanup of contaminated downtown properties
- Provide permitting support
- Provide contract bid services
- Assist in coordinating with State and Federal environmental regulatory agencies.
- Conduct cleanup monitoring, confirmation sampling, backfill and compaction monitoring during construction
- Prepare and submit to Ecology an RI/FS work plan
- Prepare and submit to Ecology an interim action work plan and soil cleanup report

- Prepare the Agreed Order deliverables including this RI/FS report and dCAP

1.3 OBJECTIVES

The objective of the RI/FS report is to meet the requirements of the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Cleanup Regulation (Washington Administrative Code [WAC] 173-340) to characterize the Site and to evaluate any proposed remedial actions to address the contamination.

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 are then used to complete a FS to evaluate remedial alternatives for the Site and recommend a cleanup action as described in WAC 173-340-360 through 173-340-390. The proposed cleanup alternatives are then detailed in a DCAP.

The primary historical environmental concerns at the Site are associated with petroleum- and metals-impacted soil related to historic petroleum releases at the Site.

Specific objectives of the RI/FS include:

- Identify potential sources of hazardous substances for all potentially contaminated media and carry out sufficient investigation to characterize the distribution of hazardous substances present at the site and any associated threat to human health and the environment.
- Determine the lateral and vertical extent of total petroleum hydrocarbon (TPH), halogenated volatile organic compounds (HVOCs), and metals impacts to soil
- Determine the extent of ground water TPH, HVOC, and metals impacts
- Investigate Site geology, hydrogeology, and ground water flow/transport characteristics, including the potential for preferential contaminant migration pathways (e.g. utility trenches)
- Develop a Site conceptual model (exposure pathways and receptors)
- Establish preliminary 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

Surface water and sediment sampling were not conducted as part of this RI, and were not included in any of the RI work plans submitted to Ecology, because Site history and exploration results did not suggest any surface water or sediment impacts related to Site sources.

1.4 HISTORIC PROPERTY USE AND PREVIOUS SITE ASSESSMENTS

Details of historic property use and the site assessments performed to-date at the Site can be found in ECOSS (2008), DLH (1993a, b; 2007), and HWA (2008a, b). The following is a summary of those assessments.

Past owners of the former Hertz property include the following:

- Odegard and Boseck, LLC, 1989-2009
- City of Bothell, 2009-present

According to historical information and interviews, the Site has been developed since 1918; businesses operating at the Site included automobile repair and dealerships, fueling, and equipment rental (ECOSS, 2008). In 1993 three leaking underground storage tanks (LUSTs) were removed from the property followed by site assessments (DLH, 1993a, b; 2007). With reference to Figure 3, these were:

1. A tank containing less than 1,100 gallons of kerosene located in the northwestern area of the Site;
2. A 500-gallon diesel fuel tank located in the east-central portion of the Site; and,
3. A 7,000-gallon leaded gasoline tank co-located in the same excavation as the diesel fuel UST.

To the north of the Site, the Bothell Service Center Simon & Son (18107 Bothell Way NE and previously named Simon and Sons Fine Dry Cleaning) is listed on Ecology's Confirmed or Suspected Contaminated Sites List (CSCSL). This former dry cleaning facility had releases of HVOCs to ground water with off-Site migration of contamination in the direction of the Bothell Former Hertz Facility.

The Phase II Environmental Site Assessment (HWA, 2008b) did not identify any USTs remaining at the Site. Soils in the northern and eastern portions of the Site in the vicinity of the three former LUSTs contained petroleum hydrocarbons exceeding Ecology MTCA Method A cleanup levels, and associated volatile organic compounds (VOCs) below cleanup levels. Ground water in several areas of the Site, including near the LUSTs, also contained petroleum hydrocarbons and VOCs exceeding MTCA Method A cleanup levels. Petroleum hydrocarbons detected in soil and ground water at the Site appeared to be from multiple releases, as several petroleum types were identified (i.e. gasoline, diesel, oil). Some of the VOCs detected in ground water at the Site are typically associated with petroleum products, while some chlorinated VOCs detected in ground water originated at the Bothell Service Center Simon & Son site north and hydraulically upgradient of the Site. Other investigations in the vicinity have also confirmed impacts originating at the Bothell Service Center.

1.5 CURRENT AND PLANNED SITE USE

Following building demolition and the 2010 independent remedial action (HWA, 2011), a new storm utility was installed in 2012, followed by construction of the new SR 522 roadway, completed in 2013. Remnant portions of the Site not occupied by the SR 522 roadway will be redeveloped as part of the City's overall Downtown Revitalization Plan.

Figure 2b shows zoning in the study area. Zoning of the Site is designated as:

- Northeast portion of Site: Downtown Core - mix of ground floor shops, restaurants, entertainment venues, and personal services continuously lining key streets, with residences and offices above the ground floor.
- Northwest portion of Site: Downtown neighborhood - urban character, buildings built significantly closer together, closer to the sidewalk, and with a greater mixture of uses; buildings more typically single-use than Downtown Core; provides transition between the Downtown Core and the characteristically less urban and more residential uses beyond in Downtown Transition districts.
- South portion od Site: Park and Public Open Space - pedestrian oriented retail is allowed and the land is intended for uses including passive enjoyment of natural open space, picnicking, pet-walking, etc.

No changes to the current zoning are anticipated.

2.0 ENVIRONMENTAL SETTING

2.1 PHYSICAL CONDITIONS / TOPOGRAPHY

Figure 3 shows the Site plan prior to the soil cleanup. The former Hertz property was approximately 1.92 acres in area. The property is generally flat with an elevation of approximately 30 feet above mean sea level. The surrounding land is generally flat or slopes down to the south towards the Sammamish River. Portions of the property and land to the west was preloaded and regraded to mitigate compressible peat soils prior to construction of the roadway.

2.2 GEOLOGY

Per HWA (2008b; 2013), soil at the Site typically consists of approximately two to seven feet of silty sand fill over alluvial or glacial soils consisting of interbedded silt and silty sand. Much of the fill material is likely dredged spoils placed on the property from realignment of the Sammamish River in the 1960s. Underlying fill across most of the Site south of the former SR 522 is primarily recent alluvium (Booth and others, 2004) consisting predominantly sand and silty sand most likely deposited by the adjacent Sammamish River. Peat or silt beds with high organic content up to four feet thick are present in alluvial soils in the southern extent of the Site generally 14 feet below ground surface (bgs). These organic-rich beds may not represent a contiguous layer.

Dense silt, interpreted to be glacial or interglacial in origin, was encountered in borings HZ-MW14D and HZ-MW15D (see Figure 4) at approximately 40 and 25 feet bgs, respectively. These observations were generally consistent with those made during previous HWA subsurface investigations within and south of the former SR 522 roadway, as well as available subsurface information from the Bothell Service Center Simon & Son site and former Wexler / Schucks property on the north side of the former SR5 22 roadway (HWA, 2013).

The former alignment of the SR 522 roadway has been interpreted as the mapped boundary between alluvial soils to the south, and glacially-derived soils to the north. Some soils on either side of the former SR 522 roadway have similar textural classifications, but differ in origin, with density being the primary differentiator. Glacial soils are generally more dense than alluvial soils. Figures 5 and 6 show geologic cross sections through the study area for this investigation (with lines of section shown on Figure 4). Logs of the explorations are included in Appendix A.

2.3 HYDROGEOLOGY

The water table at the Site is approximately 5 to 8 feet bgs with a higher surface occurring in the wet season. Ground water flow is to the east-southeast (Figure 7), toward the Sammamish River at a gradient, i, of 0.011 to 0.046 feet per foot. Appendix B contains ground water gradient maps prepared on various dates, when more wells were present on the Site.

The horizontal hydraulic conductivity, K, for the water-bearing zone was estimated to be 2.0 x 10^{-3} to 5.6 x 10^{-3} feet per minute (2.9 to 8.1 feet/day) using slug testing data collected at the adjacent Bothell Landing site (Parametrix, 2009). Assuming an effective porosity, n_e, of 0.2 for the aquifer materials at the Site, ground water flow velocities in the water-bearing zone, based on the relationship $V = Ki / n_e$ are estimated to range from:

2.9 ft/d x 0.011 / 0.2 = 0.16 feet/day = 58 feet/year to
8.1 ft/d x 0.046 / 0.2 = 1.9 feet/day = 677 feet/year.

3.0 INTERIM ACTION SOIL CLEANUPS

The interim actions were performed in order to allow for the construction of the realigned SR522 roadway in newly remediated areas. The cleanup for contaminated soil at the Site included excavation and off-site disposal of all accessible impacted soils as documented in various soil cleanup documents submitted to Ecology (refer to Section 1.0). The following sections describe the cleanups, and the confirmational sampling results and findings obtained as part of the interim cleanups are incorporated into this RI/FS report by reference. Photos taken during the cleanups as well as supporting documentation (e.g., laboratory certificates of analyses, UST site inspection forms, and certificates of soil disposal) are included in previous HWA reports (HWA, 2011; 2014).

2010 cleanup action – The City engaged a construction contractor, Hos Brothers Construction of Woodinville, Washington, to perform the soil cleanup from August through October 2010; HWA personnel monitored the cleanup activities and sampled soil to confirm successful cleanup. Prior to Site cleanup, the Contractor personnel demolished all the building slabs and parking lots and cleared and grubbed the Site in preparation for the soil cleanup and subsequent construction of the SR 522 realignment.

2012 cleanup action – The City engaged a construction contractor, KLB of Everett, Washington to perform additional limited soil cleanup in 2012 during construction of the new storm water line that was installed prior to roadway work in the area. HWA personnel monitored the cleanup activities and sampled soil. Remnant petroleum-contaminated soil in exceedance of MTCA cleanup limits was identified, but further soil excavation was postponed until later construction phases (below).

2013 cleanup action – The City engaged a construction contractor, Guy Atkinson of Renton, Washington to perform additional limited soil cleanup during the 2013/2014 construction season, during construction of the new SR522 roadway. HWA personnel monitored the cleanup activities and sampled soil to confirm successful cleanup.

3.1 Pre-Cleanup Characterization

2010 pre-cleanup action – Prior to large scale excavation activities at the Site, HWA personnel conducted test pit characterization (i.e. "pot holing") to delineate clean overburden soils at the Site, and to assess the lateral and vertical extent of TPH-impacted soils with respect to previous investigations.

HWA's test pit characterization activities included collecting samples of TPH-impacted soil for analyses of petroleum hydrocarbon fractionation and other target compounds in order to calculate MTCA Method B risk-based soil cleanup levels for protection of human health and potable ground water (see Section 3.3 above). The results of the of the Method B risk analysis are presented in Appendix C and summarized in Table 1.

Prior to the independent remedial action, twenty nine test pits were excavated between August 30th and September 16th 2010 using a rubber-tired backhoe operated by the contractor. Figure 8 shows test pit locations. Test pits were excavated to a maximum depth of 10 feet bgs. HWA personnel collected 55 representative soil samples at various depths within the test pits for chemical analysis. The test pit data indicated that 1,302 cubic yards (approximately 2,080 tons) of soil could be stockpiled on Site for later reuse. Subsequent sampling and analyses of the soil stockpiles confirmed that the soil was chemically and structurally suitable for reuse; the analytical data for the stockpiled soil are summarized in Table 2.

2012 pre-cleanup action – Prior to installation of the new storm line, HWA sampled soils during construction to characterize trench spoils for disposal. HWA sampled characterization test pits at the Site with the assistance of the Contractor in February and March, 2012. Ten test pits were located along planned utility alignments (Figure 8). Petroleum exceeding cleanup levels was identified at one test pit (TP-4). Test pit depths were selected to be representative of required construction excavation depths. The test pit results indicated soils with petroleum exceeding MTCA cleanup levels at one location along the new utility alignment.

2013 pre-cleanup action – Prior to construction of new/realigned roadway, HWA sampled characterization test pits at the Site with the assistance of the Contractor in July 2012. This work was done in anticipation of the limited cleanup action scheduled for 2013. Ten test pits were completed on the parcel for characterization purposes, and three of these pits (HTP-8,-9,and -10) were located north and south of the storm water line to delineate potential contaminated soils identified in 2012 (Figure 8). Petroleum exceeding cleanup levels was identified at test pit HTP-10. Test pit depths were selected to be representative of required construction excavation depths.

3.2 SOIL EXCAVATION

2010 cleanup action – The Contractor excavated contaminated soil at the Site between September 8 and September 22, 2010. HWA directed the cleanup based upon prior sampling, as well as field screening information such as soil color, odor, and photoionization detector readings. When the screening information indicated clean soil, HWA collected confirmation samples for laboratory analyses to document that the soils left in place met the preliminary Site cleanup levels. Where confirmation sample results exceeded cleanup levels, the Contractor and HWA performed additional excavation and sampling until the cleanup goals were achieved.

Soil excavation generally proceeded from north to south. Contaminated soil was excavated generally down to the contact with a peat layer underlying the Site which was found to meet the cleanup levels. The approximate limits of soil excavation are shown on Figure 8. The final excavation was approximately 180 by 180 feet in its maximum width and length. The depth of the excavation ranged from about 5 to 16 feet bgs.

A total of 11,182.41 tons of soil were excavated and transported to the CEMEX USA soil remediation facility in Everett, Washington. A copy of the CEMEX Release of Liability/Certificate of Disposal for the soil is presented in HWA (2011).

Four buried hydraulic lifts and their associated oil reservoirs were removed early in the cleanup. The lifts consisted of vertical steel tubular vessels within which the hydraulic cylinders were housed. The cylinders did not appear to be breached or leaking. The lifts and oil reservoirs were decontaminated, and the housings recycled along with rebar and other steel reclaimed during Site demolition.

On September 13th a small old wooden catch basin was unearthed in the northeastern extent of the excavation at the location shown on Figure 8. The catch basin held lube oil floating on top of water, and did not appear to have a functional outlet or to connect to any other utilities. Nor did it appear to have been in service for many years as indicated by the limited extent of oil impacted soil surrounding the catch basin. HWA collected a sample of the petroleum impacted soil adjacent to the catch basin and submitted it to OnSite Environmental for analysis (sample P-PEX-11 in Table 2). On September 14th an industrial vacuum truck service pumped water and oil out of the catch basin and transported it to a petroleum reclamation facility. The Contractor subsequently excavated the catch basin components and the short lengths of associated drain pipe and transported them with petroleum impacted soil to the CEMEX facility for thermal treatment.

2012 cleanup action – During test pit excavation prior to storm line installation (Drainage Improvements Project), petroleum hydrocarbons (in the gasoline range) exceeding MTCA cleanup levels were detected in one sample collected at test pit TP-4 (sample TP-4-8 in Table 2). This sample was collected from fill soils near the ground water interface that exhibited hydrocarbon staining and odors. HWA recommended overexcavation of the trench by approximately five feet on either side in order to remove impacted soils and prevent the need for shoring/supporting and/or compromising the newly constructed storm water pipe during future construction activities.

The Contractor conducted the trench over-excavation during pipe installation. Figure 8 shows the overexcavated areas. All other areas along the 36-inch diameter pipe alignment were excavated to depths of eight to fifteen feet, in a trench generally around five feet wide. The area of overexcavation (beyond that normally required for utility installation) was approximately 60 feet long and ten to 15 feet wide (Figure 8).

Approximately 781 tons of excavated petroleum-affected soils from the area around TP-4 were disposed off-Site at Allied Waste's Subtitle D Roosevelt Regional Landfill during the drainage improvements project, in March 2012. Disposal documentation for the soil is presented in HWA (2011).

2013 cleanup action – HWA recommended additional lateral trench overexcavation in the vicinity of test pit TP-4 north of the new stormwater conveyance, where gasoline-range and oil-range hydrocarbons exceeding MTCA Method A cleanup level had been detected (Figure 8, Table 2). HWA recommended overexcavation of an area north of the stormwater trench toward the former Hertz soil remediation area approximately five feet on either side in order to remove remnant impacted soils and prevent the need for shoring/supporting and/or compromising the newly constructed storm water pipe during future construction activities in the vicinity.

On March 6, 2013, the Contractor excavated the area of remnant petroleum-affected soils. Figure 8 shows the overexcavated area. Approximately 306 tons of excavated petroleum-affected soils from the area around H-TP-11 were disposed off-Site at CEMEX's thermal treatment facility during the 2013 cleanup action. Disposal documentation for the soil is presented in HWA (2014).

3.3 CONFIRMATION SAMPLING

HWA collected 23 excavation sidewall and 25 excavation bottom samples to confirm soil cleanup (Table 2). Figure 8 depicts confirmation sample locations. Twelve pre-excavation test pit and trench samples collected at the extents of the excavation, and in some cases beyond, are included in Table 2 as confirmation samples because the soils represented by those samples did not contain chemicals of potential concern at concentrations exceeding Site cleanup levels. Perusal of Table 2 confirms that the cleanup achieved the Site cleanup levels. In particular, the calculated Method B TPH soil preliminary cleanup level of 220 mg/kg was achieved in the vicinity of the former kerosene LUST (samples H-PEX-4, H-PEX-7, H-PEX-8, and H-PEX-17).

3.4 GROUND WATER MANAGEMENT

2010 cleanup action – Minor ground water seepage was present at approximately 8 to 10 feet below original grade at the Site. Ground water flow into the excavation was managed by creating sumps and ponding the water behind soil berms. Accumulated water was removed with a gasoline powered 'trash' pump for temporary storage and settling in an on-Site 20,000 gallon storage tank. This dewatering effluent was stored, tested, and discharged under a King County Industrial Waste Division temporary dewatering discharge permit to sanitary sewer, for treatment at King County's wastewater treatment plant.

2012 cleanup action – Ground water was encountered at approximately eight to ten feet bgs, and was dewatered by a combination of well points outside of the excavation and sumps within the excavation. Ground water was pumped to on-Site storage tanks for holding and testing prior to discharge to sanitary sewer per the King County discharge permit issued for the project.

2013 cleanup action – Ground water was encountered at approximately ten feet bgs, but was limited to seeps and dewatering was not required as part of the excavation.

3.5 ORC Placement

2010 cleanup action – To facilitate bioremediation of ground water following soil removal, contractor personnel applied 1,416 pounds of Oxygen Release Compound® (ORC) along the excavation sidewalls and bottom. The ORC was prepared by mixing the powdered compound with water in an excavator bucket to form a slurry. HWA estimates that the ORC slowly released dissolved oxygen to ground water following the cleanup thus encouraging destruction of residual hydrocarbons in soil and ground water by naturally-occurring aerobic bacteria in the soil, and reducing the possibility of re-contamination of clean fill.

2012 cleanup action – The 2012 cleanup action was limited to overexcavation of the storm water line installation. No ORC was used.

2013 cleanup action – The 2013 excavation proceeded northwards of the 2010 excavation and removed the polyethylene sheeting placed in 2010 until cleanup levels were met, therefore no ORC was used.

3.6 Well Decommissioning

Prior to cleanup actions at the Site, Slead Construction Inc., a Washington State licensed well drilling contractor under subcontract to Hos Brothers, decommissioned ground water monitoring wells HZ-MW-8, HZ-MW-10, HZ-MW-11, and HZ-MW-13 in accordance with WAC 173-160-381. These wells were decommissioned because of their locations within the cleanup excavation. Slead Construction personnel also decommissioned monitoring well HZ-MW-08 following the cleanup; although not within the cleanup excavation footprint, this well was decommissioned because it would eventually be covered by the new roadway.

No other wells at the Site were impacted during the 2012 or 2013 cleanups.

3.7 Site Restoration

2010 cleanup action – After excavation of contaminated soil and receipt of confirmation sample analytical results, Hos Brothers personnel backfilled and compacted the excavation with a combination of clean imported structural fill soils meeting the requirements of Select Borrow, per WSDOT Standard Specification 2-03.3(14)K, and 1,302 cubic yards of previously excavated soils from the Site that were tested and found to meet Site cleanup levels. The imported select borrow was obtained from CEMEX, who mined the sandy soils from a quarry in Granite Falls, Washington (i.e., not excavated or reused from any developed property).

The select borrow and native soils were compacted to Method B of WSDOT Standard Specification 2-03.3(14)C, i.e., 90 percent of maximum dry density as determined using test method ASTM D 1557 (Modified Proctor) below two feet bgs, and 95 percent of maximum dry density for the upper two feet.

The backfilling occurred in stages as portions of the Site were confirmed to have been cleaned up. The excavation was generally backfilled from the northwest to southeast as contaminated soil was removed from the Site. The remediation area was then hydro-seeded for erosion control.

2012 cleanup action – The 2012 excavation was backfilled with clean imported structural fill soils meeting the requirements of Gravel Borrow, per WSDOT Standard Specification 2-03.3(14)J.

2013 cleanup action – The 2013 excavation was also backfilled with clean imported structural fill soils meeting the requirements of Select Borrow, per WSDOT Standard Specification 2-03.3(14)K.

4.0 REMEDIAL INVESTIGATION

Site investigation activities were initiated in 2008, and RI activities finalized in 2016. Interim action soil cleanups were conducted in 2010, 2012 and 2013 at the Site. More recent RI activities were performed between February 2013 and March 2015 following Ecology's approval of the final RI/FS Work Plan and Addendum#1 (Ecology letter dated January 11, 2013), and pursuant to the Ecology-approved project work plans (HWA 2010a, b; Sep 2012 & Nov 2012). Due to accessibility issues due to the construction for realigning, Ecology approved a phased approach to conduct limited RI's whose results are now incorporated in this RI/FS report. RI phases identified in the work plans include:

Phase 1 RI activities – completed during and after construction of the new SR522 roadway and abandonment of the existing roadway in 2012-2013. Phase 1 RI activities included:

- Phase 1A - Additional soil sampling for utility trenches during construction of the new SR522 roadway. This work was documented in the Test pit sampling Letter Report for *Results for Construction - Soil Characterization & Limited Remedial Action* (HWA, 2012b) - Appendix D
- Phase 1B - Installation of monitoring wells and direct push probes along the active SR522 right of way in between the former Hertz property and the Bothell Service Center Simon & Son property, to confirm that HVOCs from Bothell Service Center Simon & Son property have migrated across the roadway, into utility trenches, and onto the former Hertz property. This work was documented in the HWA *Technical Memorandum May 28, 2013 Results of Remedial Investigation, Phase 1B* (HWA, 2013) - Appendix E
- Phase 1C - Installation of monitoring wells on the former Hertz property after abandonment of the existing highway following completion of the new SR522 roadway construction. Wells HZMW-16, 17, 19, and 20 were installed in early 2014, prior to the one year of area wide ground water monitoring.

Phase 2 RI activities included:

- Review and analysis of ground water sampling data collected under the expanded area-wide Bothell Landing RI
- Hydrogeologic measurements of ground water elevations and aquifer characteristics to determine flow directions and velocities, coincident with the quarterly ground water monitoring
- Analysis and inclusion of ground water data from the adjacent Bothell Landing RI, as needed
- One year of quarterly ground water monitoring at the former Hertz property and other areas (coordinated with the area wide ground water study under Bothell Landing AO
- A data gap analysis to complete the requirements for a RI/FS per WAC 173-340-350

Phase 3 RI activities included:

- Investigations and modeling necessary to evaluate subsurface vapor intrusion of chlorinated VOCs and petroleum hydrocarbons into buildings (See Section 7.9)

Phase 4 RI activities included:

- Chlorinated VOC source delineation at the Bothell Service Center Simon & Son (BSC) property, and other properties, if found to be part of the former Hertz Site. Since this RI investigation has surmised that BSC's VOC plume is not comingled with the TPH originating from Hertz, it is not discussed in this RI/FS report, because the VOC impacts are being addressed under the BSCVCP, and BSC is not part of the former Hertz Site.

Phase 5 RI activities included:

- Investigations necessary to evaluate potential source control options and to close any outstanding data gaps, for which additional work plan supplements were submitted to Ecology
- Preparation of a complete RI report (this RI/FS report)

Locations of Site wells included in the one year of ground water monitoring performed during Phase 2 are shown on Figure 9. TPH concentrations exceeding MTCA Method A cleanup levels were detected at a limited number of wells during Phase 2 monitoring. Locations of the wells where these concentrations were detected are also shown on Figure 9.

5.0 QUARTERLY GROUND WATER MONITORING

5.1 Area Wide Ground Water Monitoring

One year (four quarters) of ground water monitoring for the Site was performed as part of the area-wide ground water network (see Figure 9) identified in the Bothell Hertz RI work plan (see Appendix F), as established by Ecology under the Bothell Landing Agreed Order (Re: Phase 3 RI activities in Section 5 of the approved Bothell Landing RI Work Plan, HWA 2011).

The monitoring activities were conducted for four quarters between May 2014 and March 2015, with letter reports documenting the test results submitted to Ecology on a quarterly basis. Wells identified in the Ecology-approved ground water monitoring network for the Site were retained and sampled for the duration of the 1-year monitoring event, except BLMW-8, which was inaccessible due to construction activities during the first round (June 2014).

Ground water at the Site has been investigated for petroleum, HVOCs, and metals since 2008. HVOC ground water contamination has been an ongoing concern, primarily due to contaminant migration from the north originating at the Bothell Service Center Simon & Son site (Figure 2a). For evaluation purposes, both historical and current ground water data were compared to MTCA Method A Cleanup Levels for Ground Water (WAC 173-340-900 Table 720-1). Monitoring well locations are shown on Figures 9A and 9B,which show the approved area-wide network. Historical ground water analytical data were compiled by HWA (2008b; 2013), and are presented in Appendix B. Post-soil-cleanup ground water analytical data are presented in Table 3, and copies of the laboratory reports are included in Appendix G. A data quality assessment of the post-soil-cleanup ground water monitoring analytical data is included in Appendix H. Monitoring well logs are included in Appendix A.

5.2 Petroleum Hydrocarbons (Including BTEX)

Referring to Figure 4 for well locations and Appendix B for historic ground water analytical data, prior to the soil cleanups, gasoline-range petroleum hydrocarbons and benzene were detected above MTCA Method A cleanup levels in boring HZ-B7 ground water. Diesel- and oil-range petroleum hydrocarbons were detected above Method A cleanup levels in monitoring well HZMW-8, oil-range petroleum hydrocarbons were detected in well HZMW-1 above cleanup levels.

HZ-B7 was located within the excavated area; all soils and ground water surrounding it were removed in 2010. HZMW-8 was decommissioned due to interference with the new roadway, but was replaced by HZMW-12 located downgradient. HZMW-1 is still in service, and has had no petroleum hydrocarbons detected in ground water above laboratory reporting in the four quarters of post-soil cleanup monitoring.

Referring to Figure 4 for locations and Table 3 for data, following the soil cleanups, oil-range petroleum hydrocarbons were sporadically and inconsistently detected above MTCA Method A cleanup levels in monitoring wells HZMW-19, BLMW-8, and BC-16, as follows:

HZMW-19 - TPH- oil detected 1 of last 4 rounds (8/2015) at 580 ug/L (cleanup level is 500)
BLMW-8 - TPH-oil detected 3 of last 4 rounds (12/2014, 3/2015, and 12,2015) at 540, 630, 560, and 510 ug/L (cleanup level is 500)
BC-16 - TPH-diesel detected 2 of last 4 rounds (12/2014 and 3/2105) at 550 and 600 ug/L, and TPH-oil detected 2 of last 4 rounds (3/2105) at 600 (cleanup level is 500)

Petroleum hydrocarbons were sporadically and inconsistently detected, mostly just above cleanup levels in these wells. The volatile organic compounds (VOCs) benzene, toluene, ethylbenzene, and xylenes (BTEX) have not been detected above Method A cleanup levels following the soil cleanups.

5.3 HVOCs

The installation of deep and shallow well pairs was done as part of the Phase 1B activities identified in the RI work Plan (Appendix F). These wells were previously identified as Os, Od, Ps & Pd, which now correspond to HZMW-14S, HZMW-14D, HZMW-15S, and HZMW-15D, respectively (see Figure 4).

Shallow wells – Analytical data are summarized in Table 3 and Appendix B. Tetrachloroethene (PCE) was detected in several shallow ground water samples at the north end of the Site, at concentrations above MTCA cleanup levels. Ground water concentrations in samples collected from the shallow wells and borings in and near the former SR 522 roadway were generally less than most recent reported concentrations on the Bothell Service Center Simon & Son site (Farallon, 2011), with the exception of ground water in monitoring well HZMW-14S, which had a PCE concentration of 4,900 micrograms per liter (μg/L) during one round. The PCE concentration in well HZMW-14S is more comparable to samples collected on the Bothell Service Center Simon & Son site, indicating migration of HVOCs into the former SR 522 roadway. Well HZMW-14S is directly downgradient of the Bothell Service Center Simon & Son source area (Figure 4), and is completed in sandier shallow aquifer soils than is nearby monitoring well HZMW-15S; the sandier soil at well HZMW-14S likely carries increased ground water flow in this area. The HVOCs trichloroethene (TCE) and (cis)1,2 dichloroethene ((cis)1,2-DCE) were also detected in wells HZ-MW14S, HZ-MW15S, HZ-MW1, and borings HB-4 and HB-5. TCE and (cis)1,2-DCE exceeded cleanup levels at well HZMW-14S but not in the remaining ground water samples.

Deep wells – Per the HWA *Implementation of Approved Hertz RI/FS Work Plan, Remedial Investigation Report, Phase 1B, Bothell Former Hertz Facility, Bothell, Washington,* technical memorandum dated May 31, 2013, HWA (2013) - Appendix E, ground water samples were collected from deep wells HZMW-14D and HZMW-15D to assess vertical concentration gradients, and to compare with deep ground water quality at the upgradient Bothell Service

Center Simon & Son and Wexler sites (HWA, 2013). Analytical data are included in Table 3 and Appendix B. PCE and TCE were detected in HZMW-14D and HZMW-15D ground water samples above MTCA cleanup levels. (cis)1,2-DCE was also detected at well HZMW-14D above the cleanup level. Well pair HZMW-14S and 14D exhibited decreasing ground water PCE concentrations with depth, with deeper ground water exhibiting around an order of magnitude lower HVOC concentrations. Well pair HZMW-15S and 15D exhibited a less consistent pattern, with increasing ground water HVOC concentrations with depth during the first (5/2014) and fourth (3/2015) rounds of monitoring (similar to the pattern for soils samples), but decreasing HVOC concentrations with depth during the second and third rounds.

Deep well PCE concentrations were generally higher than some equivalent-elevation ground water samples at the upgradient Bothell Service Center Simon & Son property and the adjacent parcel, but are consistent with or lower than equivalent elevation ground water samples near the source area at the Bothell Service Center Simon & Son site (Farallon 2011; Floyd | Snider, 2010).

Existing wells – HVOCs have not historically been detected in wells HZMW-4 or BLMW-8 during previous sampling rounds in 2008 and 2009. PCE was detected in well HZMW-1 in 2008, but at concentrations below cleanup levels (HWA, 2008b). The increase in PCE over time in well HZMW-1 ground water may be due to continued migration of HVOCs from the Bothell Service Center Simon & Son site, or possibly are related to the soil cleanup conducted at the former Hertz property in 2010. The cleanup included excavation and removal of TPH-impacted soils, which can enhance in-situ biodegradation of HVOCs by depressing the subsurface oxygen levels as well as providing cometabolic substrates for HVOC biodegradation. Thus removal of the TPH-impacted soil and oxygenation of the soils may have caused the increase in HVOC concentrations in this area.

Utilities – Ground water HVOC concentrations in the utility trench borings (HB-4 and HB-5) were generally consistent with equivalent nearby samples in native soils, suggesting that the utility trenches are not acting as preferential migration conduits for HVOCs (HWA, 2013).

5.4 METALS

Historical ground water data compiled by HWA (Appendix B) showed cleanup level exceedances of arsenic in ground water in monitoring well HZMW-8. Post-soil-cleanup ground water samples from wells HZMW-1, HZMW-4, HZMW-12, HZMW-17, and BC-16 had arsenic concentrations exceeding the MTCA Method A cleanup level of 5 µg/L (Table 3, Figure 2e). Heavy metals other than arsenic have not been detected at concentration above Method A cleanup levels in any wells on Site before or following the soil cleanups.

The elevated arsenic concentrations in monitoring wells HZMW-12, BLMW-8, and BC-16 may be either induced by lower redox from ground water contamination from degrading petroleum hydrocarbon compounds or are naturally occurring and related to the extensive peat deposits underlying the area south of the Site. Elevated arsenic concentrations in alluvial aquifers of Snohomish and King Counties have been well documented as a regional issue (HWA, 2007). In particular, elevated arsenic concentrations (up to 169 µg/L) attributed to peat deposits were measured in 20 out of 21 ground water monitoring wells installed by King County in the Sammamish River Valley, the same drainage and geologic environment as the area south of the Site. Where this site is situated, Ecology (2015) determined a natural background of 6.6 µg/L for the Puget Sound Lowlands. Ecology has concluded that the highest beneficial use for ground water is drinking water. Therefore, the relevant cleanup level for this site is 10 µg/L, which is the EPA's current maximum Contaminant Level (MCL) for arsenic in drinking water.

The elevated concentrations in ground water may also be due to reducing conditions created by prior releases (e.g., petroleum hydrocarbons). There are no strong correlations or consistency between arsenic concentrations and dissolved TPH contamination or the presence of peat deposits. Given this uncertainty, Ecology has determined that the highest beneficial use of ground water is for drinking water purposes. The EPA MCL for arsenic in drinking water is 10 µg/L and is the applicable cleanup standard chosen for the site.

The reasons for elevated arsenic concentrations observed in wells HZMW-12 and BC-16 remain uncertain, however, given the natural background level, cleanup level, and the proposed approach to cleanup, arsenic is a contaminant of concern at the Site requiring remedial action.

6.0 NATURE AND EXTENT OF CONTAMINATION

6.1 CHEMICALS OF CONCERN

6.1.1 Soil COCs

Based on the studies before the interim cleanups, chemicals of potential concern (COPCs) in Site soil were:

- Total petroleum hydrocarbons (gasoline-, diesel- and motor oil-range)
- BTEX (benzene, toluene, ethylbenzene, and xylenes)
- HVOCs from an upgradient source at the Bothell Service Center Simon & Son Site.

Following the interim action soil cleanups, no samples representing soils remaining on Site had concentrations exceeding preliminary Site cleanup levels for TPH and BTEX (Table 2). Thus there are no soil chemicals of concern (COCs) remaining on Site other than HVOCs from the Bothell Service Center Simon & Son Site.

6.1.2 Ground Water COCs

COPCs for ground water in the RI area before the interim cleanups were:

- HVOCs
- Total petroleum hydrocarbons (gasoline-, diesel- and motor oil-range)
- BTEX
- Arsenic

Ground water monitoring data following the soil cleanups (Table 3) and the Site boundaries defined in this RI/FS report indicates the following COCs remain on Site:

- Total petroleum hydrocarbons (gasoline-, diesel- and motor oil-range)
- Arsenic
- HVOCs

6.2 EXTENT OF CONTAMINATION

In Ecology's November 5, 2012 letter, Ecology made the following comment:
Based on the contaminant detections depicted in the cross-sections, it appears that tetrachloroethylene (PCE) and vinyl chloride (VC) plumes have migrated south from the Bothell Service Center Simon & Son property to the Former Hertz property. Furthermore, it appears that PCE and VC have commingled with petroleum hydrocarbon contamination at HZMW-1 at

the Former Hertz site. The vinyl chloride may be a daughter product of the Bothell Service Center PCE plume. Or, as suggested by Tad Cline of Farallon Associates, the environmental consultants for the Bothell Service Center site, the vinyl chloride may be from a VOC source on the Former Hertz property. This source ambiguity needs to be resolved.

In a letter response submitted to Ecology in December 2012 (Appendix F - HWA Tech Memo, Dec 10, 012) Amendment I to Remedial Investigation and Feasibility Study Work Plan Comment noted, it was noted that the RI/FS report will address this issue.

Based on the additional explorations and four rounds of quarterly ground water monitoring, TPH impacts from the Site and HVOC impacts from the Bothell Service Center Simon & Son site are not collocated. The HVOC contamination originating from an off-Site source is however, a COC at the Site, because Ecology has made an administrative determination that site-specific remediation of soil or ground water HVOCs at the Former Hertz Facility Site will be handled as part of the cleanup at the Bothell Service Center Simon & Son Site. Figures 2B and 13 show the Site boundaries ("site cleanup areas") for the Former Hertz Facility Site as suggested by this RI. Figure 14 shows the Bothell Service Center Simon & Son site boundary, as depicted in the Remedial Investigation report for that site (Kane, 2107). Any portions of this Former Hertz Facility site that may require remediation of soil or ground water HVOCs originating from the Bothell Service Center Simon & Son Site will be determined in the future as part of the Bothell Service Center Simon & Son Site cleanup and any necessary extensions of the Bothell Service Center Simon & Son Site to portions of the Former Hertz Facility Site will be made at that time.

Extent of contamination at the Hertz Site is defined as follows:

Soil – The two cleanups achieved the Site soil cleanup levels. No soil contamination exceeding Site cleanup levels remains on Site.

Ground water – Following the two soil cleanups, petroleum hydrocarbons sporadically and inconsistently occur in ground water in monitoring wells in the northeastern, northwestern, and southern extents of the Site at concentrations slightly higher than Site cleanup levels (Table 3). These detections likely represent residual petroleum hydrocarbons remaining in ground water after the cleanups, which are expected to decline over time via natural attenuation processes (e.g., biodegradation, dispersion, volatilization, etc.)

Arsenic was present in monitoring wells in the northeastern, northwestern, and southern extents of the Site at concentrations exceeding MTCA cleanup levels (Figure 2e). Elevated arsenic concentrations in alluvial aquifers of Snohomish and King Counties have been well documented as a regional issue (HWA, 2007), however, there are no clear correlations and Ecology has determined a natural background of 6.6 µg/L for the Puget Sound Lowlands, where this site is located. (Ecology, 2015). Elevated concentrations may also be contamination-induced, i.e., lower redox conditions associated with petroleum hydrocarbon contamination solubilizes arsenic from the aquifer matrix. Given the lack of certainty, arsenic will be considered as a COC at the Site. A cleanup level of 10 µg/L (based on the Maximum Contaminant Level or MCL) for arsenic will apply. With regard to institutional controls, a possible option will be to drop this as a COC upon further compliance monitoring of BC-16, HZMW-12, BLMW-8, and HZMW-19.

HVOCs are also present from the Bothell Service Center Simon & Son site.

7.0 CLEANUP OBJECTIVES AND PRELIMINARY CLEANUP STANDARDS

7.1 SITE CONCEPTUAL MODEL

The Site conceptual model 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 Figure 10.

7.2 PRIMARY SOURCES OF CONTAMINATION AND PRIMARY RELEASE MECHANISMS

The primary contaminant sources are historic leaking underground storage tanks and repair facilities at the Site and from the upgradient Bothell Service Center Simon & Son Site. The primary contaminants on Site include petroleum hydrocarbons and associated volatile hydrocarbons, and arsenic. The Site also contains HVOCs although remediation of those HVOCs will be evaluated under the RI/FS for the Bothell Service Center Simon & Son Site.

The primary potential release mechanisms for petroleum hydrocarbons include leaks from fuel or lubricant storage systems (e.g., USTs, containers, piping, dispensers, etc.); accidental spills and leaks; and spills from discarded containers of automotive fluid products such as motor oil, transmission fluid, and antifreeze.

The primary potential release mechanism for arsenic is dissolution from native soils, as discussed in Section 5.4.

7.3 SECONDARY SOURCES AND RELEASE MECHANISMS

When a released contaminant is retained in an environmental medium, such as soil, the medium functions as a secondary source for further chemical release. Secondary release mechanisms for contaminants potentially present at the Site include the following:

- Leaching from soil to ground water
- Volatilization from soil and ground water to air
- Downgradient discharge from ground water to surface water

The degree of contaminant leaching is controlled by chemical properties of the contaminants, ground water chemical properties, physical properties of the soil, characteristics of the ground water flow system, and precipitation recharge. Volatilization is controlled by the concentration and chemical properties of the contaminants, physical properties of the soil, and soil gas characteristics. Contaminant discharge from ground water to surface water is controlled by the ground water flow path and the concentrations present in ground water at the point where it discharges into surface water.

7.4 Pathways and Potential Receptors

An exposure pathway is a mechanism by which receptors are assumed to contact COCs. The U.S. Environmental Protection Agency (EPA) (1989) describes a complete exposure pathway in terms of four components:

1. A source and mechanism of chemical release (e.g., a release of COCs to the subsurface)
2. A retention or transport medium (e.g. ground water)
3. A receptor at a point of potential exposure to a contaminated medium (e.g., commercial worker in an on-Site building located above the ground water plume)
4. An exposure route at the exposure point (e.g. inhalation of vapors)

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

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

Dermal/Direct Contact – Exposure to chemicals in soil may occur through direct contact with soil. Direct contact is a potential exposure route for current and future on-Site workers or visitors. Burrowing or ground-dwelling mammals and invertebrates may be exposed directly to the soil contaminants.

Inhalation – Particulates from soil can be transported by air and inhaled by potential on-Site and off-Site receptors. Emissions of volatile chemicals from soil and ground water may also be transported as vapors by air. Terrestrial biota could also be exposed to chemicals volatilizing to outdoor air, but if this exposure actually occurs the duration of exposure would be expected to be relatively short. Burrowing animals may be exposed to volatile air contaminants in underground stagnant air while spending time within the burrow.

Ingestion – Ingestion of chemicals in Site soil is a primary exposure route for human and ecological receptors. Uptake by plants is also a potential exposure route.

Potentially complete exposure pathways after completion of the Interim Actions are:

Soil – no Site cleanup level exceedances remaining

Ground water – TPH and Arsenic:

- Current/future construction/utility worker:
  - Direct ingestion of contaminated ground water
- Ecological receptors
  - Dermal contact with ground water in a burrow

Remaining ground water impacts are TPH and arsenic in ground water, which is generally greater than 6 feet below grade in the areas impacted, therefore park visitors or others are unlikely to be exposed to any ground water, as there are no drinking water wells and it is not planned or legal to install any in the impacted area. The only potential human receptors would be future construction workers involved in excavation below ground water level or dewatering work.

Vapor – none except for possible impacts from HVOCs from the Bothell Service Center Simon & Son Site.

Arsenic, diesel, and oil-range petroleum hydrocarbons in ground water do not pose a vapor risk, therefore there are no vapor-related risks or exposure pathways.

7.5 FATE AND TRANSPORT

Petroleum - The primary contaminant transport mechanisms are advection and dispersion caused by seepage of ground water through the Site's shallow aquifer. Petroleum constituents desorb from contaminated soil particles into ground water and are transported in the downgradient direction where they may resorb to clean soil particles or continue to travel with flow. Site analytical data suggest that petroleum constituents are transported only a short distance at concentrations of concern. Dissolved petroleum constituents are typically subject to biodegradation by naturally occurring aerobic soil bacteria.

Arsenic - Arsenic in ground water is likely derived from native alluvial sediments, or imported fill soils, although no spatial correlation between arsenic in soil and in ground water is apparent, rather, arsenic concentrations appear to increase with proximity to the river and thickness of alluvial deposits. Elevated arsenic in ground water is likely the result of enhanced solubility of the soil-bound arsenic in ground water where reducing conditions are present, Reducing conditions may be caused by naturally-occurring organics in the soil, or petroleum contamination.

7.6 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.

The potential ARARs for the Site include three types:

- Chemical-specific
- Location-specific
- Action-specific

Chemical-specific ARARs are typically health- or risk-based values that when applied to Site-specific conditions represent cleanup standards. Location-specific ARARs are related to the geographical position and/or physical condition of the Site and may affect the type of remedial action selected. Action-specific ARARs are usually technology-based or activity-based requirements or limitations on actions or conditions taken with respect to specific hazardous substances. The action-specific requirements do not determine the selected remedial alternative, but indicate how or to what level a selected alternative must perform.

Potential ARARs were identified for each medium of potential concern. These potential ARARs are shown in Table 4.

7.7 ASSESSMENT OF RISK

Exposure to contaminants could occur via the potentially complete exposure pathways described in Section 6.4 above. Based on the nature of the Site and the extent of contamination, current risks appear limited.

There are no remaining soil impacts exceeding Site cleanup levels.

There are no vapor impacts from the TPH and arsenic, although there could be vapor impacts from the HVOCs from the Bothell Service Center Simon & Son Site, which will be addressed through the cleanup of that site.

Remaining ground water impacts are TPH and arsenic in ground water, which is generally greater than 6 feet below grade in the areas impacted, therefore Site visitors or others are unlikely to be exposed to any ground water, as there are no drinking water wells and it is not planned or legal to install any in the impacted area. The only potential human receptors would be future construction workers involved in excavation or dewatering work. These risks will be managed via health and safety planning, procedures, and monitoring, as typically carried out on construction projects and required under OSHA and WISHA regulations.

7.8 Preliminary Cleanup Standards

Cleanup standards consist of appropriate cleanup levels applied at a defined point of compliance that meet applicable state and federal laws (WAC 173-340-700). Proposed cleanup levels are described below and are listed in Table 2 and 3.

7.8.1 Soil

Soil remediation levels proposed in the *Interim Action Work Plan* (Parametrix, 2010) include:

- MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (WAC 173-340, Table 740-1).
- MTCA Method B TPH Soil Cleanup Levels for direct contact and protection of ground water

HWA performed an evaluation of Method B risk-based TPH soil cleanup levels for the Site. The evaluation characterized TPH-impacted soil via analysis of petroleum hydrocarbon fractionation and other target compounds in order to evaluate whether the standard MTCA Method A soil cleanup levels were appropriate for the Site compared to MTCA Method B risk-based soil TPH cleanup levels. The results of the petroleum hydrocarbon fractionation analyses (NWVPH/NWEPH analysis) were input into Ecology's MTCATPH11.1 spreadsheet model (Ecology, 20070 to determine TPH soil cleanup levels protective of human health via direct contact and via leaching to a source of potable ground water. HWA's evaluation of MTCA Method B risk-based cleanup levels for TPH-impacted soil at the Site is presented in Appendix C. Table 1 summarizes the results of the analysis. The calculated Method B cleanup level for gasoline-range petroleum hydrocarbons at the Site is 3,504 milligrams per kilogram (mg/kg). The Method B TPH cleanup level of 13,263 mg/kg is a calculated value for protection of potable ground water based upon Ecology's three-phase partitioning model (Equation 747-1 in WAC

173-340-747). The MTCA Method A cleanup level for gasoline-range petroleum hydrocarbons with no detectible benzene in soil is 100 mg/kg. The calculated Method B cleanup levels for diesel- and oil-range petroleum hydrocarbons at the Site range between 2,954 and 4,036 mg/kg depending on the mixture of hydrocarbon fractions and specific compounds.

The resulting soil remediation levels used (i.e. the more stringent of Method A or B) meet all the requirements of WAC 173-340-720 through 173-340-760 and should be considered the Site cleanup levels. Soil cleanup levels are summarized below:

Compound	Cleanup level (mg/kg)
TPH Diesel	2000A
TPH Oil	2000A
Gasoline	100/30 A
Benzene	0.03 A
Xylenes	9 A
Arsenic	20 A

A – MTCA Method A soil cleanup level
B - MTCA Method B soil cleanup level

7.8.2 Ground Water

Appropriate levels of cleanup for ground water are determined by the highest beneficial use of that ground water. Shallow ground water present at the Site is not currently used for drinking water, and no water wells are located downgradient of the Site. The appropriate ground water cleanup levels for the Site are MTCA Method A for petroleum hydrocarbons (500 µg/L for TPH Diesel and 500 µg/L for TPH oil) and Maximum Contaminant Level (MCL) of 10.0 µg/L for arsenic in ground water.

7.8.3 Terrestrial Ecological Evaluation

The Site qualifies for an exclusion from a terrestrial ecological evaluation (TEE), because remaining soil containing petroleum hydrocarbons exceeding TEE cleanup levels (i.e., Priority Contaminants of Ecological Concern for Sites that Qualify for the Simplified Terrestrial Ecological Evaluation Procedure, or Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals) is greater than six feet deep (Table 2). Sample HPEX-9-5, which was originally collected at a depth of five feet below grade, is now located deeper than six feet due to raising of site grades during roadway construction.

There are no HVOCs in soil at the Site exceeding MTCA method A soil cleanup levels (Kane, 2017), and there are no TEE cleanup levels for HVOCs.

7.8.4 Point of Compliance

The point of compliance is the specific location(s) at which a particular cleanup level must be met in order to demonstrate compliance of a cleanup action. MTCA defines standard and conditional points of compliance.

7.8.4.1 Soil

The standard soil point of compliance under MTCA (WAC 173-340-740 (6)(b-d)) is:

- For soil cleanup levels based on protection of ground water, the point of compliance shall be established throughout the Site
- For soil cleanup levels based on protection from vapors, the point of compliance shall be established throughout the Site from the ground surface to the uppermost ground water saturated zone
- For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance shall be established in the soils throughout the Site from the ground surface to 15 feet bgs.

MTCA recognizes that, for cleanup actions that involve containment or capping, cleanup levels may not be met at the standard point of compliance, but the cleanup action would be determined to comply with cleanup standards provided:

- The selected remedy is permanent to the maximum extent practicable
- The cleanup action is protective of human health and terrestrial ecological receptors
- Institutional controls are implemented to limit activities that could interfere with the long-term integrity of the containment system
- Compliance monitoring and periodic reviews are conducted
- The capped or contained COCs and measures to prevent migration and contact with them are specified in a CAP

The cleanup alternatives are evaluated based on standard soil point of compliance for removal and treatment alternatives (WAC 173-340-740(6)(a)-(e), and for containment remedies (WAC 173-340-740(6)(f)).

7.8.4.2 Ground Water

The standard ground water point of compliance under MTCA (WAC 173-340-720(8)(b)) is in ground water throughout the Site from the uppermost level of the saturated zone to the lowest depth which could potentially be affected.

For this Site, the standard ground water point of compliance is proposed for TPH, HVOC, and arsenic impacts (i.e. ground water throughout the Site).

7.9 VAPOR INTRUSION

Per the 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, 2009/2016) 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 following:

- 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 this Site, both criteria may be met, with future buildings likely, and HVOCs from the Bothell Service Center Simon & Son possible present at concentrations of concern. Ground water screening levels given in the Ecology *Guidance for Evaluating Soil Vapor Intrusion in Washington State* (Ecology, 2009/2016) are as follows:

	Ground water Screening Level (µg/L)	Method A ground water (µg/L)
tetrachloroethylene	22.89	5
trichloroethylene	1.55	5
dichloroethane;1,2-	4.20	
vinyl chloride	0.35	0.2

Although none of the shallow or intermediate ground water monitoring wells on the Hertz Site contain HVOCS exceeding the screening levels, some Bothell Service Center Simon & Son monitoring wells near the Hertz Site contain HVOCS exceeding the screening levels (Kane, 2017).

Further evaluation of vapor intrusion risks is therefore required, starting with a Tier I Assessment. A Tier I assessment may include:

- Measuring VOC concentrations in shallow ground water, soil gas, or sub-building slab soil gas
- Comparing these measured gas concentrations to screening levels
- Predicting indoor air concentrations via modeling and comparing to indoor air standards

Based on the Tier I assessment results, the next step for sites with actual buildings present is typically a Tier II assessment, which may include:

- Sampling and analysis of indoor air, sub-slab soil gas or crawlspace air
- Comparing these measured gas concentrations to indoor air standards to determine the degree to which the pathway may be currently exposing receptors to subsurface contamination.

As part of the Tier I assessment, HWA modeled vapor intrusion risk using the Johnson Ettinger model as described in the Ecology Vapor Intrusion Guidance (Ecology, 2016). The model uses a simplified one-dimensional analytical solution to evaluate the vapor intrusion pathway into buildings. Chemical, soil, ground water and building properties are input into the model, which then estimates or predicts a unitless attenuation factor. The attenuation factor is the degree to which soil and building properties reduce the concentration of underlying VOCs in indoor air. The model can be run "forward", where measured ground water concentrations and other variables are input, and the model predicts indoor air concentrations, or "reverse" where a protective indoor air concentration (typically a regulatory standard) is input, and the model predicts the ground water and soil gas concentrations that would be protective of the regulatory standard.

Because there are currently no buildings on the Site, the "reverse" model was run to predict target media (ground water and soil gas) concentrations protective of MTCA Method B indoor air cleanup levels (summarized below). Site specific input parameters used included:

- Contaminant of concern – tetrachloroethylene, trichloroethylene, dichloroethylene;1,1-, dichloroethylene;1,2-, vinyl chloride
- Depth of contaminant - 2 meters
- Depth can change by - 0.5 meters
- Type of building - slab on grade
- Type of soil - Sandy loam
- Average soil/ground water temperature - 13ºC (from guidance)

All other parameters used were the model defaults. Predicted ground water and soil concentration protective of MTCA Method B indoor air cleanup levels are summarized below. Of the HVOCs modeled, TCE appears to be the most conservative with respect to predicted risk (i.e., lowest protective levels). Predicted protective ground water values for PCE and VC exceed MTCA Method A ground water cleanup levels, whereas the TCE value is lower.

Based on this analysis, vapor intrusion risk inside future buildings is possible in areas where ground water HVOC concentrations exceed the values shown below.

	2015 Indoor Air Cleanup Level Method B Noncancer (µg/m³)	2015 Indoor Air Cleanup Level Method B Cancer (µg/m³)	Ground water (µg/L) More protective*	Soil gas (µg/m³) More protective*
tetrachloroethylene	1.83E+01	9.62E+00	13.75	300.9
trichloroethylene	9.14E-01	3.70E-01	0.56	7.88
dichloroethylene;1,1-	9.14E+01	NA	1573	6.7E4
dichloroethylene;1,2-	NA	NA	NA	NA
vinyl chloride	4.57E+01	2.80E-01	1.631	87.72

* of three possible results, less protective, best estimate, and more protective)

Although none of the shallow or intermediate ground water monitoring wells on the Hertz Site contain HVOCS exceeding the predicted protective ground water concentrations, some Bothell Service Center Simon & Son monitoring wells near the Hertz Site contain HVOCS exceeding these levels (Kane, 2017).

The HVOCs on the upgradient Bothell Service Center Simon & Son site are on a separate and discrete MTCA site that will be addressed at this Hertz Site as Ecology addresses remediation of the contaminants from the Bothell Service Center Simon & Son Site. Figures 13 and 14 show the Hertz and Bothell Service Center site boundaries.

7.10 Remedial Action Objectives

The following remedial action objectives were established for the interim action cleanups (HWA, 2010b):

- Achieve MTCA Method A (and possibly Method B) soil and ground water cleanup levels at the point of compliance, thus reducing or eliminating human exposure through direct contact and inhalation of vapors.

- Use permanent solutions to the maximum extent practicable (which includes consideration of cost-effectiveness).
- Verify the petroleum hydrocarbon and HVOC contaminated ground water plume is stable or shrinking due to attenuation.
- Properly manage contaminated ground water that may be generated during Site development activities, and ensure that activities at the Site do not result in exposure to the contaminated ground water that has migrated onto the Site.

Remedial action objectives for current remaining impacts include:

- Achieve MTCA Method A ground water cleanup levels at the point of compliance.

7.11 DISCUSSION & RECOMMENDATIONS

Based on the discussion in the preceding sections, and Phase 1B of the Hertz RIWP (Section 5.2.1, Appendix F), RI activities performed for the Site conclude that the Bothell Service Center Simon & Son HVOC plume is discrete and separate from any TPH impacts at the Site. Cleanup remedies discussed herein are therefore only for TPH and arsenic impacts at the Site. RI and future cleanup activities at the Bothell Service Center Simon & Son site are being addressed via other Ecology administrative programs (i.e. the Bothell Service Center Simon & Son site is currently enrolled in the Voluntary Cleanup Program and entry into the Formal Program has started). The former Hertz site, being downgradient from the Bothell Service Center Simon & Son site, will still need to provide access for monitoring wells, and other remedial cleanup activities associated with the Bothell Service Center Simon & Son plume in order to ensure that the HVOC plume has not or will not recontaminate the Hertz site or impact receptors at the site.

8.0 FEASIBILITY STUDY

8.1 IDENTIFICATION OF CONTAMINATION TO BE REMEDIATED

Section 7.2 above details the current status of soil and ground water contamination at the Site, summarized as follows:

Soil – Petroleum contaminated soil exceeding Site cleanup levels no longer remains on Site. Dig and haul performed as an interim action addressed TPH-contaminated soils at the Site. This work is described in *Documentation of Soil Cleanup at Bothell Former Hertz Facility, Bothell, Washington* (HWA, 2011) (see Appendix D); *Test pit Sampling Results for Construction - Soil Characterization & Limited Remedial Action* (HWA, 2012b) (see Appendix I); and, *Interim Action Soil Cleanup, Bothell Former Hertz Facility, Bothell, Washington* (HWA, 2014) (see Appendix J). Section 3 of this report summarizes these findings.

Ground water – Remaining ground water impacts are:

- Sporadic and inconsistent detections of petroleum hydrocarbons at concentrations just above Site cleanup levels in three of the 14 monitoring wells (BC-16, BLMW-8, and HZMW-19)
- Exceedances of arsenic particularly at the south end of the Site (HZMW-12 and BC-16). Ground water in wells at the north end of the Site (HZMW-1, HZMW-4, and HZMW-17) also had arsenic above cleanup levels, but it was detected more sporadically, and at lower concentrations than in the southern wells.
- HVOC exceedances from the upgradient Bothell Service Center Simon & Son site.

As discussed above, RI activities performed at the Site suggested that the Bothell Service Center Simon & Son HVOC plume is discrete and separate from any TPH impacts at the Site. Therefore, cleanup remedies discussed herein are only for TPH and arsenic impacts at the Site. Future RI and future cleanup activities (in response to HVOCs associated with the Bothell Service Center Simon & Son site) are being addressed at the Former Hertz Site through the Bothell Service Center Simon & Son site remediation.

8.2 SCREENING OF REMEDIAL TECHNOLOGIES

This section describes technologies capable of meeting cleanup objectives for screening and assembling into 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 treatment technologies 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 and implementability to identify a short-list of potentially applicable technologies, that are then assembled into cleanup alternatives.

The initial technologies screened for petroleum contaminated ground water at the Site include:

- In-situ bioremediation
- Monitored natural attenuation
- Engineering and institutional controls

The initial technologies screened for arsenic contaminated ground water at the Site include:

- Excavation and removal
- In-situ chemical fixation
- Institutional controls

Section 8.3 describes each of the remediation technologies evaluated during screening, including information on the technology effectiveness and implementability. Technologies retained to be carried forward in development of remedial alternatives are summarized in Section 8.

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 are described and applied in the evaluation of remedial alternatives.

8.3 Remediation Technologies – Petroleum Impacts

Soil

For soil, since the interim actions have been implemented successfully and no soil impacts exceeding Site cleanup levels remain, no other remedial alternatives have been considered and the recommendation is to adopt the 2010 - 2013 Interim Actions as the final cleanup.

Ground Water

For ground water, since ground water petroleum-contamination issues remain at the Site, the following remediation technologies have been selected for consideration as appropriate technologies to treat petroleum contaminated ground water at the Site. Note that per section 7.12 above, it has been suggested that commingling between the Hertz TPH and the Bothell Service Center Simon & Son solvent plume has not occurred at the Site and therefore the technologies described below are focused on remediating ground water TPH impacts. If commingling between the Hertz TPH and the Bothell Service Center Simon & Son solvent plume has occurred, HVOC impacts will be addressed via the Bothell Service Center Simon & Son cleanup.

8.3.1 In-situ Bioremediation

DESCRIPTION / ENGINEERING DISCUSSION

In-situ bioremediation for petroleum hydrocarbon contamination involves enhancing the microbial degradation of contaminants in subsurface soils and/or ground water without excavating overlying soil. Treatment systems supply oxygen and in some cases nutrients and bacteria to the subsurface to stimulate activity of hydrocarbon degrading microorganisms. In most cases the native soil already contains hydrocarbon degrading bacteria. It is only necessary to enhance their environment so that degradation proceeds at a faster rate. In many cases, and especially for petroleum hydrocarbons, the limiting subsurface factor for bioremediation is oxygen. Many in-situ bioremediation approaches involve the addition of chemicals which release oxygen in the subsurface. Injection of oxygen-releasing compounds is commonly accomplished with direct-push probe drilling equipment, often in multiple treatments.

Treatability studies and/or pilot tests may be performed to determine the biological and chemical conditions in the subsurface at the Site. These tests provide biodegradation rates for specific contaminants, as well as parameters for optimum performance of a full scale system (e.g., flow rates, oxygen and nutrient levels).

APPLICABILITY

Permeable soils at the Site would facilitate in-situ treatment. The contaminants (petroleum hydrocarbons) present are generally amenable to bioremediation.

Advantages of an in-situ bioremediation system include:

- Contaminants break down into harmless by-products
- Less Site disruption than mass excavation methods

Disadvantages of an in-situ bioremediation system include:

- Possible injection permit requirements
- Inability to access lower permeability zones in mixed (heterogeneous) subsurface conditions

- Injection of oxygen rich water may cause plugging of wells and/or the aquifer by chemical precipitation or biofouling

In-situ bioremediation is identified as a potentially applicable cleanup method for further evaluation.

8.3.2 Monitored Natural Attenuation

DESCRIPTION

Monitored natural attenuation to remediate petroleum hydrocarbon contamination in ground water is the practice of allowing natural (physical, chemical and biological) processes in soil and ground water to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in those media. Monitored natural attenuation requires first establishing that conditions are favorable for those processes, and monitoring to ensure they are occurring.

ENGINEERING DISCUSSION

Monitored natural attenuation processes include biodegradation, dispersion, dilution, adsorption, volatilization, and chemical or biological stabilization or destruction of contaminants. Monitored natural attenuation is a viable approach where dissolved contaminant concentrations in ground water 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 may be appropriate at sites where:

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

APPLICABILITY

Petroleum hydrocarbons, particularly low molecular weight ones such as gasoline, are generally suited to monitored natural attenuation, as they are amenable to biodegradation and volatilization under a wide range of subsurface conditions.

Advantages of monitored natural attenuation include:

- Low impact to the Site
- Low cost

Disadvantages of monitored natural attenuation include:

- Long restoration time frame / ongoing monitoring particularly for oil-range hydrocarbons

Monitored natural attenuation is identified as a potentially applicable cleanup method for further evaluation.

8.3.3 Institutional Controls

Institutional controls are administrative or legal mechanisms that ensure the long-term performance of cleanup actions, typically in conjunction with other cleanup technologies. Institutional controls are typically applied on cleanups where contaminants are not completely removed from a site. The institutional controls document the presence of remaining contaminants, regulate the disturbance and access to those contaminants, and ensure continued maintenance and monitoring of the cleanup action. WAC 173-340-360(2)(e) provides that cleanup actions are not to rely primarily on institutional controls "where it is technically possible to implement a more permanent cleanup action for all or a portion of the site."

Examples of institutional controls include environmental covenants (deed restrictions), restrictions placed by a government agency (e.g. codes, ordinances, etc.), and O&M plans. Environmental covenants document the remedial action in Ecology and County property records, and include provisions which 1) prohibit activities that may impact the remedial action, create new exposure pathways, or create access to, or release of remaining contaminants, 2) ensure the provisions are met by property lessees, 3) ensure conveyance of the covenant with the land, 4) require notification of property transactions, and 5) allow site access to the regulatory agency. O&M plans are typically for on-site workers and similarly protect the integrity of remedial actions and ensure the health and safety of site workers and visitors.

Institutional controls are effective, implementable, and cost-effective mechanisms at sites where contaminants are not completely removed or destroyed, and site use is consistent with the overall remedial action. The likely institutional controls at this site would include an environmental covenant and monitoring.

<u>APPLICABILITY</u>

Institutional controls are not typically a stand-alone remedy; remediation objectives are usually met by combining with another cleanup method. The advantages of institutional controls include:

- Easily implementable and combined with other technologies
- Less site and vicinity disruption during cleanup

The disadvantages of institutional controls include:

- Institutional controls alone will not meet MTCA cleanup standards
- Contaminants are left on site
- Ongoing maintenance, institutional controls, and periodic review are needed
- Possible restrictions on site use

Institutional controls are identified as a potentially applicable cleanup method for further evaluation.

8.4 Remediation Technologies – Arsenic

The following remediation alternatives have been selected for consideration as appropriate technologies to treat arsenic in ground water at the Site.

8.4.1 Excavation and Removal

DESCRIPTION / ENGINEERING DISCUSSION

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 treatment or disposal alternatives.

APPLICABILITY

The advantages of source removal include:

- Contaminants are removed from the Site
- Rapid restoration timeframe

The disadvantages of source removal in this case include:

- No apparent soil source of arsenic has ever been identified at the Site
- Transportation off site for treatment or disposal of contaminated soils carries some risks
- Requires importing and compacting clean backfill to replace removed soils
- Difficult / impractical to excavate below ground water level
- High energy usage / carbon footprint
- Site disturbance (noise, traffic, dust, etc.)

Source removal is ruled out as a potentially applicable cleanup method for further evaluation, because no apparent soil source of arsenic has ever been identified at the Site.

8.4.2 In-situ Chemical Fixation

DESCRIPTION / ENGINEERING DISCUSSION

In-situ chemical fixation for metals contamination involves chemically altering the subsurface conditions to immobilize dissolved metals in ground water. Treatability studies and/or pilot tests are typically performed to determine the chemical conditions in the subsurface at the site, and the optimum formulation of chemicals to immobilize the metals

APPLICABILITY

Permeable soils at the site would facilitate in-situ treatment. The contaminants (arsenic) present are generally amenable to in situ fixation.

Advantages of in-situ chemical fixation system include:

- Less site disruption than mass excavation methods

Disadvantages of in-situ chemical fixation include:

- Inability to access lower permeability zones in mixed (heterogeneous) subsurface conditions
- Injection of chemicals (typically strong reducers) near surface water bodies (Sammamish River) may adversely impact surface water quality

In-situ chemical fixation is identified as a potentially applicable cleanup method for further evaluation.

8.4.3 Institutional Controls

DESCRIPTION

Institutional controls are administrative or legal mechanisms that ensure the long-term performance of cleanup actions, typically in conjunction with other cleanup technologies. Institutional controls are typically applied on cleanups where contaminants are not completely removed from a site. The institutional controls document the presence of remaining contaminants, regulate the disturbance and access to those contaminants, and ensure continued maintenance and monitoring of the cleanup action. WAC 173-340-360(2)(e) provides that cleanup actions are not to rely primarily on institutional controls "where it is technically possible to implement a more permanent cleanup action for all or a portion of the site."

Examples of institutional controls include environmental covenants (deed restrictions), restrictions placed by a government agency (e.g., codes, ordinances, etc.), and O&M plans. Environmental covenants document the remedial action in Ecology and County property records, and include provisions which 1) prohibit activities that may impact the remedial action, create new exposure pathways, or create access to, or release of remaining contaminants, 2) ensure the provisions are met by property lessees, 3) ensure conveyance of the covenant with the land, 4) require notification of property transactions, and 5) allow site access to the regulatory agency. O&M plans are typically for on-site workers and similarly protect the integrity of remedial actions and ensure the health and safety of site workers and visitors.

Institutional controls are effective, implementable, and cost-effective mechanisms at sites where contaminants are not completely removed or destroyed, and site use is consistent with the overall remedial action. The likely institutional controls at this site would include an environmental covenant and monitoring.

APPLICABILITY

Institutional controls are not typically a stand-alone remedy; remediation objectives are usually met by combining with another cleanup method. The advantages of institutional controls include:

- Easily implementable and combined with other technologies
- Less site and vicinity disruption during cleanup

The disadvantages of institutional controls include:

- Institutional controls alone will not meet MTCA cleanup standards
- Contaminants are left on site
- Ongoing maintenance, institutional controls, and periodic review are needed
- Possible restrictions on site use

Institutional controls are identified as a potentially applicable cleanup method for further evaluation.

8.5 Summary Of Technologies Carried Forward

The remedial technologies described above were screened for overall effectiveness and implementability resulting in resulting in a short-list of potentially applicable technologies for further evaluation. The following technologies are carried forward for assembly into ground water cleanup alternatives that meet MTCA threshold and other requirements for selection of remedy:

Petroleum in ground water

- In-situ bioremediation with monitored natural attenuation and engineering / institutional controls
- Institutional controls + monitored natural attenuation

Arsenic in ground water

- In-situ chemical fixation with institutional controls
- Institutional controls

All of the above listed alternatives include the excavation and removal already completed as an interim action.

9.0 ASSEMBLE AND SCREEN REMEDIATION ALTERNATIVES

9.1 Petroleum In Soil Impacts

For soil, the interim actions implemented dig and haul as the selected remediation alternative.

9.2 Petroleum In Ground water Impacts

For petroleum in ground water, the technologies screened and identified for further consideration in the preceding sections meet the Site remedial action objectives and requirements of MTCA, resulting in the development of remedial alternatives. Proposed technologies for addressing sporadically occurring petroleum contaminated ground water at the Site are summarized below:

- Excavation and removal with monitored natural attenuation (MNA)
- In-situ bioremediation with monitored natural attenuation and engineering and institutional controls
- Monitored Natural Attenuation and Institutional Controls With Compliance Monitoring

9.3 Arsenic In Ground water Impacts

For arsenic in ground water impacts, the technologies screened and identified for further consideration in the preceding sections were combined to meet the Site remedial action objectives and requirements of MTCA, resulting in the development of remedial alternatives. The alternatives were then evaluated to select preferred alternatives. Proposed alternatives for addressing arsenic in ground water are summarized below:

- In-situ chemical fixation with institutional controls
- Institutional controls

9.4 Proposed Combined Cleanup Alternatives

The proposed alternatives for addressing all impacts to the Site are summarized below:

- In-situ chemical fixation (arsenic), monitored natural attenuation (TPH), and institutional controls with compliance monitoring
- In-situ bioremediation (TPH), in-situ chemical fixation (arsenic), monitored natural attenuation (TPH), and institutional controls with compliance monitoring
- Monitored natural attenuation (TPH) and institutional controls with compliance monitoring

The following sections describe each alternative, including all component cleanup technologies and costs.

9.4.1 In-situ chemical fixation (arsenic), monitored natural attenuation (TPH), and institutional controls with compliance monitoring

Following the interim soil excavation actions conducted in 2010, 2012, and 2013, petroleum hydrocarbon contaminated soils above MTCA cleanup levels were removed from the site.

In-Situ Chemical Fixation of arsenic at the site would likely consist of injecting reducing agents into the ground via direct push borings. Based on the area of the Site impacted, around 150 locations would be required assuming 10 foot spacings. Although treatability and pilot testing would be required for design and cost estimates, typical application rates are around 0.04% by weight of soil, resulting in a volume of fixative of around 130,000 lbs.

Monitoring for natural attenuation under a Compliance Monitoring Plan will be required for the site.

A Compliance Monitoring Plan will be submitted as part of the Cleanup Action Plan to address this component of the cleanup. Compliance monitoring for the remaining petroleum hydrocarbon contamination in ground water will be MNA-based. Compliance monitoring for arsenic will be concurrent with petroleum hydrocarbon compliance monitoring, but with an extended period of monitoring to determine if the arsenic is naturally occurring or induced by the petroleum contamination. Wells to be monitored are:

TPH-D and TPH-Oil – HZMW-19, BLMW-8, BC-16
Arsenic – HZMW-1, HZMW-4, HZMW-12, HZMW-17, BC-16

A contingency plan for ground water will be part of the cleanup remedy in case the ground water has not reached compliance for petroleum and arsenic at the end of the compliance monitoring period.

For TPH and arsenic in ground water, the institutional control could consist of an environmental covenant that documents remaining arsenic contamination in ground water, prohibits withdrawal and use for any purpose other than monitoring, site investigation, or construction-related activities with notification and approval by Ecology. A request to lift the covenant can be made to Ecology if quarterly compliance monitoring from the site and the nearby Bothell Paint & Decorating.

9.4.2 In-situ bioremediation (TPH), in-situ chemical fixation (arsenic), monitored natural attenuation (TPH), and institutional controls with compliance monitoring

Following the interim soil excavation actions conducted in 2010, 2012, and 2013, petroleum hydrocarbon contaminated soils above MTCA cleanup levels were removed from the site.

In-situ bioremediation may be implemented for impacted ground water by introducing oxygen-releasing compounds into the ground in the vicinity of the impacted soil and ground water via direct push drilling techniques. The type and quantity of oxygen-releasing material is calculated based on the type, concentration, and estimated volume of residual petroleum hydrocarbons left in the ground. The oxygen-releasing material creates a zone of increased biological activity in those soils, biodegrading the hydrocarbons. If confirmation borings indicate petroleum hydrocarbon concentrations exceeding cleanup levels, additional oxygen-releasing material can be injected into the ground via direct push borings. Monitoring for natural attenuation will be required for wells HZMW-19, BLMW-8, and BC-16, which are not in compliance for TPH in ground water.

In-Situ Chemical Fixation of arsenic at the site would likely consist of injecting reducing agents into the ground via direct push borings. Based on the area of the Site impacted, around 150 locations would be required assuming 10 foot spacings. Although treatability and pilot testing would be required for design and cost estimates, typical application rates are around 0.04% by weight of soil, resulting in a volume of fixative of around 130,000 lbs.

A Compliance Monitoring Plan will be submitted as part of the Cleanup Action Plan to address this component of the cleanup. Compliance monitoring for the remaining petroleum hydrocarbon contamination in ground will be MNA-based. Compliance monitoring for arsenic will be concurrent with petroleum hydrocarbon compliance monitoring, but with an extended period of monitoring to determine if the arsenic is naturally occurring or induced by the petroleum contamination. Wells to be monitored are:

TPH-D and TPH-Oil – HZMW-19, BLMW-8, BC-16
Arsenic – HZMW-1, HZMW-4, HZMW-12, HZMW-17, BC-16

A contingency plan for ground water will be part of the cleanup remedy in case the ground water has not reached compliance for petroleum and arsenic at the end of the compliance monitoring period.

For TPH and arsenic in ground water, the institutional control could consist of an environmental covenant that documents remaining arsenic contamination in ground water, prohibits withdrawal and use for any purpose other than monitoring, site investigation, or construction-related activities with notification and approval by Ecology. A request to lift the covenant can be made to Ecology if quarterly compliance monitoring from the site and the nearby Bothell Paint &

Decorating site shows that the arsenic persists after historical petroleum hydrocarbon ground water contamination and the petroleum hydrocarbon contamination has not been detected for an appropriate period of time (two years after five years of combined TPH and arsenic monitoring). If arsenic remains at elevated concentrations over a sufficiently long time period with no other detections of petroleum hydrocarbon or solvent contamination, this data can be used to demonstrate that the elevated concentrations represents a locally high natural background for arsenic. Based on this evidence, a request can be made to remove the institutional controls for ground water at the site.
Estimated cost of this option is as follows.

In-Situ bioremediation	$ 81,000
Chemical Fixation	$1,353,024
MNA/Monitoring	$ 123,200
Institutional controls	$ 5,000
Total	$1,562,224

Cost estimates for this and other potential remedial alternatives (described below) are included in Appendix K.

9.4.3 Monitored Natural Attenuation and Institutional Controls with Compliance Monitoring

Following the interim soil excavation actions conducted in 2010, 2012, and 2013, petroleum hydrocarbon contaminated soils above MTCA cleanup levels were removed from the site.

A Compliance Monitoring Plan will be submitted as part of the Cleanup Action Plan to address this component of the cleanup. Compliance monitoring for the remaining petroleum hydrocarbon contamination in ground will be MNA-based. Compliance monitoring for arsenic will be concurrent with petroleum hydrocarbon compliance monitoring, but with an extended period of monitoring to determine if the arsenic is naturally occurring or induced by the petroleum contamination. Wells to be monitored are:

TPH-D and TPH-Oil – HZMW-19, BLMW-8, BC-16
Arsenic – HZMW-1, HZMW-4, HZMW-12, HZMW-17, BC-16

A contingency plan for ground water will be part of the cleanup remedy in case the ground water has not reached compliance for petroleum and arsenic at the end of the compliance monitoring period.

For TPH and arsenic in ground water, the institutional control could consist of an environmental covenant that documents remaining arsenic contamination in ground water, prohibits withdrawal and use for any purpose other than monitoring, site investigation, or construction-related activities with notification and approval by Ecology. A request to lift the covenant can be made to Ecology if quarterly compliance monitoring from the site and the nearby Bothell Paint & Decorating site shows that the arsenic persists after historical petroleum hydrocarbon ground water contamination and the petroleum hydrocarbon contamination has not been detected for an appropriate period of time (two years after five years of combined TPH and arsenic monitoring). If arsenic remains at elevated concentrations over a sufficiently long time period with no other detections of petroleum hydrocarbon or solvent contamination, this data can be used to demonstrate that the elevated concentrations represents a locally high natural background for arsenic. Based on this evidence, a request can be made to remove the institutional controls for ground water at the site.

Estimated cost of this option is as follows. Estimated cost of this option is as follows.

MNA + Ground water monitoring	$ 123,200
Institutional controls	$ 5,000
Total	$ 128,200

Cost estimates for this and other potential remedial alternatives are included in Appendix K.

10.0 EVALUATION OF REMEDIATION ALTERNATIVES

10.1 SOIL

For soil, the interim actions implemented dig and haul as the selected remediation alternative.

10.2 GROUND WATER

For ground water, 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 remaining petroleum hydrocarbon contamination in ground water at the Site are:

- In-situ bioremediation with monitored natural attenuation and engineering / institutional controls
- Institutional controls with monitored natural attenuation

The proposed alternatives for arsenic in ground water are:

- In-situ chemical fixation with institutional controls
- Institutional controls

All of the above listed alternatives take into account the excavation and removal already completed as an interim action.

10.2.1 MTCA Threshold Requirements

MTCA (WAC 173-340-360(2)(a)) specifies several threshold, or basic requirements that cleanup actions must meet in order to be considered. The four threshold requirements specify that the cleanup action must:

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

The following sections evaluate the alternatives against the threshold criteria and also MTCA's other requirements in WAC 173-340-360(2)(b).

10.2.1.1 Protect Human Health and the Environment

The 'protection of human health and environment' criterion addresses whether a cleanup alternative will provide a minimum acceptable level of protection, i.e., a sufficiently low residual risk to human and ecological receptors. Alternatives are compared by relative degree of protection, which must include the second criterion 'compliance with cleanup standards' as well as short-term risks posed by remedial action (e.g., during construction and implementation of the cleanup action, such as mobilization of contaminants during construction or transport, or other ancillary safety risks during construction).

Petroleum in ground water - Of the alternative remedies for petroleum hydrocarbon impacts, bioremediation with monitored natural attenuation and institutional controls is likely more protective than institutional controls with monitored natural attenuation.

Arsenic in Ground Water – There is only one feasible alternative for dealing with arsenic in ground water, which could be naturally occurring or petroleum contamination induced, but will be evaluated after a period of monitoring. The proposed institutional control restricting ground water use would be protective of the drinking water pathway, which Ecology has concluded is the highest beneficial use for ground water at the Site.

10.2.1.2 Comply with Cleanup Standards

Compliance with cleanup standards is defined by meeting the requirements of WAC 173-340-700 through 760, i.e., meeting calculated cleanup levels at the established point of compliance. In addition to treatment or removal, MTCA includes provisions for meeting cleanup standards through containment.

Petroleum in ground water - Of the alternative remedies for petroleum hydrocarbon impacts, bioremediation with monitored natural attenuation and institutional controls would be more likely to comply with cleanup standards. Institutional controls with monitored natural attenuation may not meet numeric cleanup levels at the standard point of compliance, but the cleanup action can comply with cleanup standards provided:

- The selected remedy is permanent to the maximum extent practicable
- The cleanup action is protective of human health and terrestrial ecological receptors
- Institutional controls are implemented to limit activities that could interfere with the long-term integrity of the containment system
- Compliance monitoring and periodic reviews are conducted, and
- The capped or contained COCs and measures to prevent migration and contact with them are specified in a CAP.

Arsenic in Ground Water - Institutional controls for ground water may not meet numeric cleanup levels at the standard point of compliance, but the cleanup action can comply with cleanup standards provided:

- The selected remedy is permanent to the maximum extent practicable
- The cleanup action is protective of human health and terrestrial ecological receptors
- Institutional controls are implemented to limit activities that could interfere with the long-term integrity of the containment system
- Compliance monitoring and periodic reviews are conducted, and
- The capped or contained COCs and measures to prevent migration and contact with them are specified in a CAP

10.2.1.3 Comply with Applicable State and Federal Laws

Compliance with State and Federal Laws includes legally applicable requirements and relevant and appropriate requirements (ARARs). Potential ARARs for the Site are summarized in Table 4. All alternative remedies for petroleum hydrocarbon and arsenic impacts meet ARARs to the same relative degree, as all of the appropriate and relevant regulations and requirements listed are complied with by the cleanup, or in some instances were not relevant based on the type of alternative.

10.2.1.4 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
- Confirmational monitoring to monitor the long-term effectiveness of the remedy after completion of the alternative

Petroleum in Ground Water All alternative remedies for petroleum hydrocarbon impacts provide compliance monitoring. The bioremediation with monitored natural attenuation and engineering / institutional controls alternative includes protection, performance, and confirmational monitoring, whereas institutional controls with monitored natural attenuation would include compliance monitoring by quarterly ground water monitoring for five years .

Arsenic in Ground Water - The institutional control remedy for arsenic in ground water provides for compliance monitoring and evaluation by ground water monitoring for two years after five years of combined petroleum and arsenic ground water monitoring.

10.3 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 hierarchy to evaluate alternatives and cost effectiveness. Cleanup technologies in order of decreasing preference include reuse or recycling; destruction or detoxification; immobilization or solidification; on-site or off-site disposal in an engineered, lined and monitored facility; on-site isolation or containment with attendant engineering controls; and institutional controls and monitoring (MTCA 173-340-360(3)(f)(iv). Under MTCA these preferences may be weighed against costs and benefits using a “disproportionate cost analysis” (WAC 173-340-360(3)(e)). Per MTCA, WAC 173-340-360(2)(c)(i) a permanent cleanup action shall be used to achieve the cleanup levels for ground water at the standard point(s) of compliance where permanent cleanup action is practicable or determined by the department to be in the public interest.
- **Provide for a reasonable restoration time frame –** alternatives that can be implemented in less time (while equivalent in other respects) are preferred under MTCA
- **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

10.4 EVALUATION OF ALTERNATIVES

The alternatives carried forward for evaluation are:

Petroleum In Soil

- For soil, the interim actions implemented dig and haul as the selected remediation alternative

Petroleum In Ground water

- In-situ bioremediation with MNA and engineering and institutional controls
- Institutional controls with monitored natural attenuation

Arsenic in ground water

- In-situ chemical fixation with institutional controls
- Institutional controls

All of the above listed alternatives include the excavation and removal already completed as an interim action.

The Site-wide combined alternatives are:

- In-situ chemical fixation (arsenic), monitored natural attenuation (TPH), and institutional controls with compliance monitoring
- In-situ bioremediation (TPH), in-situ chemical fixation (arsenic), monitored natural attenuation (TPH), and institutional controls with compliance monitoring
- Monitored natural attenuation (TPH) and institutional controls with compliance monitoring

All of the above listed alternatives include the excavation and removal already completed as an interim action.

Table 5 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. This determination sometimes requires a Disproportionate Cost Analysis, which is a comparative evaluation of alternatives relative to each other under the 'permanent to the maximum extent practicable' criterion in WAC 173-340-360(3).

10.5 DISPROPORTIONATE COST ANALYSIS

- A Disproportionate Cost Analysis (DCA) is presented herein which compares the selected remedy (Monitored natural attenuation and institutional controls with compliance monitoring) to the other two remedial alternatives (In-situ chemical fixation, monitored natural attenuation, and institutional controls with compliance monitoring and In-situ bioremediation, in-situ chemical fixation , monitored natural attenuation (TPH), and institutional controls with compliance monitoring).

Monitored natural attenuation and institutional controls with compliance monitoring is the preferred remedy due to the low concentrations and sporadic nature of the impacts, which are likely to naturally attenuate over time.

The DCA per MTCA compares the relative costs and benefits of the cleanup alternatives that meet threshold requirements to allow selection of the alternative such that incremental cost is not disproportionate to the benefit. This analysis determines which of the alternatives are "permanent to the maximum extent practicable" and uses the following criteria, as specified in MTCA (WAC 173-340-360(2) & (3).

Criteria	Relative weighting factor
* Overall protectiveness of human health and the environment	30%
* Permanent reduction of toxicity, mobility and volume	20%
* Long term effectiveness	20%
* Management of short-term risks	10%
* Technical and administrative implementability	10%
* Consideration of public concerns	10%
* Cost	compared against other criteria

The relative weighting of the factors shown above are not specified in MTCA, but are assigned specifically for this Site, based on relative importance. Assignment of weighting factors is discussed below.

The DCA compares both quantitative and qualitative relative environmental benefits of each alternative against those provided by the alternative most permanent to the maximum extent practicable. Costs are disproportionate to benefits if the incremental costs of the alternative most permanent to the maximum extent practicable over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative most permanent to the maximum extent practicable over that of the other lower cost alternative (WAC 173-340-360(e)(i)). Where the quantitative and qualitative benefits of two alternatives are equivalent, the less costly alternative is selected (WAC 173-340-360(e)(ii)(C)).

10.5.1 DCA Criteria

Protectiveness – Overall protectiveness includes the extent to which human health and the environment are protected, including the degree to which overall risks at a site are reduced, both on- and off-Site, by the cleanup action, and the time required to meet cleanup standards. This criterion also accounts for whether the cleanup action surpasses MTCA standards, and measures the improvement of overall environmental quality at the Site. This criterion was assigned a weighting of 30 percent, the highest of all the criteria, to reflect the fact that this is the fundamental requirement of MTCA.

Permanence – Permanence of a cleanup action is measured by the relative reduction in toxicity, mobility, or volume of hazardous substances, including the original contaminated media and any residuals generated by the cleanup, and also reflects the need for further action after cleanup. This criterion was assigned a weighting of 20 percent, the second highest weighting (along with long-term effectiveness), due to the priority given to permanent solutions by MTCA.

Long-term effectiveness – This criterion reflects the degree of certainty that a cleanup action will maintain compliance with cleanup standards over time, the magnitude of residual risk after cleanup, and the effectiveness of controls required to manage treatment residues or remaining wastes. MTCA contains a preference ranking for different types of technologies, as follows: reuse or recycling; destruction or detoxification; immobilization or solidification; on-Site or off-Site disposal in an engineered, lined and monitored facility; on-Site isolation or containment with attendant engineering controls; and institutional controls and monitoring. Cleanup alternatives often include a combination of technologies to accomplish remedial objectives. This ranking is used along with other Site-specific factors in ranking long-term effectiveness. This criterion was assigned a weighting of 20 percent, the second highest weighting (along with permanence), due to the need for a cleanup action to remain protective of human health and the environment over time.

Management of short-term risks – This criterion measures relative risks to human health and the environment during construction and implementation of the cleanup action, and the effectiveness of measures that will be taken to manage such risks. Short-term risks during cleanup may include mobilization of contaminants during construction or transport, or other ancillary safety risks during construction. These risks are typically managed via monitoring, health and safety planning, spill control planning, best management practices, etc., during cleanup construction. This criterion was assigned a weighting of 10 percent, the lowest weighting, due to the short term nature of the risk, and ability to address or correct. Management of short-term risks is also reflected in the cost analysis, as mitigating measures are added to the cleanup method. This criterion, along with implementability, is therefore less important in considering a cleanup action than protectiveness, permanence, and long-term effectiveness.

Technical and Administrative Implementability – This criterion evaluates the relative difficulty and uncertainty of implementing the project, and includes consideration of whether the alternative is technically possible, availability of necessary off-site facilities, services and materials, administrative and regulatory requirements, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with existing facility operations and other current or potential remedial actions. This criterion was assigned a weighting of 10 percent, the lowest weighting. Selected cleanup technologies are already deemed to be implementable, and technical or administrative criteria are not as important as environmental concerns, protectiveness, permanence, and long-term effectiveness.

Consideration of public concerns – This criterion includes concerns from the community regarding the cleanup, and the degree to which they are addressed. Community includes individuals, community groups, local governments, tribes, federal and state agencies, or any other organization that may have an interest in or knowledge of the Site. This criterion was assigned a weighting of 10 percent, as many of the other criteria (e.g. overall protectiveness, permanence, long-term effectiveness, management of short-term risks) capture public concerns. This criterion is meant to capture specific public concerns not already addressed by the other criteria.

Cost – Analysis of cost includes all costs associated with implementing the alternative, including: design, construction, long-term monitoring, and institutional controls. Cost estimates for the cleanup alternatives should be comparable, to allow evaluation of relative costs and benefits of the different alternatives. Costs are evaluated against the cleanup benefits in order to assess cost-effectiveness and remedy practicability, therefore no weighting factor is applied.

10.5.2 Disproportionate Cost Analysis Scoring

Table 6 summarizes the disproportionate cost analysis scoring. A discussion of each alternative and the scoring factors assigned is presented below. For this analysis, a hypothetical “no action” alternative was added, as a baseline needed for the quantitative analysis. As noted in Section 9.1 and Table 5, all of the cleanup alternatives meet MTCA minimum requirements. The values assigned to each alternative reflect the degree to which one of the alternatives meets a particular criterion *compared to the other alternatives*. For the following discussion, the three alternatives are referred to as A, B and C, as follows:

A. In-situ chemical fixation (arsenic), monitored natural attenuation (TPH), and institutional controls with compliance monitoring
B. In-situ bioremediation (TPH), in-situ chemical fixation (arsenic), monitored natural attenuation (TPH), and institutional controls with compliance monitoring
C. Monitored natural attenuation (TPH) and institutional controls with compliance monitoring

- **Overall protectiveness of human health and environment –** Alternative A is likely the most protective, therefore was scored the highest (5); with Alternative B scored lower, at 3.

- **Permanent reduction of toxicity, mobility and volume –** Alternative A was scored the highest (5) due to presumed reduction in toxicity, mobility and volume; Alternative B was scored lower, at 3.

- **Long term effectiveness –** Alternative A was scored the highest (5), due to the presumed treatment of contaminants; Alternative B was scored lower, at 3, due to a presumed slower cleanup time frame.

- **Short term risks –** Alternative A was scored lower (3) due to some limited construction activity required to implement it, and Alternative B was ranked the highest, (5) due to no on-site activity required.

- **Implementability –** Implementability was ranked similarly to short term risks, based on the activities required to implement each option.

- **Community acceptance –** All options were ranked similarly for Community Acceptance, due to no perceived preference or impacts to the community.

No Action

A "no action" alternative is presented solely for mathematical purposes, so the lowest ranked alternative has something to be compared against, i.e., to calculate the incremental cost and benefit. The "no action" alternative is not under consideration as an actual cleanup alternative.

- **Overall protectiveness of human health and environment –** The no action alternative would not be protective, and was scored 0.
- **Permanent reduction of toxicity, mobility and volume –** The no action alternative would not reduce mobility, toxicity or volume of contaminants, and was therefore scored 0.
- **Long term effectiveness –** The no action alternative would not be effective long term, and was assigned a score of 0.
- **Short term risks –** The no action alternative has little or no short term risk, and was assigned a score of 5.
- **Implementability –** The no action alternative is implementable, and was given a score of 5.
- **Community acceptance –** The no action alternative was given a score of 0 on the basis that there would be community concerns with taking no remedial action.

10.5.3 Disproportionate Cost Analysis Summary

The net benefit of the alternatives is determined by combining the criteria scores with the relative weighting factors assigned to the criteria. The net benefit, or overall non-cost scores, are shown in Table 6. The cleanup alternatives ranked by benefit as follows:

A.	In-situ Bio+ MNA + in-situ chemical fixation + Eng and Inst Controls	4.6
B.	Inst Controls + MNA	3.2
C.	No Action	1

Table 7 also shows estimated costs, with detailed cost calculations provided in Appendix K. Dividing net benefit by total cost gives the benefit-to-cost ratio, or cost effectiveness. Figure 11 shows a graph of cost to benefit. Alternative A had a benefit-to-cost ratio of 0.03. Alternative B has a higher benefit-to-cost ratio of 0.25, due primarily to its lower cost compared with the other option.

As stated in Section 9.4, MTCA considers costs to be disproportionate to benefits on the basis of incremental costs and incremental benefits. For this analysis, incremental benefit (the difference in net benefit from the next lowest scored alternative) is divided by the incremental cost (the difference in cost from the next lowest cost alternative).

For this analysis, a "no action" alternative was scored, so that the lower cost alternative did not have zero values for incremental cost or benefit. The "no action" alternative was assigned a net benefit of 1, and a cost of zero.

Incremental cost effectiveness values are shown in Table 7 and on Figure 12. Alternative A had an incremental benefit to incremental cost ratio of 0.01. Alternative B has a larger incremental benefit-to-cost ratio of 0.17, again due to its relatively low cost and similar benefit compared with the other options.

10.5.4 Sensitivity Analysis

Due to the large cost differential, the analysis is not sensitive to variations in scoring of the alternatives. For example, if Alternative A was scored 5 for each criteria, the incremental cost effectiveness of Alternative B would still exceed that of Alternative A by 14 times.

11.0 RECOMMENDED REMEDIAL ALTERNATIVE

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

11.1 DESCRIPTION OF PROPOSED 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 cleanup alternative for contaminated soil and ground water at the Site (developed in accordance with WAC 173-340-350 through 173-340-390) are:

1) Contaminated Soil – adopt interim actions as the final cleanup

2) Remnant petroleum contaminated ground water – leave in place and implement:
    a. Institutional controls – implement an environmental covenant. Option to lift or modify pending compliance monitoring results
    b. Monitored natural attenuation – provide for compliance monitoring under a Compliance Monitoring Plan

3) Ground water arsenic – include institutional controls in new environmental covenant(s) for the arsenic impacted area and provide compliance monitoring for ground water with option to remove arsenic from the covenant if monitoring shows naturally elevated concentrations unrelated to historical or current contamination at the site. For arsenic in ground water, the institutional control could consist of an environmental covenant that documents remaining arsenic contamination in ground water, prohibits withdrawal and use for any purpose other than monitoring, site investigation, or construction-related activities with notification and approval by Ecology. A request to lift the covenant can be made to Ecology if compliance monitoring from the site shows that the arsenic persists after historical ground water contamination and the petroleum hydrocarbon contamination has not been detected for an appropriate period of time (two years after five years of combined TPH and arsenic monitoring). If arsenic remains at elevated concentrations over a sufficiently long time period with no other detections of petroleum hydrocarbon or solvent contamination, this data can be used to demonstrate that the elevated concentrations represents a locally high natural background for arsenic. Based on this evidence, a request can be made to remove the institutional controls for ground water at the site.

Figure 2a shows the proposed institutional control areas for TPH and arsenic. Due to overlap with potential institutional control areas for the Bothell Service Center Simon & Son site (which is in planning stages of cleanup) and reparcel of the area into Lot D, Ecology will determine the appropriate environmental covenant or covenants for the sites.

11.2 Rationale for Selecting Proposed Alternative

The proposed alternative was recommended in accordance with remedy selection requirements under MTCA, and meet all threshold and other requirements specified in WAC 173-340-360. This rationale is detailed in Section 9 above.

11.3 Other Alternatives Evaluated

For soil, no other cleanup alternatives were evaluated. For ground water, one other cleanup alternative was evaluated, as detailed in Section 6.0, which was in-situ bioremediation.

11.4 Schedule for Implementation

Soil - The interim actions were completed in 2013. In the dCAP, the final cleanup recommendation will be to adopt these IAs as the final cleanup. The dCAP will be submitted upon approval of the final RI/FS report, as described in Schedule C of the Agreed Order.

Ground water - Institutional controls (environmental covenant) are anticipated to be implemented once a final CAP is approved.

MNA for petroleum in ground water is expected to reach cleanup levels within 10 years. If TPH in ground water does not reach cleanup levels or MNA targets, a contingency plan will be developed to treat the ground water via in situ bioremediation. In situ bioremediation may require additional testing to select appropriate treatment. Additional work plans will be provided to Ecology at this point.

If arsenic in ground water is found not to be a background condition, not related to some other variable (e.g., precipitation), and a source of the arsenic can be determined or located, a contingency plan will be developed to treat the ground water via in situ chemical stabilization. Chemical stabilization will require additional laboratory testing of site ground water to speciate the arsenic, bench/lab scale testing to select appropriate treatment chemicals, pilot and tracer testing to verify cleanup viability, etc. Additional work plans will be provided to Ecology at this point.

11.5 Applicable State and Federal Laws

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

11.6 Compliance With Threshold and Other MTCA Requirements

As stated in Section 8, the proposed cleanup action complies with threshold and other MTCA requirements specified in WAC 173-340-360.

11.7 Types, Levels, and Amounts of Contamination Remaining On-Site

Contaminants remaining on Site after cleanup include sporadically and inconsistently occurring gasoline-, diesel-, and oil-range petroleum hydrocarbons in ground water. The cleanup alternatives selected, as detailed in Sections 7.2 and 8, will adequately prevent migration and contact with those substances in ground water.

11.8 Summary & Conclusions

The original Site boundaries described in the Agreed Order have changed. The former boundaries (shown in black) and new boundaries (shown in red) are illustrated on Figure 13.

12.0 REFERENCES

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Table 1
Summary of Method B Soil TPH Risk Calculations
Bothell Former Hertz Facility

Release area	Former USTs	Former UST		Wooden storm drain catch basin
TPH Type	Gasoline and diesel	Kerosene		Diesel and lube oil range hydrocarbons
Sample	H-PEX-1-6	H-PEX-2-6	H-PEX-3-4	H-PEX-11-6
Calculated Method B TPH cleanup level for direct skin contact (mg/Kg)	3,504	4,035	2,505	2,954
Most stringent soil risk criterion for direct skin contact	Hazard Index	Hazard Index	cPAHs mixture	Hazard Index
Method B soil TPH concentration protective of ground water (mg/Kg)	13,263	220	100% NAPL[1]	100% NAPL
Most stringent soil risk criterion for protection of ground water	Total risk = 1E-5	Hazard Index Risk 1E-6	Hazard Index Total risk 1E-5 cPAHs mixture	Hazard Index Total risk 1E-5 cPAHs mixture
Method A soil cleanup levels (mg/Kg)	30[2] (G) 2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)	2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)		

Notes:
1 - 100% NAPL means soil containing free product would not produce a TPH concentration ≥800 μg/L in ground water
2 - Cleanup level for gasoline mixtures with benzene

TABLE 2
INTERIM ACTION TPH-SOIL CLEANUP ANALYTICAL RESULTS
BOTHELL FORMER HERTZ FACILITY
(all results in milligrams per kilogram (mg/kg))

Sample location	Sample Depth ft bgs	Confirmation Sample[1] Sidewall	Bottom	Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Total Naphthalenes[2]	cPAHs TEC[3]	PCBs	HVOCs[9]	Notes
H-TP-1-3	3			<29	<58	<6.5	<0.02	<0.065	<0.065	<0.065													
H-TP-1-8	8			25000	<610	<71	<0.14	<0.71	2.1	9.4													
H-TP-2-4	4			<27	<55	<5.5	<0.02	<0.055	<0.055	<0.055													
H-TP-2-10	10			<33	<66	<7.3	<0.02	<0.073	<0.073	<0.073													
H-TP-3-3	3	X		<29	140	<7	<0.02	<0.07	<0.07	<0.07													
H-TP-3-8	8		X	<32	<64	<7.4	<0.02	<0.074	<0.074	<0.074													
H-TP-4-3	3	X		<29	<58	<4.6	<0.02	<0.046	<0.046	<0.046													
H-TP-4-7	7		X	<31	<61	<6.5	<0.02	<0.065	<0.065	<0.065													
H-TP-5-4	4			<27	<54	<6.3	<0.02	<0.063	<0.063	<0.063													
H-TP-5-7	7			<32	<63	<6.4	<0.02	<0.064	<0.064	<0.064													
H-TP-6-3	3			2700	11000	150	<0.02	<0.054	0.055	0.23													
H-TP-6-6	6			1600	7500	200	<0.023	<0.12	<0.12	0.26													
H-TP-6-7	4			70	420	10	<0.02	<0.074	<0.074	<0.074													
H-TP-7-5	5			<28	<56	<5.7	<0.02	<0.057	<0.057	<0.057													
H-TP-7-7	7			<32	110	<7	<0.02	<0.07	<0.07	<0.07													
H-TP-8-5	5	X		<28	120	6.2	<0.02	<0.058	<0.058	<0.058													
H-TP-8-7	7		X	<30	<60	<6	<0.02	<0.06	<0.06	<0.06													
H-TP-9-4	4			<28	<56	<7.3	<0.02	<0.073	<0.073	<0.073	<11	43	<0.56	27	<5.6	<0.28	<11	<0.56					
H-TP-9-7	7			92	<60	<6.6	<0.02	<0.066	<0.066	<0.066	<12	73	<0.60	42	7.6	<0.3	<12	<0.60					
H-TP-10-3	3			<28	<56	<6.5	<0.02	<0.065	<0.065	<0.065	<11	46	<0.56	31	<5.6	<0.28	<11	<0.56					
H-TP-10-7	7			1900	<65	<16	<0.033	<0.16	1	7.59	<13	53	<0.65	28	<6.5	<0.33	<13	<0.65					
H-TP-11-4	4	X		<30	<60	<7.3	<0.02	<0.073	<0.073	<0.073	<12	95	<0.60	29	<6	<0.3	<12	<0.60					
H-TP-11-7	7		X	<32	<64	<6.4	<0.02	<0.064	<0.064	<0.064	<13	56	<0.63	39	<6.3	<0.32	<13	<0.63					
H-TP-12-3	3			<28	<57	<5.9	<0.02	<0.059	<0.059	<0.059	<11	70	<0.57	30	<5.7	<0.28	<11	<0.57					
H-TP-12-7	7			<30	<60	<6.9	<0.02	<0.069	<0.069	<0.069	<12	40	<0.60	21	<6	<0.3	<12	<0.60					
H-TP-13-3	3			<820	2200	750	<0.047	<0.24	0.67	1.9	<11	44	<0.56	31	7.1	<0.28	<11	<0.56					
H-TP-13-8	8			6100	5400	1700	<0.1	<0.52	1.1	2.9	<12	58	<0.60	24	58	<0.3	<12	<0.60					
H-TP-14-3	3			<28	<56	<5	<0.02	<0.05	<0.05	<0.05	<11	41	<0.56	28	<5.6	<0.28	<11	<0.56					
H-TP-14-8	8			<510	1200	2100	0.079	<0.11	0.37	4.1	<12	41	<0.59	33	9.5	<0.3	<12	<0.59					
H-TP-15-3	3			<620	2300	<5.5	<0.02	<0.055	0.11	0.38	<11	45	<0.55	31	24	<0.28	<11	<0.55					
H-TP-15-8	8			<110	280	120	<0.02	<0.051	0.7	0.18	<11	42	<0.56	26	<5.6	<0.28	<11	<0.56					
H-TP-16-3	3	X		<30	190	57	<0.02	<0.076	<0.076	0.15													
H-TP-16-7	7		X	<140	290	72	<0.02	<0.066	<0.066	<0.066													
H-TP-17-3	3	X		<31	99	<7.5	<0.02	<0.075	<0.075	<0.075													
H-TP-17-6	6		X	<31	<62	<7.3	<0.02	<0.073	<0.073	<0.073													
H-TP-18-3	3			<28	<56	<5.3	<0.02	<0.053	<0.053	<0.053													
H-TP-18-7	7			<1600	2300	1900	<0.058	<0.29	0.95	5.7													
H-TP-19-4	4			<130	450	<6.2	<0.02	<0.062	<0.062	<0.062													
H-TP-19-6	6			<55	220	<5.8	<0.02	<0.058	<0.058	<0.058													
H-TP-20-3	3			<27	<54	<5.5	<0.02	<0.055	<0.055	<0.055													
H-TP-20-6	6			<1700	5800	18	<0.028	0.83	<0.14	<0.14													
H-TP-21-2	2			<580	2300	20	<0.02	<0.061	<0.061	<0.061													
H-TP-21-7	7			<29	110	<5.4	<0.02	<0.054	<0.054	<0.054													
H-TP-22-8	8		X	<63	300	12	<0.020	<0.064	0.27	1.39													
H-TP-23-7	7			5400	680	<30	<0.060	<0.30	0.65	0.72													
H-TP-24-3	3	X		<55	200	<6.4	<0.02	<0.064	<0.064	<0.064													
H-TP-24-8	8		X	<29	<58	<5.1	<0.02	<0.051	<0.051	<0.051													
H-TP-25-2	2			<28	<56	<6.3	<0.02	<0.063	<0.063	<0.063													
H-TP-25-8	8			5400	1700	<16	<0.032	<0.16	0.31	0.42													
H-TP-26-4	4			<28	150	<6.0	<0.020	<0.060	<0.060	<0.060													
H-TP-26-9	9			3600	1800	<28	<0.056	<0.28	0.53	0.72													
H-TP-27-5	5	X		<30	<59	<5.7	<0.020	<0.057	<0.057	<0.057													
H-TP-27-9	9		X	<31	<62	<6.8	<0.020	<0.068	<0.068	<0.068													
H-TP-28-9	9		X	<29	<59	<5.1	<0.020	<0.051	<0.051	<0.051													
H-TP-29-6	6	X		<31	<62	<4.6	<0.020	<0.046	<0.046	<0.046													
H-PEX-1-6	6			220	280	270	0.0013	<0.0053	0.015	<0.0011	<12	69	<0.6	35	<6	<0.3	<12	<0.60	0.181	0.000	<0.060		EPH VPH Analyses
H-PEX-2-6	6			<400	720	390	<0.0014	<0.0068	<0.0014	0.0021	<11	41	<0.56	27	18	<0.28	<11	<0.56	0.054	0.000	<0.056		EPH VPH Analyses
H-PEX-3-4	4			1800	7300	22	<0.0011	<0.0055	<0.0011	0.0015	<12	79	<0.61	26	130	<0.3	<12	<0.61	2.893	0.085	<0.061		EPH VPH Analyses
H-PEX-4-8	8		X			<8.4	<0.020	<0.084	<0.084	<0.084	<14												
H-PEX-5-8	8		X			<31	<0.31	<0.31	<0.31	<0.31	<17												
H-PEX-6-4	4		X			<6.2	<0.020	<0.062	<0.062	<0.062	<12												
H-PEX-7-5	5	X				<7.9	<0.020	<0.079	<0.079	<0.079	<13												
H-PEX-8-6	6	X				<10	<0.021	<0.10	<0.10	<0.10	<11												
H-PEX-9-5	5		X	820	<110	<14	<0.027	<0.14	<0.14	<0.14													
H-PEX-10-7	7	X		600	86	<12	<0.023	<0.12	<0.12	<0.12													
H-PEX-11-6	6			1900	2700	<13	<0.027	<0.13	<0.13	0.38	<11	50	<0.57	23	37	<0.29	<11	<0.57	23.8	0.061	<0.057		EPH VPH analyses of soil next to buried wood catch basin
H-PEX-12-12	12	X		<31	<61	<5.7	<0.020	<0.057	<0.057	<0.057													
H-PEX-13-14	14			<120	700	15	<0.029	<0.15	<0.15	<0.15													Removed
H-PEX-14-14	14		X	<91	390	<32	<0.32	<0.32	<0.32	<0.32													
H-PEX-15-10	10		X	<33	<65	<7.2	<0.020	<0.072	<0.072	<0.072													
H-PEX-16-14	14		X	<130	980	30	<0.053	<0.27	<0.27	0.94													
H-PEX-17-7	7	X		<31	<61	<7.2	<0.020	<0.072	<0.072	<0.072													
H-PEX-18-11	11		X	300	320	<6.9	<0.020	<0.069	<0.069	<0.069													
H-PEX-19-6	6			320	740	<7.0	<0.020	<0.070	<0.070	<0.070													Removed
H-PEX-20-6	6		X	<32	<64	<7.3	<0.020	<0.073	<0.073	<0.073													
H-PEX-21-16	16		X	<33	<65	<6.8	<0.020	<0.068	<0.068	<0.068													Over excavation of H-PEX-13-14
H-PEX-22-12	12		X	<30	<60	<6.3	<0.020	<0.063	<0.063	<0.063													
H-PEX-23-9	9			<310	1600	12	<0.020	<0.061	<0.061	<0.061													Removed
H-PEX-24-6	6	X		<27	58	<5.7	<0.020	<0.057	<0.057	<0.057	<11	49	<0.55	25	28	<0.27	<11	<0.55					Over excavation of H-PEX-19-6
H-PEX-25-6	6	X		41	220	<6.5	<0.020	<0.065	<0.065	<0.065	<11	49	<0.56	23	22	<0.28	<11	<0.56					
H-PEX-26-8	8	X		<30	81																		Over excavation of H-PEX-23-9
Stockpiles																							
H-SP-1				<28	<56	<5.5	<0.020	<0.055	<0.055	<0.055	<11	37	<0.56	21	8.2	<0.28	<11	<0.56	0.000	0.000			
H-SP-2				55	250	<7.2	<0.020	<0.072	<0.072	<0.072	<12	48	<0.61	25	31	<0.31	<12	<0.61	0.710	0.081			

TABLE 2
INTERIM ACTION TPH-SOIL CLEANUP ANALYTICAL RESULTS
BOTHELL FORMER HERTZ FACILITY
(all results in milligrams per kilogram (mg/kg))

Sample location	Sample Depth ft bgs	Confirmation Sample[1] Sidewall	Bottom	Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Total Naphthalenes[2]	cPAHs TEC[3]	PCBs	HVOCs[9]	Notes
H-SP-3				<28	**250**	<5.1	<0.020	<0.051	<0.051	<0.051	<11	**34**	<0.56	**17**	**19**	<0.28	<11	<0.56	**0.037**	**0.020**			
HZ-SP-101110-1				<29	<57						<11		<0.57	**31**	<5.7	<0.29							
HZ-SP-101110-2				<29	**100**						<12		<0.59	**30**	**13**	<0.29							
HZ-SP-101110-3				<33	**230**						<12		<0.58	**24**	**14**	<0.29							
HZ-SP-101110-4				<52	**320**						<12		<0.62	**30**	**91**	<0.31							
HZ-SP-101110-5				<31	**220**						<12		<0.62	**30**	**28**	<0.31							
Drainage Improvements - Pre-Construction Characterization Samples, February, 2012																							
TP-1-3	3			<27	<54	<4.8	<0.02	<0.048	<0.048	<0.048		**29**		**26**	<5.4							ND	
TP-1-8	8			<34	**130**	<7.9	<0.02	<0.079	<0.079	<0.079		**76**		**41**	**27**							ND	
TP-2-4	4			<29	**230**	**12**	<0.02	<0.056	<0.056	<0.056		**54**		**35**	**10**							ND	
TP-2-10	10			<30	<61	<7.2	<0.02	<0.072	<0.072	<0.072		**73**		**47**	<6.1							ND	
TP-3-6	6			<29	**130**	**77**	<0.02	<0.062	<0.062	**0.18**		**150**		**70**	**18**							ND	
TP-3-12	12			<31	<63	<7.2	<0.02	<0.072	<0.072	<0.072		**92**		**34**	<6.3							ND	
TP-4-4	4			<31	<61	<6.8	<0.02	<0.068	<0.068	<0.068		**76**		**38**	**6.2**							ND	Removed during March, 2012 storm
TP-4-8	8			**61**	**221**	**130**	<0.02	<0.078	<0.078	**0.16**		**84**		**47**	<6.4							ND	water line installation
TP-5-4	4			<29	<58	<6.1	<0.02	<0.061	<0.061	<0.061		**53**		**35**	<5.8							ND	
TP-5-8	8			<30	<60	<6.5	<0.02	<0.065	<0.065	<0.065		**63**		**42**	**6.3**							ND	
Limited Remediation Confirmation Samples, March 2012																							
Trench-1-15	15		X	<30	<60	<6.2	<0.02	<0.062	<0.062	<0.062													
Trench-2-10	10	X		<31	**69**	**7.6**	<0.02	<0.066	<0.066	<0.066													
Trench-3-10	10			**130**	**520**	**360**	<0.022	**0.13**	<0.11	**0.58**													Over excavated in March, 2013
Trench 4-14	14		X	<32	<64	<7.1	<0.02	<0.071	<0.071	<0.071													
Trench-5-10	10			<49	**530**	<5.9	<0.02	<0.059	<0.059	<0.059													Over excavated in March, 2013
Trench 6-10	10	X		<29	<57	<5.4	<0.02	<0.054	<0.054	<0.054													
Crossroads Phase III - Pre-Construction Characterization Samples, July, 2012																							
HTP-6-3	3			<28	**470**	<6.0	<0.02	<0.06	<0.06	<0.06				**44**	**20**								
HTP-6-7	7			<32	**130**	<6.4	<0.02	<0.064	<0.064	<0.064				**42**	**14**								
HTP-7-4	4			<28	<55	<5.7	<0.02	<0.057	<0.057	<0.057				**48**	**12**								
HTP-8-7	7			<28	<56	<5.9	<0.02	<0.059	<0.059	<0.059				**38**	<5.6								
HTP-8-10	10			<31	**86**	**11**	<0.02	<0.063	<0.063	<0.063				**38**	**13**								
HTP-9-10	10	X		<30	<59	<5.7	<0.02	<0.057	<0.057	<0.057				**57**	**13**								
HTP-10-7	7			<29	**250**	<5.5	<0.02	<0.055	<0.055	<0.055				**53**	<5.8								Over excavated in March, 2013
HTP-10-11	11			**360**	**3400**	<5.4	<0.02	<0.054	<0.054	<0.054				**39**	**25**								Over excavated in March, 2013
Limited Soil Remediation, February 2013																							
HR-1-12	12		X	<63	<31	<6.5	<0.020	<0.065	<0.065	<0.065		**100**		**59**	<6.3								
HR-2-12	12		X	<59	<29	<5.4	<0.020	<0.054	<0.054	<0.054		**78**		**66**	<5.9								
HR-3-10	10	X		<62	<31	<7.3	<0.020	<0.073	<0.073	<0.073		**110**		**60**	<6.2								
HR-4-10	10	X		<60	<30	<6.0	<0.020	<0.060	<0.060	<0.060		**76**		**61**	<6.0								
HR-5-10	10	X		<59	<30	<5.7	<0.020	<0.057	<0.057	<0.057		**87**		**63**	<5.9								
Monitoring Wells																							
HZMW14D-7.5	7.5-8.5			<62	<31	<6																**0.0012**	
HZMW14D-10	10-11			<61	<31	<6.4																**1.014**	
HZMW14D-15	15-16			<59	<30	<5.6																**9.512**	
HZMW14D-20	20-21			<61	<30	**10**																**1.247**	
HZMW15D-7.5	7.5-8.5			<61	<30	<6.4																**0.0029**	
HZMW15D-12.5	12.5-13.5			<61	<31	<6.3																**0.0015**	
HZMW15D-15	15-16			<61	<31	<5.8																**0.0877**	
HZMW15D-20	20-21			<60	<30	<5.9																**2.294**	
HZMW-16	12.5					<5.5	<0.020	<0.055	<0.055	<0.055													
HZMW-17	12.5			<30	**110**																		
HZMW-17	17.5			<32	<64																		
HZMW-18	7.5					<5.1	<0.020	<0.051	<0.051	<0.051													
HZMW-19	12.5					<5.2	<0.020	<0.052	<0.052	<0.052													
HZMW-20	12.5			<30	<60	<6.9	<0.020	<0.069	<0.069	<0.069													
HB-4-4	4-5			<64	<32	<5.9																<0.0012	
HB-4-6	6-7			<65	<32	<7.0																<0.0012	
HB-5-7	7-8			<63	<32	<7.1																**0.0058**	
HB-5-10	10-11			<62	<31	<6.7																**0.1312**	
MTCA Method A Cleanup Level[4]				2000		100/30[5]	0.03	7	6	9	20	NA	2	2000/19[6]	250	2	NA	NA	5	0.100	1	Varies	
MTCA Method B Cleanup Level[7]				2954 - 4035 (220 for kerosene)		3504	18	6,400	800	160,000	24	16,000	80	120,000	NA	24	400	400			0.5	Varies	
Background[8]				NA		NA	NA	NA	NA	NA	7	255	1	48	24	0.07	0.78	0.61	NA	NA	NA	NA	

Notes:
< - Not detected at laboratory's reporting limit
Blank - Sample was not analyzed for this constituent
NA - Not applicable
Bold - Analyte Detected
Bold/Highlighted - Analyte detected above MTCA Method A soil cleanup level
- Sample in area that was subsequently excavated
1 - Confirmation that soil remaining in place meets MTCA cleanup levels or was left in place at the limits of excavation adjacent to SR 522
2 - Sum of Napthalene + 1-Methylnaphthalene + 2-Methylnaphthalene
3 - Toxic Equivalent Concentration of carcinogenic polynuclear aromatic hydrocarbons (cPAHs) per WAC 173-340-708(e)
4 - Washington Model Toxics Control Act Method A (Table 740-1) soil cleanup levels for unrestricted land use
5 - The MTCA Method A soil cleanup level is 100 mg/kg for gasoline mixtures without benzene and if the total of ethylbenzene, toluene, plus xylenes is less than 1% of the gasoline mixture. The soil cleanup level for all other gasoline mixtures is 30 mg/kg
6 - The MTCA Method A soil cleanup level for trivalent chromium is 2,000 mg/kg. Geochemical conditions on site would not cause oxidation to hexavalent chromium having a cleanup level of
7 - Method B TPH cleanup levels are site specific values calculated using MTCATPH1.1. Method B cleanup levels for metals are from Ecology's CLARC (Cleanup Level & Risk Calculations) database for non-carcinogens
8 - Background metals concentrations per *Natural Background Soil Metals Concentrations in Washington State* (Ecology, 1994) for the Puget Sound area

Table 3
Bothell Hertz Site
Ground Water Analytical Results

Sample Location	Screened Depth, (ft bgs)	Sample Date	FIELD PARAMETERS: Depth to Water (ft bgs)	pH (units)	Conductivity (mS)	Temperature (°C)	Dissolved Oxygen (mg/L)	LABORATORY RESULTS: (cis) 1,2-Dichloroethene (µg/L)	Trichloroethene (µg/L)	Tetrachloroethene (µg/L)	Vinyl Chloride (µg/L)	WTPH-Gx (µg/L)	WTPH-Dx Diesel (µg/L)	WTPH-Dx Oil (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Total Arsenic (µg/L)	Dissolved Arsenic (µg/L)	Total Cadmium (µg/L)	Dissolved Cadmium (µg/L)	Total Chromium (µg/L)	Dissolved Chromium (µg/L)	Total Lead (µg/L)	Dissolved Lead (µg/L)	Dissolved Manganese (ug/L)	Nitrate (mg/L	Sulfate (mg/L)	Methane (ug/L)	Total Alkalinity (mg CaCO3/L)	NOTES
MTCA Method A/B Cleanup Level (Table 720-1, WAC 173-340-900)								16 (B)	5	5	0.2	800/1000[1]	500	500	5	1000	700	1000	NA	NA	10*	10*	5	5	50	50	15	15				NA		
HZMW-1	5-15	5/30/2014	7.02	6.62	478	14.3	3.23	<0.20	**0.22**	**21**	<0.20	<100	<270	<430	<1.0	<1.0	<1.0	<1.0			**6.3**	<3.0												
		9/12/2014	7.90	6.51	279	18.4	2.35	<0.20	**0.33**	**33**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0				<1.0												
		12/15/2014	6.69	6.3	223	13.4	2.02	<0.20	<0.20	**15**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			**23**	<3.0												
		3/19/2015	6.78	6.54	295	12.7	8.29	<0.20	<0.20	**11**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
HZMW-4	8-18	6/9/2014	6.79	6.35	407	13.9	2.73	<0.20	<0.20	<0.20	<0.20	<100	<270	<430	<1.0	<1.0	<1.0	<1.0			**17**	<3.0												
		9/12/2014	7.47	6.42	361	18.4	2.12	<0.20	<0.20	**2.6**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0				<3.0												
		12/16/2014	5.53	6.56	316	13.1	2.17	<0.20	<0.20	**0.54**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
		3/30/2015	6.20	5.47	323	13.8	2.67	<0.20	<0.20	<0.20	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0							<10	**3.1**	<50	<0.50	**140**	
HZMW-12	10-20	6/10/2014	9.48	6.32	2.18	13.2	0.12	<0.20	<0.20	<0.20	<0.20	<100	**430**	**550**	<1.0	<1.0	<1.0	<1.0			**14**	**13**												
		9/12/2014	9.43	6.37	1382	18.3	0.28	<0.20	<0.20	**2.6**	<0.20	<100	**380**	<410	<1.0	<1.0	<1.0	<1.0			**12**	**12**												
		12/16/2014	7.86	6.51	692	14	0.63	<0.20	<0.20	**0.44**	<0.20	<100	**460**	<410	<1.0	<1.0	<1.0	<1.0			**14**	**15**												
		3/26/2015	8.10	5.85	1134	14.77	0.00	<0.20	<0.20	<0.20	<0.20	<100	**460**	<410	<1.0	<1.0	<1.0	<1.0			**12**	**11**							**6100**	<0.05	<10	**8800**	**1100**	
		8/6/2015	6.71	6.19	1355	20.72	0.00					<100	<280	<440	<1.0	<1.0	<1.0	<1.0																
		12/1/2015	5.45	5.8	1145	16.45	0.00					<100	**360**	<410	<1.0	<1.0	<1.0	<1.0																
HZMW-14S	5-15	5/29/2014	6.51	6.46	799	15.5	0.16	**11**	**23**	**1000**	<10	<100	<300	<480	<1.0	<1.0	<1.0	<1.0			**3.3**	<3.0												
		9/11/2014	7.68	6.51	441	20.9	0.54	**78**	**96**	**4900**	<20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0				<3.0												
		12/15/2014	6.08	6.34	396	14.9	0.48	**13**	**16**	**790**	<4.0	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0	<4.4	<4.0	<11	<10	<1.1	<1.0						
		3/20/2015	6.28	6.4	482	13.70	13.86	**3.8**	**6.5**	**200**	<1.0	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3		<4.4	<4.0	<11	<10	<1.1	<1.0						
HZMW-14D	30-40	5/29/2014	6.62	6.47	622	14.7	0.23	**16**	**3.7**	**100**	<1.0	<100	<290	<460	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
		9/11/2014	6.81	6.45	352	18.8	0.28	**17**	**3.2**	**100**	<1.0	<100	<260	<410	<1.0	<1.0	<1.0	<1.0				<3.0												
		12/15/2014	6.68	6.41	332	15.6	0.87	**15**	**2.8**	**100**	<1.0	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0	<4.4	<4.0	<11	<10	<1.1	<1.0						
		3/20/2015	6.64	6.69	423	14.8	NA	**9.8**	**2.4**	**62**	<0.40	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3		<4.4	<4.0	**13**	<10	**1.3**	<1.0						
HZMW-15S	5-15	5/29/2014	5.75	6.35	785	15.0	1.45	**3.6**	**7.1**	**150**	<1.0	<100	<280	<450	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
		9/13/2014	7.34	6.87	575	19.7	0.25	**12**	**19**	**400**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0				<1.0												
		12/15/2014	5.80	6.44	549	12.1	0.95	**12**	**14**	**300**	<2.0	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0	<4.4	<4.0	<11	<10	<1.1	<1.0						
		3/20/2015	5.55	6.32	579	12.2	NA	**3.5**	**6.2**	**140**	<1.0	<100	<270	<430	<1.0	<1.0	<1.0	<1.0			<3.3		<4.4	<4.0	<11	<10	<1.1	<1.0						
HZMW-15D	20-30	5/29/2014	6.08	6.28	1000	14.2	0.12	**180**	**290**	**3700**	<20	<100	<280	<460	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
		9/13/2014	6.74	6.33	308	19.1	0.30	**4.5**	**6.9**	**93**	<0.40	<100	<250	<410	<1.0	<1.0	<1.0	<1.0				<3.0												
		12/15/2014	6.11	6.34	290	13.0	1.87	**4.3**	**9.2**	**130**	<1.0	<100	<250	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0	<4.4	<4.0	<11	<10	<1.1	<1.0						
		3/20/2015	6.05	6.27	491	13.6	NA	**280**	**400**	**6700**	<30	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3		<4.4	<4.0	<11	<10	<1.1	<1.0						
HZMW-16	15-25	5/28/2014	6.35	6.52	451	15.5	0.16	**0.30**	<0.20	**0.32**	<0.20	<100	<250	<410	<1.0	<1.0	<1.0	<1.0																
		9/12/2014	6.78	7.08	207	17.9	1.23	<0.20	<0.20	**4.2**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0				<3.0												
		12/15/2014	6.09	7.01	235	15.0	0.57	<0.20	<0.20	**0.4**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
		3/19/2015	6.10	6.59	326	15.1	NA	**0.24**	<0.20	**0.35**	<0.20	<100	<250	<410	<1.0	<1.0	<1.0	<1.0	**1.8**	**13**	<3.3	<3.0							**60**			<0.50	**66**	
HZMW-17	10-20	6/9/2014	7.93	6.61	594	13.8	0.15	<0.20	<0.20	<0.20	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
		9/12/2014	8.30	6.94	345	16.4	0.89	<0.20	<0.20	**2.0**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0				<3.0												
		12/16/2014	7.79	6.71	309	13.7	1.55	<0.20	<0.20	**0.5**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			**5.1**	<3.0												
		3/19/2015	7.60	6.96	434	12.7	NA	<0.20	<0.20	<0.20	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			**8.7**	<3.0												
HZMW-18	7.5-17.5	6/10/2014	8.51	6.38	1901	14.0	0.14	<0.20	<0.20	<0.20	<0.20	<100	<250	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
HZMW-19	5-15	5/30/2014	5.58	6.38	1210	13.8	0.10	**0.40**	**0.94**	**0.97**	<0.20	**1200**	<100	<410	**2.1**	<1.0	**11**	**1.6**			<3.3	<3.0												
		6/9/2014	6.02	6.26	1213	14.3	0.13	**1.1**	**0.67**	**0.28**	<0.20	**720**	<640	<410	<4.0	<4.0	<4.0	<4.5			<3.3	<3.0												
		9/12/2014	6.21	6.37	675	19.7	0.50	**0.67**	**0.76**	**3.3**	<0.20	**510**	**680**	**430**	<1.0	<1.0	**5.8**	<1.0				<3.0												
		12/16/2014	5.09	6.75	301	13.5	0.42	<0.20	<0.20	**1.0**	<0.20	**330**	<260	<410	<1.0	<1.0	**4.0**	**2.0**			<3.3	<3.0												
		3/19/2015	5.30	6.33	376	13.0	NA	<0.20	<0.20	<0.20	<0.20	**110**	<260	<410	<1.0	<1.0	**2.2**	<1.0	<0.050	<5.0	<3.3	<3.0							**85**			**100**	**120**	
		8/6/2015	8.95	6.18	513	18.7	0.00					<100	<370	**580**	<1.0	<1.0	<1.0	<1.0																
		12/11/2015	3.80	5.85	107	12.4	4.76					<100	<260	<410	<1.0	<1.0	<1.0	<1.0																
HZMW-20	5-15	6/9/2014	7.48	6.79	1914	15.3	0.28	<0.20	<0.20	<0.20	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
		9/13/2014	8.11	7.09	1018	20.7	0.72	<0.20	<0.20	**1.3**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0				<3.0												
		12/16/2014	6.36	6.72	851	12.6	0.44	<0.20	<0.20	**0.41**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
		3/19/2015	6.86	6.91	1139	12.5	NA	<0.20	<0.20	<0.20	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
BLMW-8	5-15	6/10/2014																																Well cannot be found
		9/10/2014	8.89	6.4	486	18.8	0.20	<0.20	<0.20	<0.20	<0.20	<100	**280**	**540**	<1.0	<1.0	<1.0	<1.0			<1.0	<3.0												
		12/16/2014	7.86	6.54	508	13.8	0.99	<0.20	<0.20	**0.69**	<0.20	<100	<260	**630**	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												
		3/30/2015	8.00	5.49	410	13.6	0.00	<0.20	<0.20	<0.20	<0.20	<100	**300**	**560**	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0							**1200**	**0.14**	<5.0	**1100**	**170**	
		8/6/2015	6.92	6.14	522	19.1	0.00					<100	<300	<440	<1.0	<1.0	<1.0	<1.0																
		12/1/2015	5.31	5.47	487	15.5	0.00					<400	**320**	**510**	<4.0	<4.0	<4.0	<4.0																
BC-16	11-21	6/10/2014	8.70	6.43	4.27	12.9	0.05	<0.20	<0.20	<0.20	<0.20	<100	<470	<510	<1.0	<1.0	<1.0	<1.0			**60**	**18**												
		9/13/2014	8.79	6.3	1659	18.8	0.11	<0.20	<0.20	**1.4**	<0.20	<100	**470**	<420	<1.0	<1.0	<1.0	<1.0			**64**	**31**												
		12/16/2014	3.74	6.56	364	13.1	0.74	<0.20	<0.20	**0.39**	<0.20	<100	**550**	**540**	<1.0	<1.0	<1.0	<1.0			**23**	**11**												
		3/26/2015	4.10	6.38	1886	12.77	0.00	<0.020	<0.020	<0.020	<0.020	<100	**600**	<420	<1.0	<1.0	<1.0	<1.0			**17**	**13**							**7000**	**0.57**	<5.0	**4500**	**540**	
		8/6/2015	8.53	6.3	1783	18.39	0.00					<100	**420**	**450**	<1.0	<1.0	<1.0	<1.0																
		12/2/2015	3.45	5.99	1589	12.82	0.00					**130**	**440**	420	<1.0	<1.0	<1.0	<1.0																
QC Samples																																		
Dup 1		5/29/2014						**3.8**	**8.3**	**140**	<2.0	<100	<280	<440	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												Duplicate of HZMW-15S 5/29/14
Dup 2		12/15/2014						<0.20	<0.20	**0.40**	<0.20	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												Duplicate of HZMW-16 12/15/14
Trip Blank		5/30/2014						<0.20	<0.20	<0.20	<0.20	<100			<1.0	<1.0	<1.0	<1.0																
Trip Blank		6/10/2014						<0.20	<0.20	<0.20	<0.20																							
Trip Blank		12/16/2014						<0.20	<0.20	<0.20	<0.20	<100			<1.0	<1.0	<1.0	<1.0																
Trip Blank		3/30/2015						<0.20	<0.20	<0.20	<0.20																							
DUP121514		12/15/2014						<0.20	<0.20	**0.4**	<0.20	<100	<280	<410	<1.0	<1.0	<1.0	<1.0			<3.3	<3.0												Duplicate of HZMW-16 12/15/2014
DUP 32015		3/20/2015						**3.9**	**6.5**	**210**	<1.0	<100	<260	<410	<1.0	<1.0	<1.0	<1.0			<3.3		<4.4	<4.0	<11	<10	<1.1	<1.0						Duplicate of HZMW-14S 3/20/2015

* Arsenic ground water cleanup level based on drinking water MCL
< – Analyte not detected at laboratory's listed reporting limit
Bold indicates analyte detected at a concentration greater than the laboratory reporing limit
Yellow highlight indicates analyte exceeds MTCA cleanup level
Blank – Not analyzed

Table 4 Potential Applicable or Relevant and Appropriate Requirements (ARARs)

ARAR	Description	Applicability
Soil		
Model Toxics Control Act (WAC 173-340-740, -747)	MTCA regulates the investigation and cleanup of releases to the environment that may pose a threat to human health or the environment. Establishes cleanup levels for soil, including derivation of soil concentrations protective of groundwater.	MTCA cleanup levels are applicable to Site soil.
Groundwater		
Safe Drinking Water Act, Primary Drinking Water Regulations (40 Code of Federal Regulations [CFR] 141.50 and 141.61(a))	These regulations protect the quality of public drinking water supplies through regulation of chemical parameters and constituent concentrations as maximum concentration limits (MCLs).	MCLs are potentially relevant and appropriate where groundwater is a potential source of drinking water.
Model Toxics Control Act (WAC 173-340-720)	MTCA regulates the investigation and cleanup of releases to the environment that may pose a threat to human health or the environment. Establishes cleanup levels for groundwater.	MTCA cleanup levels are applicable to Site groundwater.
Surface Water		
Clean Water Act, Section 304, National Recommended Water Quality Criteria, EPA Office of Science and Technology (4304T, 2004).	There are no ambient water quality criteria for PCE for protection of freshwater organisms.	Surface water quality criteria are potentially relevant and appropriate to ambient surface water quality for point-source discharges to Horse Creek.
Clean Water Act, National Pollutant Discharge Elimination System (40 CFR Part 122) and Washington State National Pollutant Discharge Elimination System Permit Program (WAC 173-220).	The National Pollutant Discharge Elimination System (NPDES) program requires that permits be obtained for point-source discharges of pollutants to surface water. Under this regulation, a point-source discharge to a surface water body cannot cause an exceedance of water quality standards in the receiving water body outside the mixing zone.	Substantive regulatory requirements of the NPDES permit program are potentially applicable to the direct discharge of treated groundwater to a surface water body such as Horse Creek or Sammamish River.
Clean Water Act's National Toxics Rule (NTR) (40 CFR 131.36)	Provides values that have to be met for point-source discharges to surface water.	Potentially applicable to point-source discharges to Horse Creek should remedial activities cause release to surface water. If applicable, these values would have to be met at the mixing zone boundary established for the discharge.
Clean Water Act, General Pretreatment Regulations (40 CFR Part 403).	The regulations limit pollutants in wastewater discharges to sanitary sewer systems to protect publicly owned treatment works (POTWs) from accepting wastewater that would damage their system or cause them to exceed their NPDES permit discharge limits.	These regulations are potentially applicable to the discharge of treated groundwater to City of Bothell POTWs.
Washington State Water Quality Standards for Surface Waters (WAC 173-201A)	Washington State water quality standards protect freshwater aquatic life by specifying protection criteria by stretch of surface waters. WAC 173-201A provides limitations on other parameters such as turbidity, temperature, dissolved oxygen, and pH for protection of organisms. Tributaries of waters whose uses are designated salmon and trout spawning, core rearing and migration, or extraordinary primary contact recreation are protected at the same level as the waters themselves.	The substantive requirements of this regulation are potentially applicable for remedial actions affecting Horse Creek.
Washington Surface Water Quality Standards, Short-Term Modifications (WAC 173-201A-410)	Washington State provides for short-term modifications of standards for specific water bodies on a short-term basis when necessary to accommodate essential activities, respond to emergencies, or to otherwise protect the public interest.	These would be potentially applicable to remedial actions affecting Horse Creek.
Model Toxics Control Act (WAC 173-340-730)	MTCA regulates the investigation and cleanup of releases to the environment that may pose a threat to human health or the environment. Establishes cleanup levels for surface water.	MTCA cleanup levels may be applicable to the Site if remedial activities cause a release to surface water.
Air		
National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR Part 261)	Establishes specific emissions levels allowed for toxic air pollutants.	Applicable to treatment alternatives that may emit toxic pollutants to the air.
Washington Clean Air Act and Implementing Regulations (WAC 173-400; WAC 173-460; WAC 173-490)	WAC 173-400 requires air emissions at the Site boundary to fall below the acceptable source impact limit (ASIL). WAC 173-400 also requires control of fugitive dust emissions during construction and defines general emission discharge treatment requirements. WAC 173-460 requires systemic control of new sources emitting air pollutants. WAC 173-490 sets emission standards and source control for volatile organic compounds.	Applicable for air stripping/sparging remedial technology.
Model Toxics Control Act (WAC 173-340-750)	MTCA regulates the investigation and cleanup of releases to the environment that may pose a threat to human health or the environment. Establishes cleanup levels for air.	MTCA cleanup levels may be applicable to the Site if remedial activities cause a release to air.

Table 4. Potential Applicable or Relevant and Appropriate Requirements (ARARs)

ARAR	Description	Applicability
Miscellaneous		
Protection of Wetlands, Executive Order 11990 (40 CFR Part 6, Appendix A)	This executive order mandates that response actions taken by federal agencies must be designed to avoid long- and short-term impacts to wetlands. If remediation activities are located near/in wetlands, the activities must be designed to avoid adverse impact to the wetlands wherever possible, including minimizing wetlands destruction and preserving wetland values.	This Act would be potentially applicable to remedial activities at the Site.
Endangered Species Act (50 CFR Parts 17, 402)	Section 7 of the Endangered Species Act (ESA) and 40 CFR Part 402 require that federal agencies consider the effects of their proposed actions on federal listed species. It requires consultation between the agency proposing the action and the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration (NOAA) Fisheries, as appropriate. Preparation of a biological assessment is conducted, addressing the potential effects to listed species in the area and methods to minimize those effects.	The ESA is potentially applicable to remedial actions at the Site because the USFWS has determined that federal threatened species (bald eagle and bull trout) may use the project area. Therefore, they could potentially be affected by these actions.
Native American Graves Protection and Repatriation Act (43 CFR Part 10)	Native American Graves Protection and Repatriation Act regulations protect Native American burials from desecration through the removal and trafficking of human remains and “cultural items,” including funerary and sacred objects.	This Act is potentially applicable to remedial actions at the Site because it is possible that the disturbance of Native American materials could occur as a result of work in the stream bed or subsurface excavations elsewhere at the Site. Such materials are not known to be present at the Site, but could be inadvertently uncovered during soil or sediment removal.
National Historic Preservation Act (36 CFR Parts 60, 63, and 800)	National Historic Preservation Act (NHPA) regulations require federal agencies to consider the possible effects on historic sites or structures of actions proposed for federal funding or approval. Historic sites or structures as defined in the regulations are those on or eligible for the National Register of Historic Places, generally at least 50 years old.	This Act is potentially applicable to stream bed or other subsurface work at the Site. No such sites are known to be present in the area.
Washington Hazardous Waste Management Act (WAC 173-303)	Establishes standards for the generation, transport, treatment, storage, or disposal of designated dangerous waste in the state.	This regulation is potentially applicable to alternatives that would involve handling of contaminated media at the Site. The area of contamination policy allows contaminated media to be consolidated within the same area of a site without triggering Resource Conservation and Recovery Act or Washington dangerous waste regulations.
Department of Transportation of Hazardous Wastes (49 CFR 105 – 180)	Establishes specific U.S. Department of Transportation rules and technical guidelines for the off-site transport of hazardous materials.	Applicable to remedial activities that involve the off-site transportation of hazardous waste.
Washington Solid Waste Handling Standards (WAC 173-350)	Establishes standards for handling and disposal of solid non-hazardous waste in Washington.	These regulations are potentially applicable to solid nonhazardous wastes and are potentially relevant and appropriate to on-site remedial actions governing contaminated media management.
Washington Water Well Construction Act Regulations (WAC 173-160)	Provides requirements for water well construction.	These regulations are potentially applicable to the installation, operation, or closure of monitoring and treatment wells at the Site.

Table 5
Cleanup Alternatives Evaluation

	In-situ Bio + MNA chem-fix + eng & inst Controls	**Institutional Controls + MNA**
Threshold requirements		
Protect human health and the environment	This alternative would likely reduce COCs	Human health and the environment would still be protected
Comply with cleanup standards	Likely	Yes*
Complies with applicable state and federal laws	All alternatives would comply with applicable state and federal laws	
Provide for compliance monitoring	Yes	Yes
Other requirements		
Use permanent solutions to maximum extent practicable	Yes, if successful	The institutional controls would be permanent
Provide for a reasonable restoration time frame	Yes, if successful	No
Consider public concerns	All alternatives would Consider public concerns	

* Institutional controls may not meet numeric cleanup levels at the standard point of compliance, but the cleanup action can comply with cleanup standards provided several criteria are met (see Section 9.1.2).

Table 6
Disproportionate Cost Analysis Evaluation Criteria
(Score is Based on Scale of 1-5)

		In Situ Bio + MNA + chem-fix+ eng & inst Cont		**Inst Controls + MNA**		**No Action**	
	weight	score	value	score	value	score	value
Overall protectiveness of human health & environment	30%	5	1.5	3	0.9	0	0
Permanent reduction of toxicity, mobility and volume	20%	5	1	3	0.6	0	0
Long term effectiveness	20%	5	1	2	0.4	0	0
Short term risks	10%	3	0.3	5	0.5	5	0.5
Implementability	10%	5	0.5	5	0.5	5	0.5
Community acceptance	10%	3	0.3	3	0.3	0	0
Total score			4.6		3.2		1

Table 7
Disproportionate Cost Analysis

	In Situ Bio + MNA + MNA + chem-fix + Eng & inst Contr	**Inst Controls + MNA**	**No Action**
Disproportionate cost analysis			
Estimated cleanup cost ($ x 10,000)	$156	$13	0
Net Benefit	4.60	3.20	1
Incremental benefit	1.40	2.20	0
Benefit : cost (cost-effectiveness)	0.03	0.25	
Incremental cost	$143	$13	0
Incremental benefit : incremental cost	0.01	0.17	

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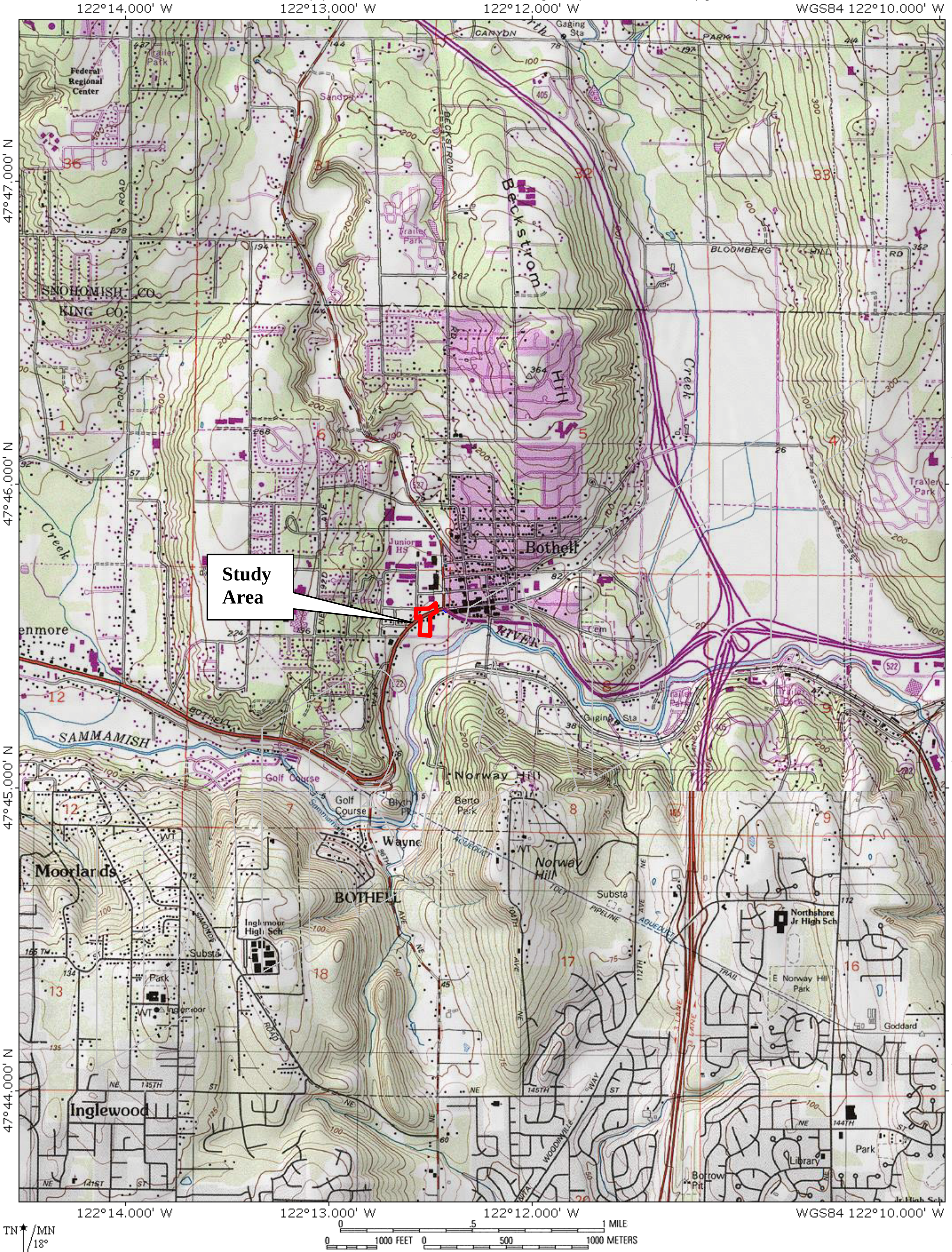

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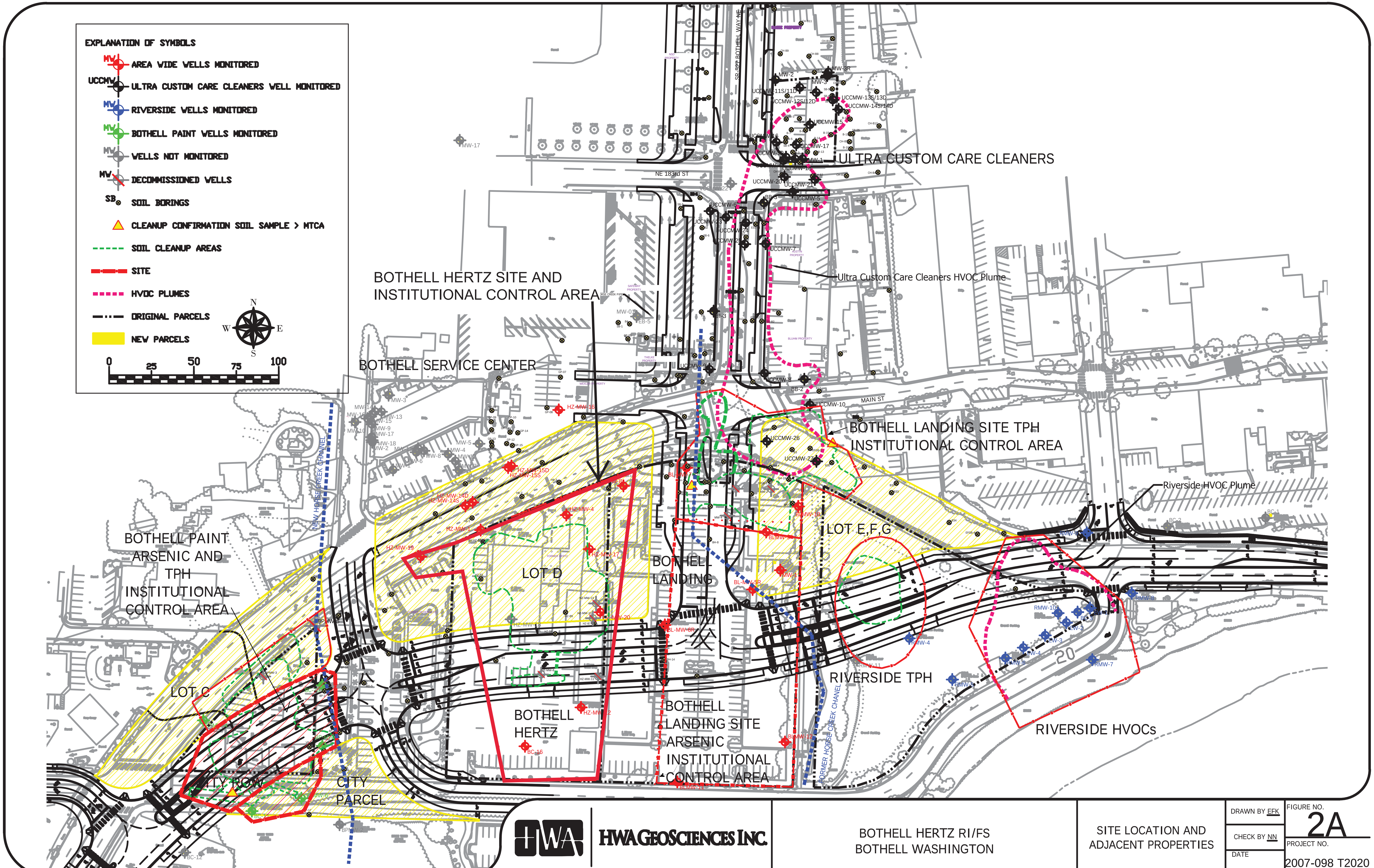
HWA GEOSCIENCES INC.

SITE VICINITY

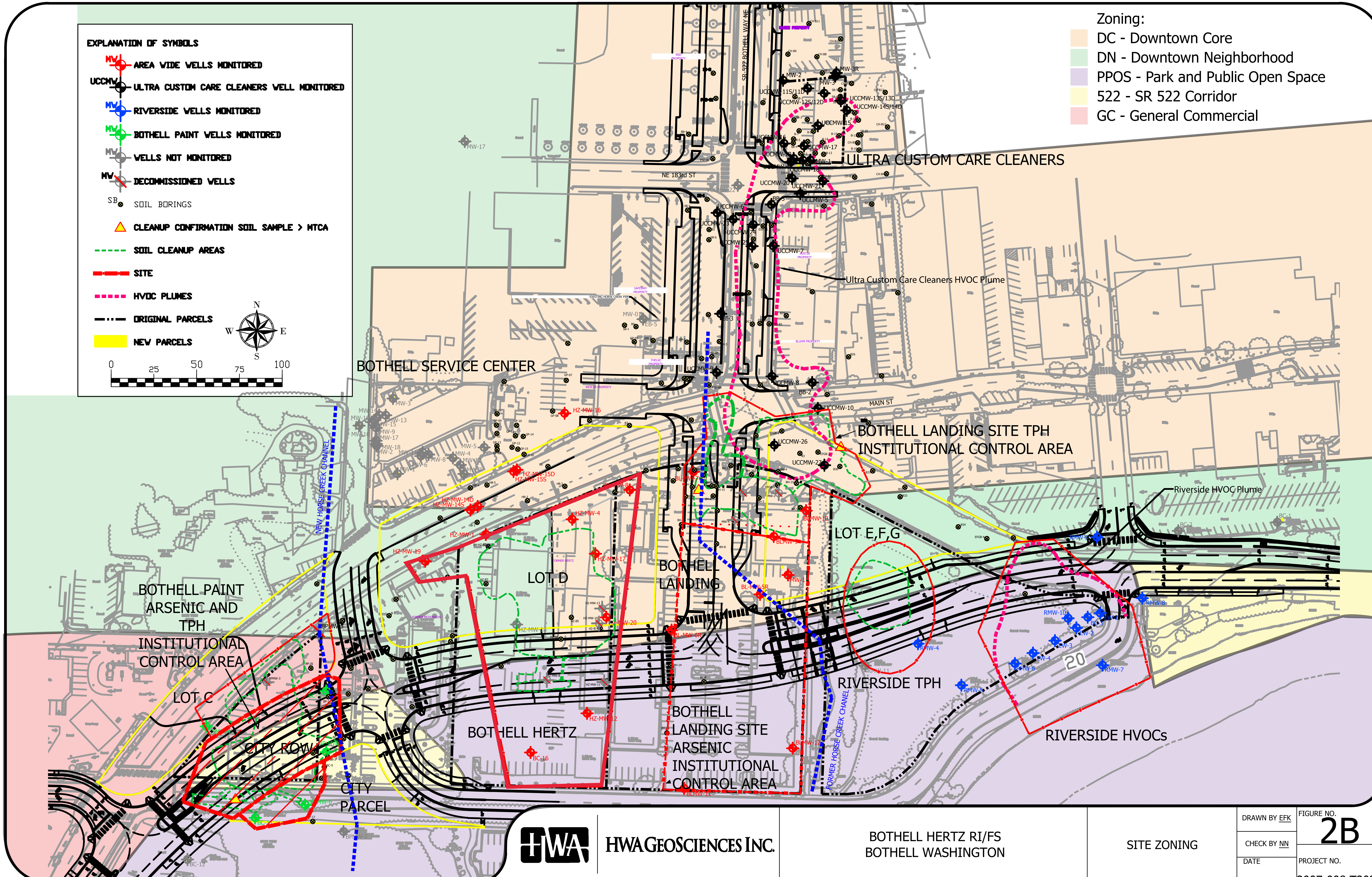
BOTHELL FORMER HERTZ FACILITY
RI/FS/DCAP
BOTHELL, WASHINGTON

FIGURE NO.
1

PROJECT NO.
2007-098



C:\USERS\COMPUTER\GOOGLE DRIVE\COMPANIES\CLIENTS\HWA GEOSCIENCES\05_04_2016\HWA 2007-098-21 T2020 (FIG2).DWG <11x17 all wells (2)> Plotted: 5/22/2015 9:11 AM



C:\USERS\COMPUTER\GOOGLE DRIVE\COMPANIES\CLIENTS\HWA GEOSCIENCES\05_04_2016\HWA 2007-098-21 T2020 (FIG2E).DWG <11x17 all wells (2)> Plotted: 5/22/2015 9:11 AM

EXHIBIT A: SITE DIAGRAM

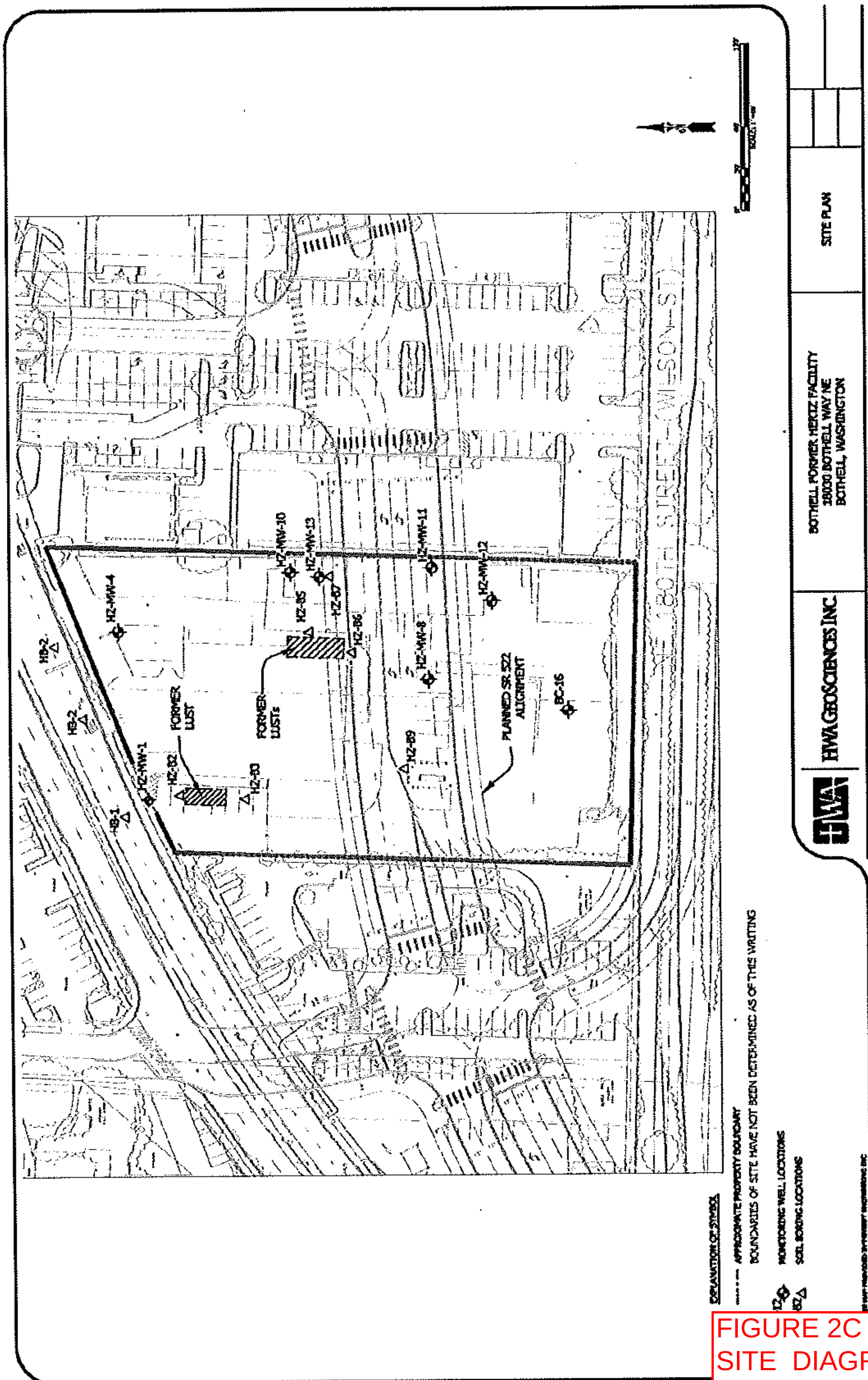


FIGURE 2C
SITE DIAGRAM FROM 2011
AGREED ORDER

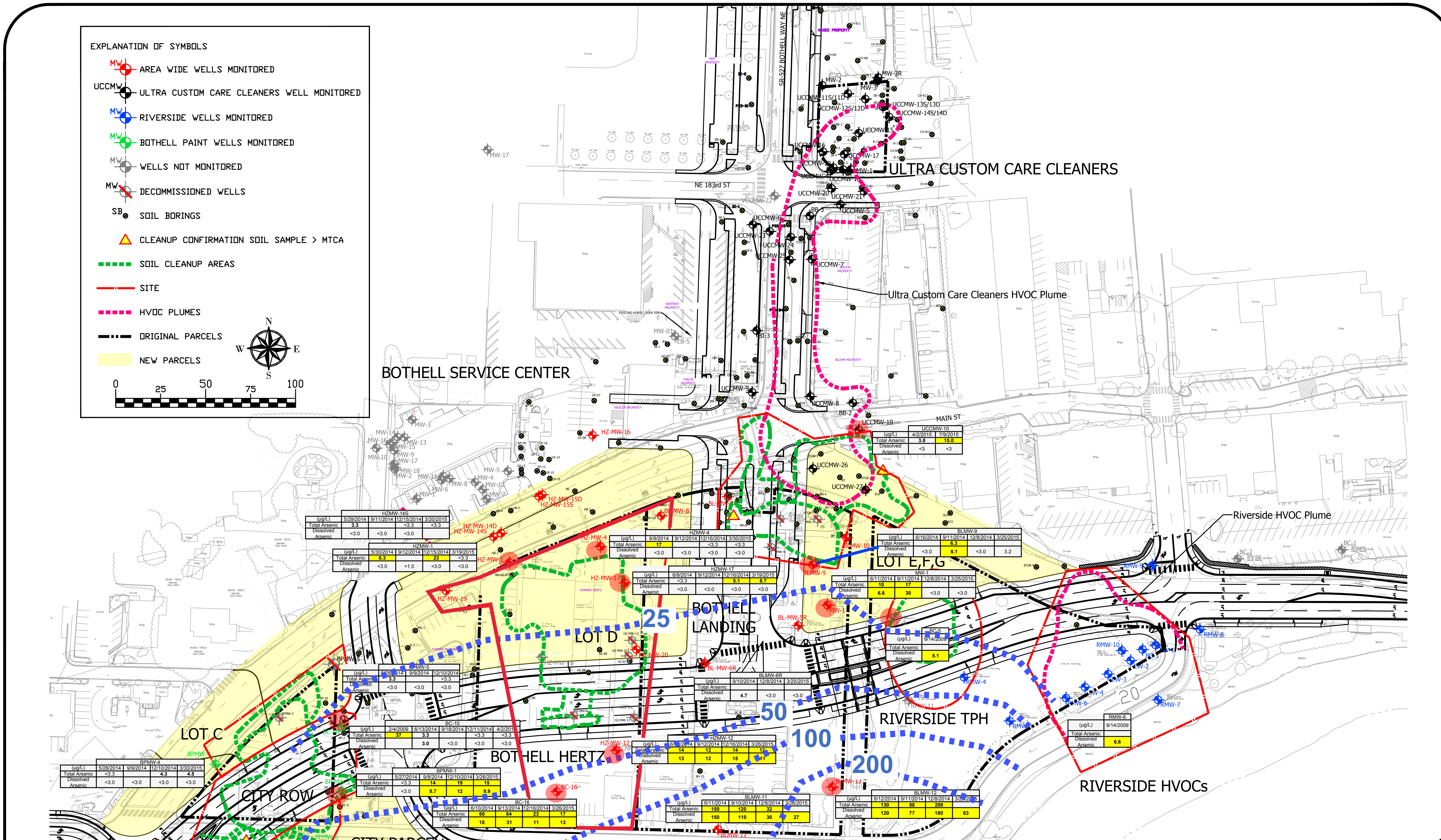
HWA GEOSCIENCES INC.

AERIAL PHOTOGRAPH - CURRENT ROADWAY

BOTHELL HERTZ RI/FS
BOTHELL, WASHINGTON

FIGURE NO.
2d

PROJECT NO.
2007-098



(µg/L)	UCCMW-10 4/2/2015	UCCMW-10 7/9/2015
Total Arsenic	3.8	15.0
Dissolved Arsenic	<3	<3

(µg/L)	HZMW-14S 5/29/2014	9/11/2014	12/15/2014	3/20/2015
Total Arsenic	3.3		<3.3	<3.3
Dissolved Arsenic	<3.0	<3.0	<3.0	

(µg/L)	HZMW-1 5/30/2014	9/12/2014	12/15/2014	3/19/2015
Total Arsenic	6.3		23	<3.3
Dissolved Arsenic	<3.0	<1.0	<3.0	<3.0

(µg/L)	HZMW-4 6/9/2014	9/12/2014	12/16/2014	3/30/2015
Total Arsenic	17		<3.3	<3.3
Dissolved Arsenic	<3.0	<3.0	<3.0	<3.0

(µg/L)	HZMW-17 6/9/2014	9/12/2014	12/16/2014	3/19/2015
Total Arsenic	<3.3		5.1	8.7
Dissolved Arsenic	<3.0	<3.0	<3.0	<3.0

(µg/L)	BLMW-9 6/16/2014	9/11/2014	12/8/2014	3/25/2015
Total Arsenic		6.3		
Dissolved Arsenic	<3.0	6.1	<3.0	3.2

(µg/L)	MW-1 6/11/2014	9/11/2014	12/8/2014	3/25/2015
Total Arsenic	10	17		
Dissolved Arsenic	6.6	30	<3.0	<3.0

(µg/L)	BC-5 9/14/2009
Total Arsenic	
Dissolved Arsenic	5.1

(µg/L)	BPMW-5 5/28/2014	9/9/2014	12/10/2014
Total Arsenic	3.3		<3.3
Dissolved Arsenic	<3.0	<3.0	<3.0

(µg/L)	BLMW-6R 9/10/2014	12/8/2014	3/25/2015
Total Arsenic			
Dissolved Arsenic	4.7	<3.0	<3.0

(µg/L)	BC-10 2/4/2009	6/13/2014	9/18/2014	12/11/2014	4/2/201
Total Arsenic	37	3.3		<3.3	<3.3
Dissolved Arsenic		3.0	<3.0	<3.0	<3.0

(µg/L)	RMW-6 9/14/2009
Total Arsenic	
Dissolved Arsenic	6.6

(µg/L)	BPMW-4 5/28/2014	9/9/2014	12/10/2014	3/30/2015
Total Arsenic	<3.3		4.3	4.5
Dissolved Arsenic	<3.0	<3.0	<3.0	<3.0

(µg/L)	HZMW-12 6/9/2014	9/12/2014	12/16/2014	3/26/2015
Total Arsenic	14	12	14	12
Dissolved Arsenic	13	12	15	11

(µg/L)	BPMW-1 5/27/2014	9/8/2014	12/10/2014	3/26/2015
Total Arsenic	<3.3	14	19	15
Dissolved Arsenic	<3.0	8.7	12	9.9

(µg/L)	BLMW-11 6/11/2014	9/10/2014	12/8/2014	3/26/2015
Total Arsenic	150	120	32	
Dissolved Arsenic	150	110	30	27

(µg/L)	BLMW-12 6/12/2014	9/11/2014	12/8/2014	3/26/2015
Total Arsenic	130	88	200	
Dissolved Arsenic	120	77	180	63

(µg/L)	BC-16 6/10/2014	9/13/2014	12/16/2014	3/26/2015
Total Arsenic	60	64	23	17
Dissolved Arsenic	18	31	11	13

(µg/L)	BC-11 12/30/2008	5/27/2014	9/11/2014	12/10/2014	3/26/2015
Total Arsenic	<3.3	6.2	11	9	7.7
Dissolved Arsenic		5.1	9.7	8.9	6.3

(µg/L)	BPMW-6 5/27/2014	9/8/2014	12/19/2014	3/26/2015
Total Arsenic	3.3	39	64	52
Dissolved Arsenic	3.0	23	60	54

HWA GEOSCIENCES INC.

BOTHELL AREA WIDE MONITORING
BOTHELL WASHINGTON

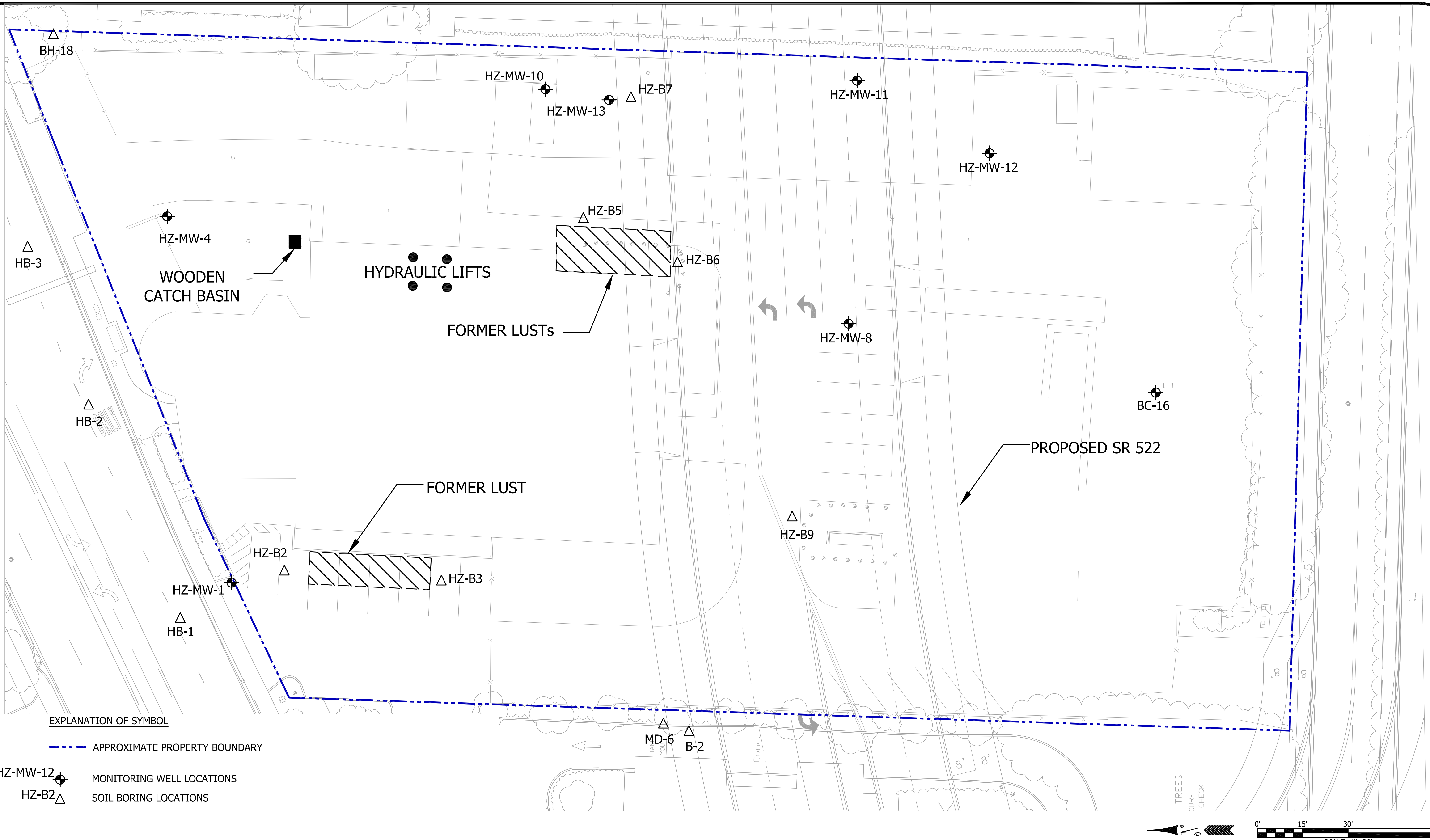
ARSENIC
GROUND WATER
SUMMARY
AUGUST 2015

DRAWN BY EFK
CHECK BY AS
DATE

FIGURE NO.
2E

PROJECT NO.
2007-098 T1998

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD 2007-098\HWA 2007-098-21 T998 ARSENIC.DWG <Fig 1 11x17 all wells (2)> Plotted: 9/21/2015 4:36 PM



BASE MAP PROVIDED BY PARAMETRIX

HWAGEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY
SOIL CLEANUP
BOTHELL, WASHINGTON

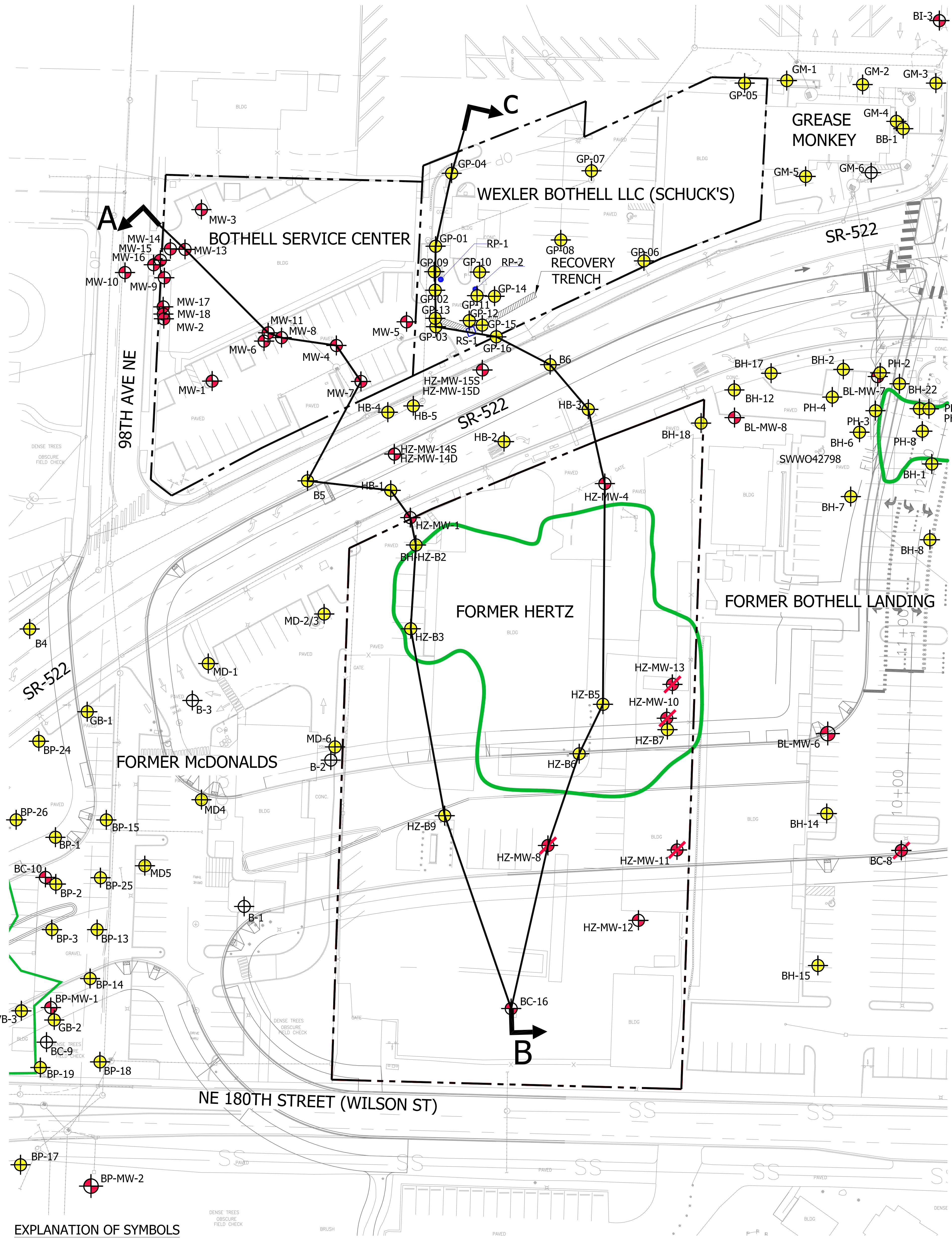
SITE PLAN
PRIOR TO CLEANUP

DRAWN BY EFK
CHECK BY NN
DATE 12.22.10

FIGURE NO. 3

PROJECT NO. 2007-098 T921

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T210.DWG <HERTZ PRIOR FIG 3> Plotted: 1/21/2011 10:30 AM



EXPLANATION OF SYMBOLS

APPROXIMATE LOCATION PROPERTY LINE

2010 SOIL CLEANUP LIMITS

MW MONITORING WELL

SB SOIL BORING

DPP DIRECT PUSH PROBE

MW DECOMMISSIONED MONITORING WELL

RS-1 RECOVERY SUMP

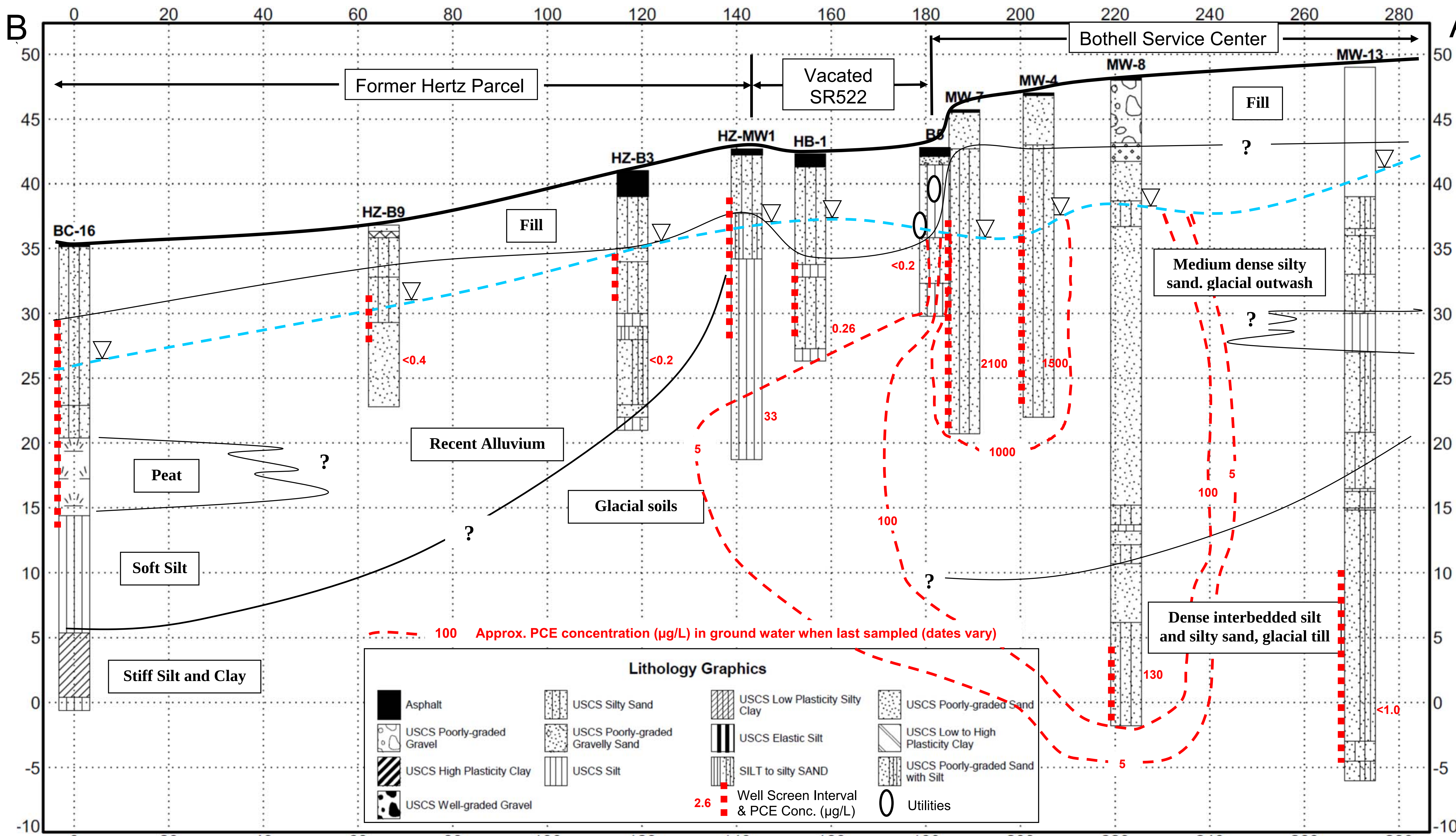
RP-2 REINTRODUCTION POINT

A B CROSS-SECTION LOCATION

BASE MAP PROVIDED BY PERTEET ENGINEERING INC

HWA GEOSCIENCES INC.	BOTHELL FORMER HERTZ FACILITY RI/FS/sCAP BOTHELL, WASHINGTON	SITE PLAN & CROSS SECTION LOCATIONS	DRAWN BY EFK CHECK BY AS DATE 04.08.15	FIGURE NO. 4 PROJECT NO. 2007-098 T2019

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T2019.DWG <FIG 4 T2019> Plotted: 5/4/2015 2:05 PM



See Figure 3 for lines of section

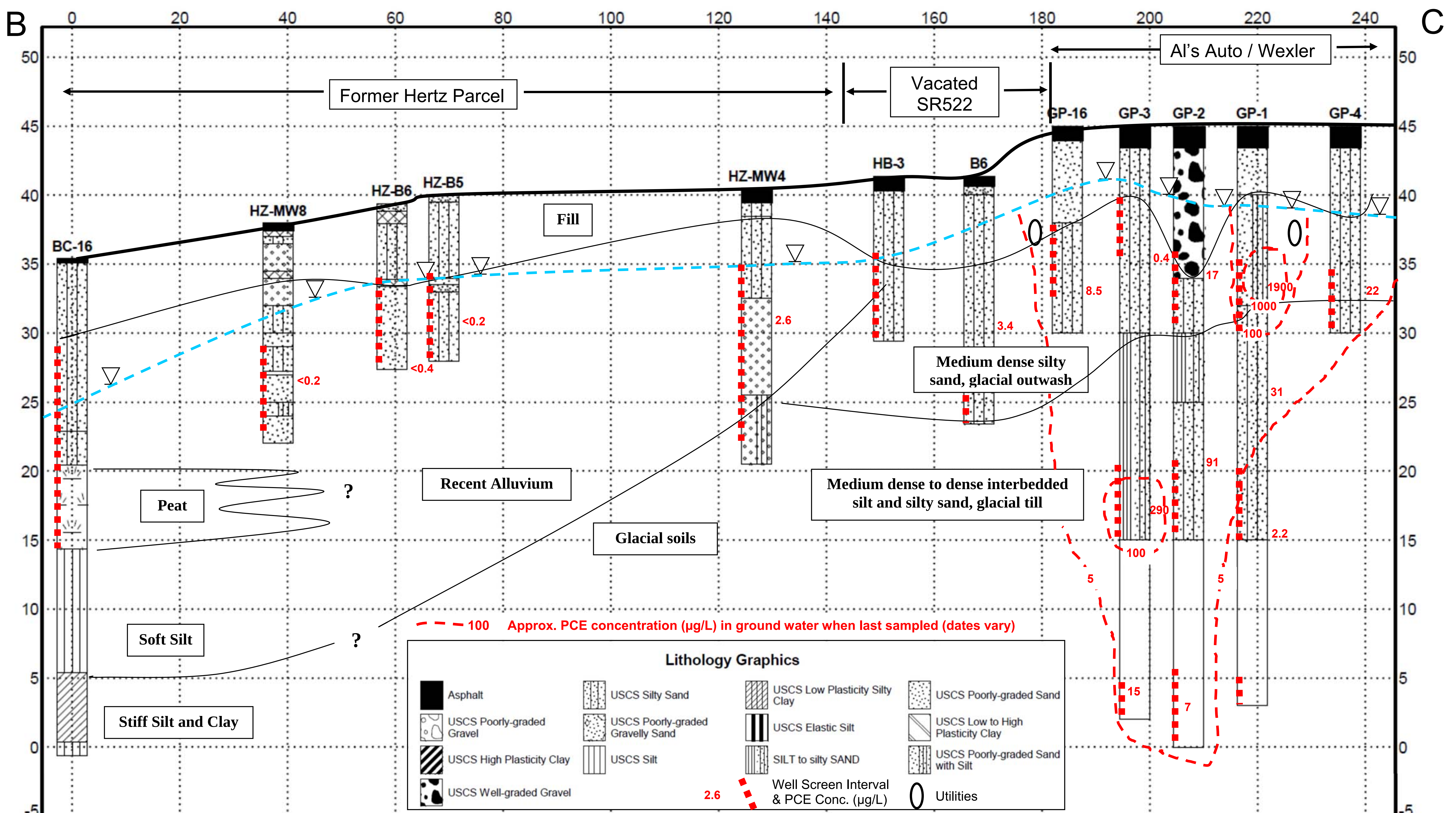
HWA GEOSCIENCES INC.

CROSS SECTION B – A
HERTZ TO BOTHELL SERVICE CENTER

BOTHELL SERVICE CENTER
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

PROJECT NO. 2007-098

FIGURE NO. 5



See Figure 3 for lines of section

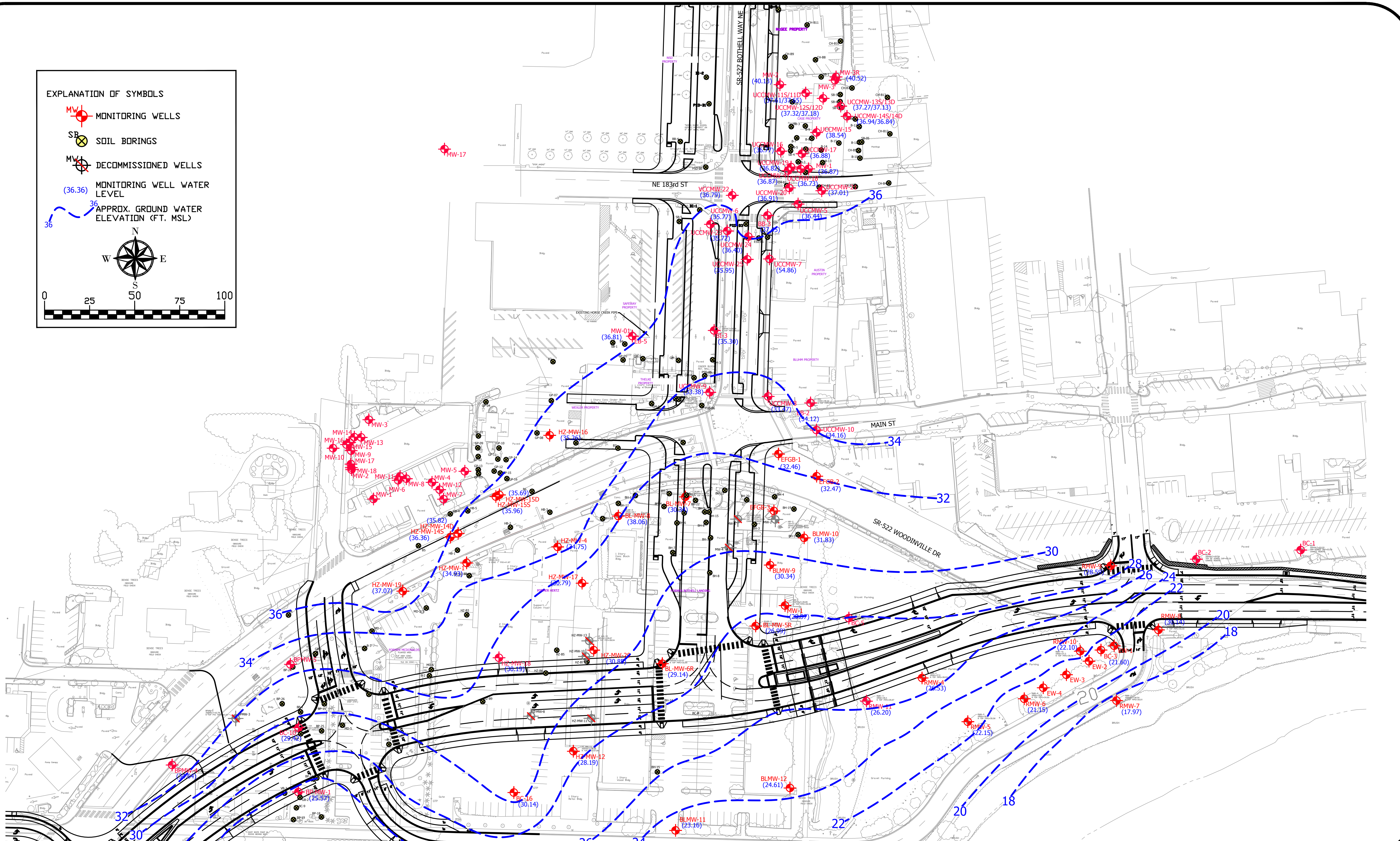
HWA GEOSCIENCES INC.

CROSS SECTION B - C
HERTZ TO AL'S AUTO / WEXLER

BOTHELL SERVICE CENTER
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

PROJECT NO. 2007-098

FIGURE NO. 6



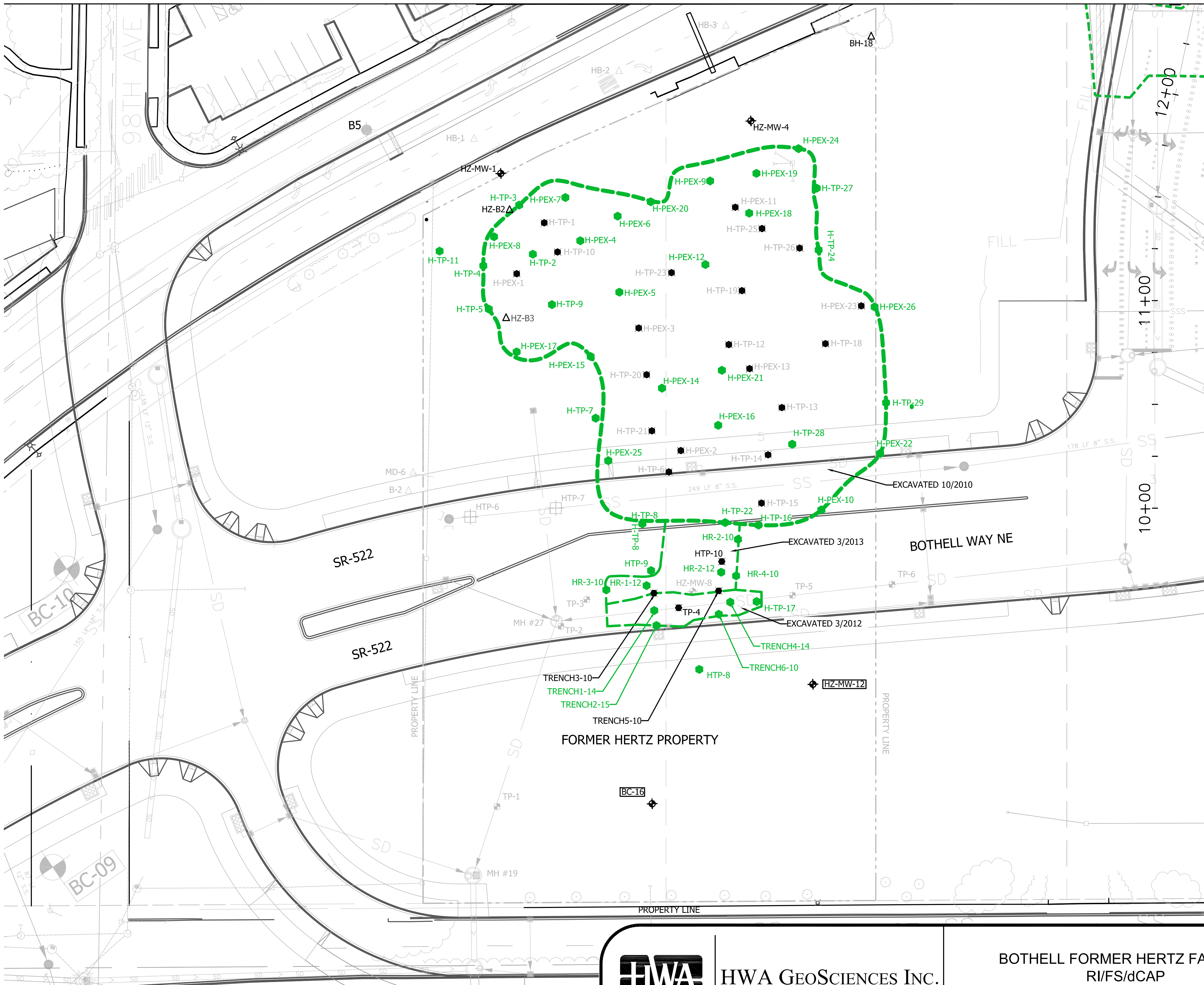
HWA GEOSCIENCES INC.

AREA WIDE GROUND WATER MONITORING NETWORK
BOTHELL, WASHINGTON

WATER TABLE ELEVATIONS
MARCH 2015

DRAWN BY EFK	FIGURE NO. 7
CHECK BY AS	PROJECT NO. 2007-098 T998
DATE	

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD 2007-098\HWA 2007-098-21 T998 GW.DWG <H2O table elevations march 2015 (2)> Plotted: 6/11/2015 7:18 AM



EXPLANATION OF SYMBOL

APPROXIMATE PROPERTY BOUNDARY

APPROXIMATE LIMITS OF CONTAMINATED SOIL EXCAVATION

H-PEX-9 CONFIRMATION SOIL SAMPLE LOCATION

H-TP-9 CONFIRMATION SOIL SAMPLE LOCATION IN AREA THAT WAS SUBSEQUENTLY EXCAVATED

HZ-MW-12, HZ-B2 PRE-CLEANUP SOIL SAMPLE MEETING MTCA CLEANUP LEVELS

TP-21 UTILITY TEST PIT SOIL SAMPLE MEETING CLEANUP LEVELS

0 25 50 75 100

BASE MAP PROVIDED BY:

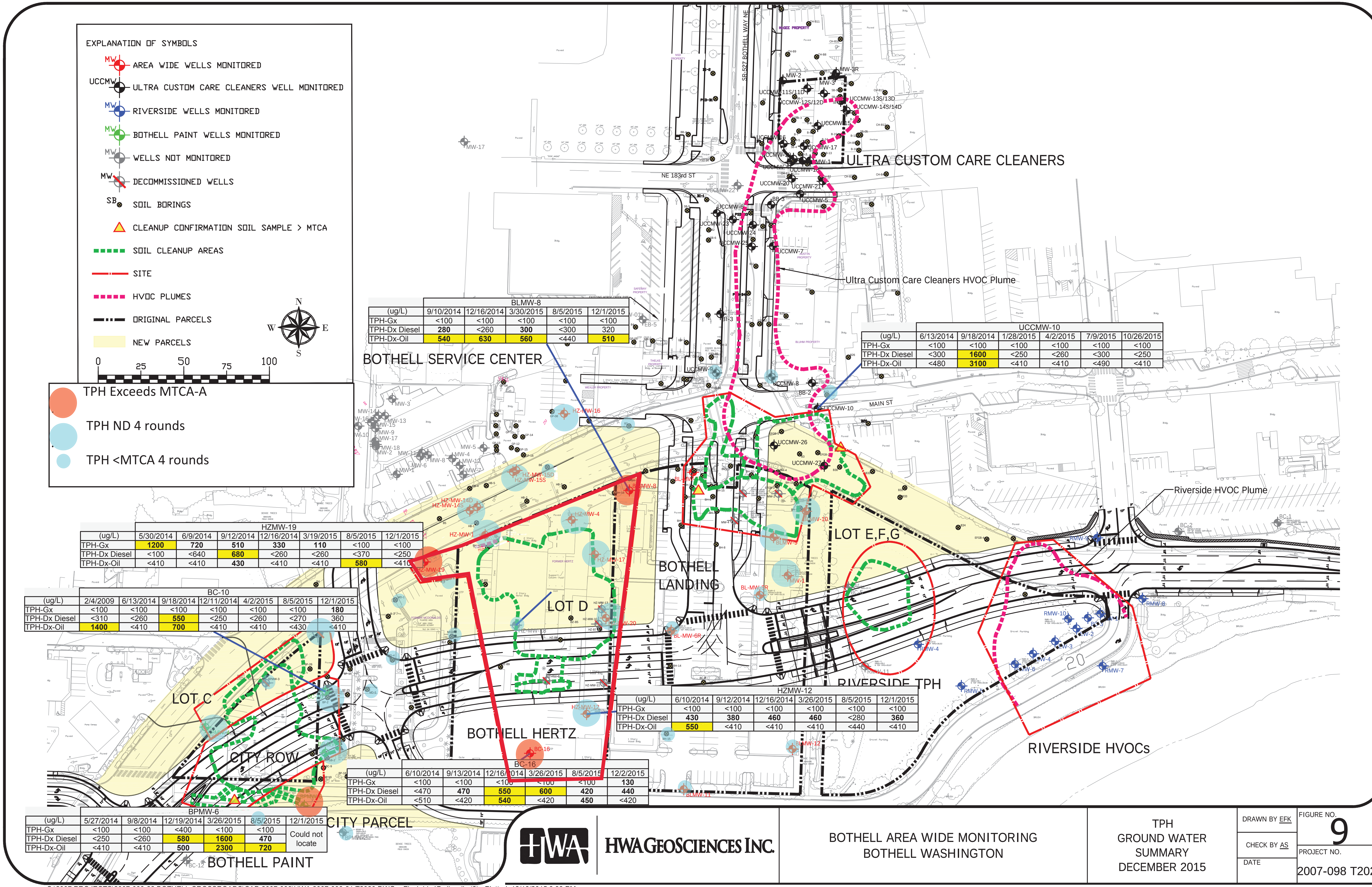
HWA GEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY
RI/FS/dCAP
BOTHELL, WASHINGTON

EXTENT OF SOIL CLEANUP

DRAWN BY	EFK
CHECK BY	AS
DATE:	04.08.14
FIGURE #	8
PROJECT #	2007-098-21 TASK T994

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T994B.DWG <T969 fig 8> Plotted: 4/8/2015 8:29 AM



BLMW-8

(ug/L)	9/10/2014	12/16/2014	3/30/2015	8/5/2015	12/1/2015
TPH-Gx	<100	<100	<100	<100	<100
TPH-Dx Diesel	280	<260	300	<300	320
TPH-Dx-Oil	540	630	560	<440	510

UCCMW-10

(ug/L)	6/13/2014	9/18/2014	1/28/2015	4/2/2015	7/9/2015	10/26/2015
TPH-Gx	<100	<100	<100	<100	<100	<100
TPH-Dx Diesel	<300	1600	<250	<260	<300	<250
TPH-Dx-Oil	<480	3100	<410	<410	<490	<410

HZMW-19

(ug/L)	5/30/2014	6/9/2014	9/12/2014	12/16/2014	3/19/2015	8/5/2015	12/1/2015
TPH-Gx	1200	720	510	330	110	<100	<100
TPH-Dx Diesel	<100	<640	680	<260	<260	<370	<250
TPH-Dx-Oil	<410	<410	430	<410	<410	580	<410

BC-10

(ug/L)	2/4/2009	6/13/2014	9/18/2014	12/11/2014	4/2/2015	8/5/2015	12/1/2015
TPH-Gx	<100	<100	<100	<100	<100	<100	180
TPH-Dx Diesel	<310	<260	550	<250	<260	<270	360
TPH-Dx-Oil	1400	<410	700	<410	<410	<430	<410

HZMW-12

(ug/L)	6/10/2014	9/12/2014	12/16/2014	3/26/2015	8/5/2015	12/1/2015
TPH-Gx	<100	<100	<100	<100	<100	<100
TPH-Dx Diesel	430	380	460	460	<280	360
TPH-Dx-Oil	550	<410	<410	<410	<440	<410

BC-16

(ug/L)	6/10/2014	9/13/2014	12/16/2014	3/26/2015	8/5/2015	12/2/2015
TPH-Gx	<100	<100	<100	<100	<100	130
TPH-Dx Diesel	<470	470	550	600	420	440
TPH-Dx-Oil	<510	<420	540	<420	450	<420

BPMW-6

(ug/L)	5/27/2014	9/8/2014	12/19/2014	3/26/2015	8/5/2015	12/1/2015
TPH-Gx	<100	<100	<400	<100	<100	Could not locate
TPH-Dx Diesel	<250	<260	580	1600	470	
TPH-Dx-Oil	<410	<410	500	2300	720	

HWA GEOSCIENCES INC.

BOTHELL AREA WIDE MONITORING
BOTHELL WASHINGTON

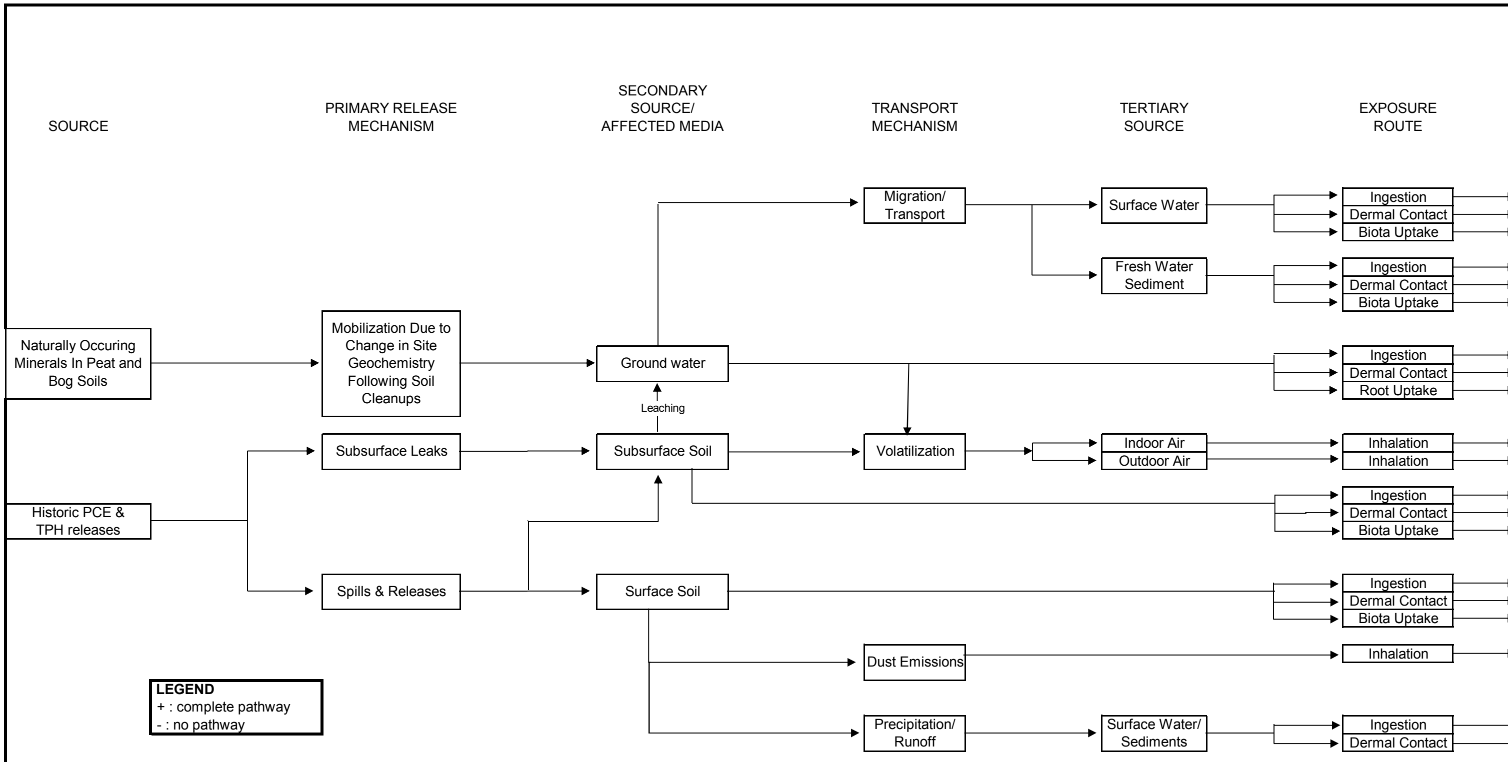
TPH GROUND WATER SUMMARY
DECEMBER 2015

DRAWN BY EFK
CHECK BY AS
DATE

FIGURE NO. 9

PROJECT NO. 2007-098 T2020

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD 2007-098\HWA 2007-098-21 T2020.DWG <Fig 1 11x17 all wells (2)> Plotted: 12/18/2015 3:39 PM



POTENTIAL RECEPTORS	Non-Intrusive Current Worker/Visitor	Non-Intrusive Future Worker/Visitor	Intrusive Worker	Site Visitors	On-Site Ecological	Off-Site Ecological
Ingestion	-	-	-	-	-	-
Dermal Contact	-	-	-	-	-	-
Biota Uptake	-	-	-	-	-	-
Ingestion	-	-	-	-	-	-
Dermal Contact	-	-	-	-	-	-
Biota Uptake	-	-	-	-	-	-
Ingestion	-	-	+	-	-	-
Dermal Contact	-	-	+	-	+	-
Root Uptake	-	-	-	-	+	-
Inhalation	+	+	+	+	+	-
Inhalation	+	+	+	+	+	-
Ingestion	-	-	+	-	-	-
Dermal Contact	-	-	+	-	-	-
Biota Uptake	-	-	-	-	+	-
Ingestion	+	+	+	+	+	-
Dermal Contact	+	+	+	+	+	-
Biota Uptake	-	-	-	-	+	-
Inhalation	-	+	+	+	+	+
Ingestion	-	+	+	+	+	+
Dermal Contact	-	+	+	+	+	+

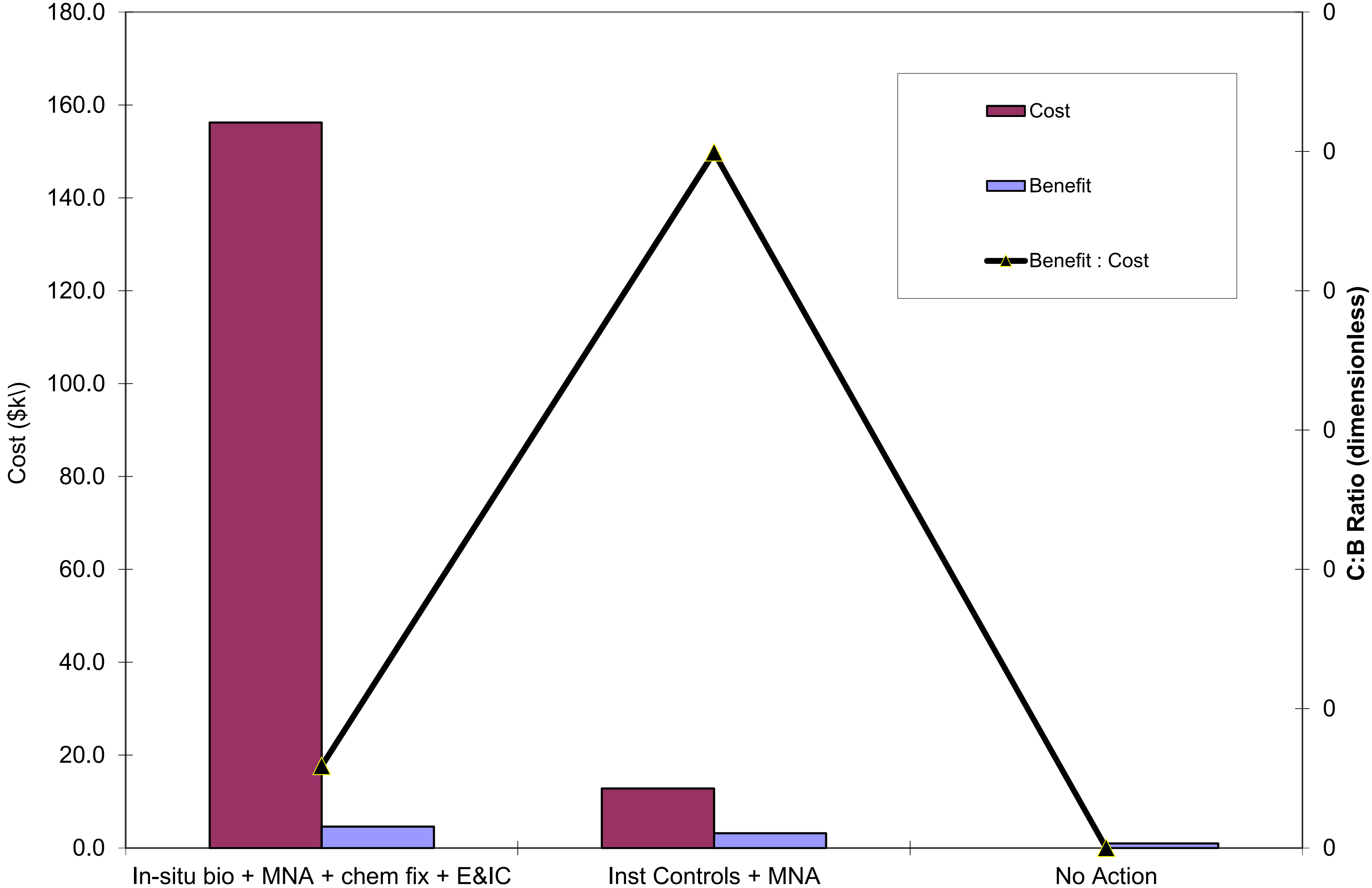
HWA GEOSCIENCES INC.

CONCEPTUAL SITE MODEL

FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
BOTHELL, WASHINGTON

FIGURE NO.
10

PROJECT NO.
2007-098-2019



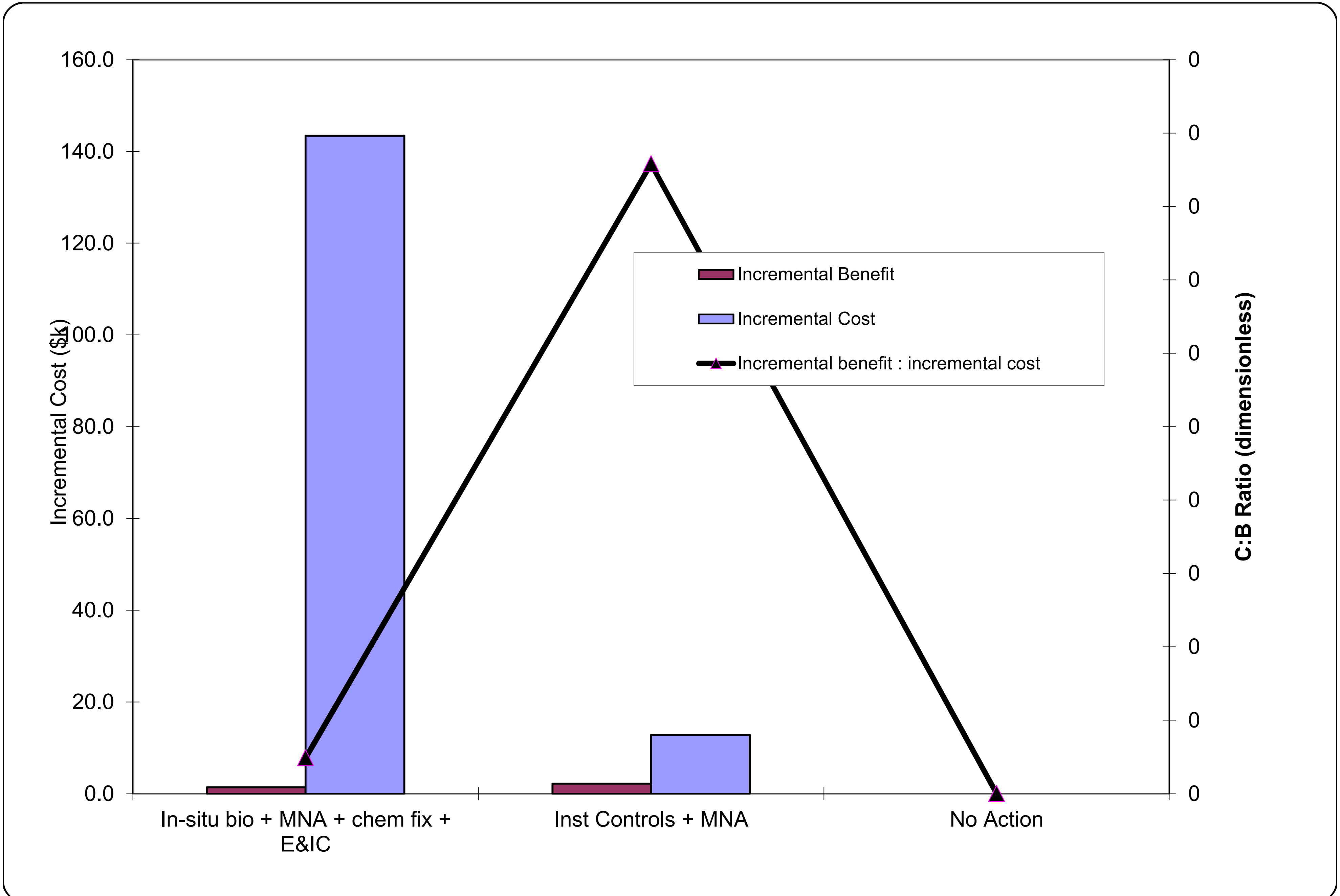
HWA GEOSCIENCES INC.

DCA - COST : BENEFIT

BOTHELL HERTZ SITE
RI/FS/DCAP
BOTHELL, WASHINGTON

FIGURE NO.
11

PROJECT NO.
2007 098 -



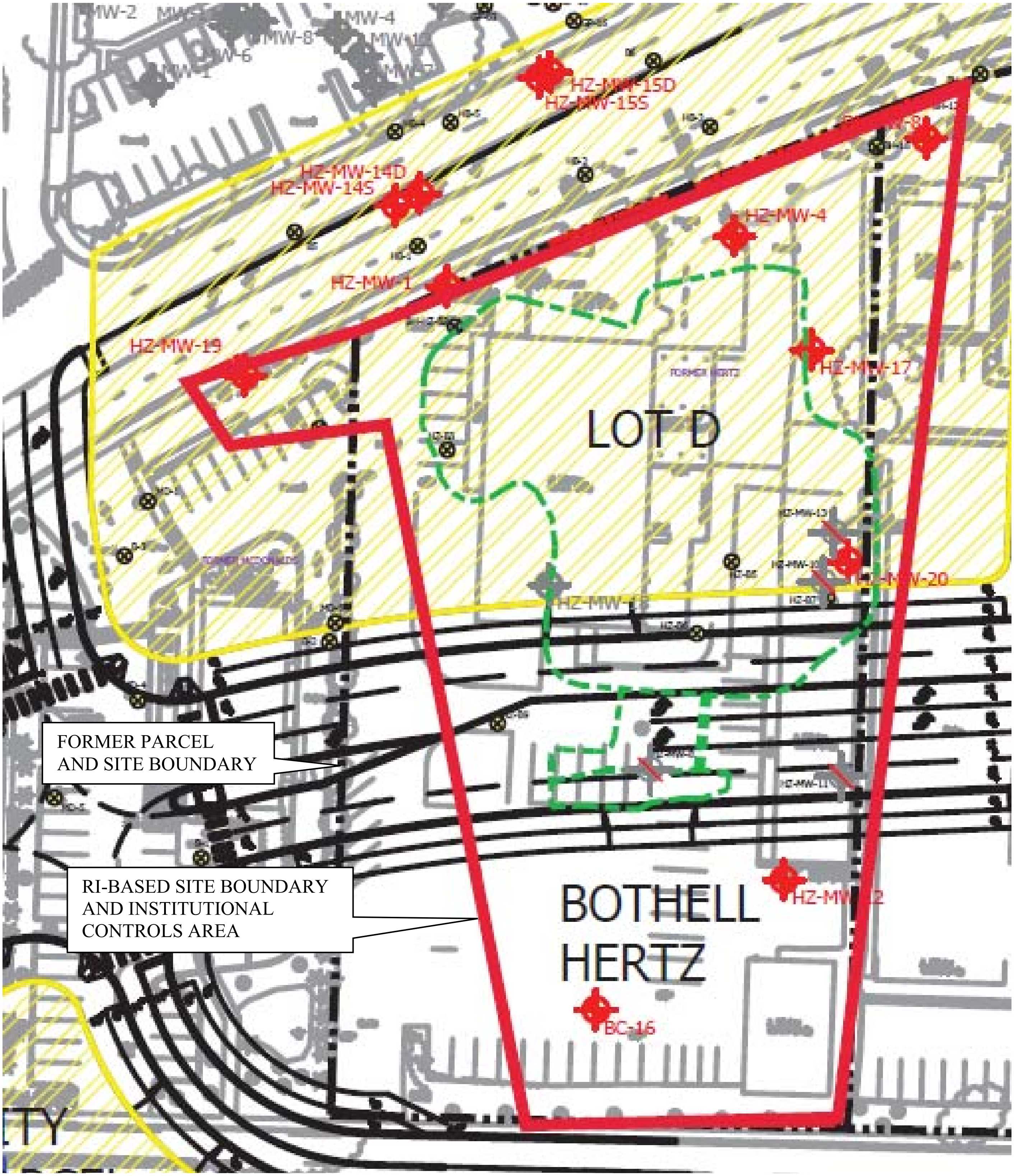
HWA GEOSCIENCES INC.

DCA - INCREMENTAL COST : INCREMENTAL BENEFIT

BOTHELL HERTZ SITE
RI/FS/DCAP
BOTHELL, WASHINGTON

FIGURE NO. 12

PROJECT NO. 2007 098 -



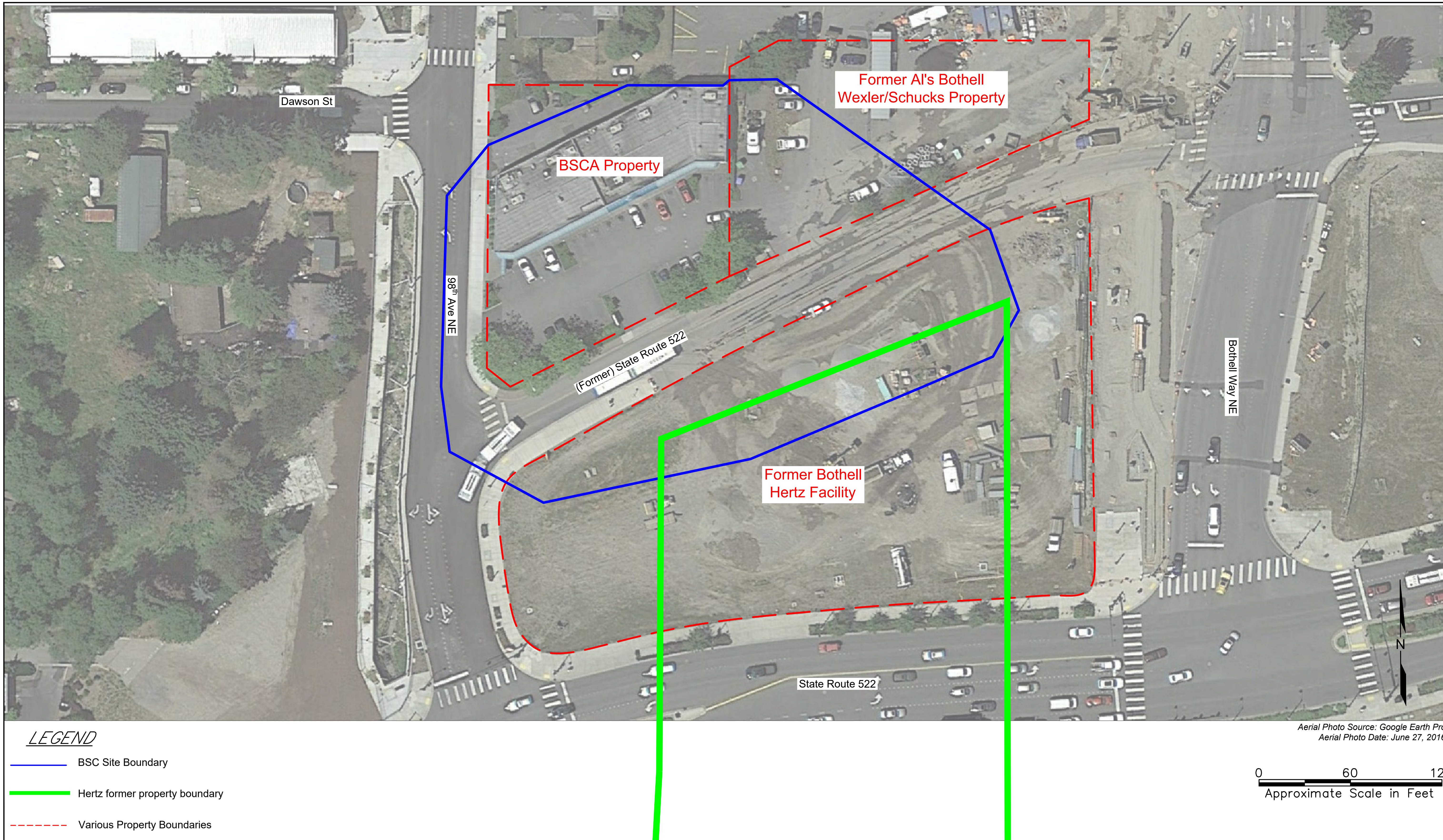
HWA GEOSCIENCES INC.

SITE BOUNDARIES

BOTHELL FORMER HERTZ FACILITY
RI/FS/DCAP
BOTHELL, WASHINGTON

FIGURE NO.
13

PROJECT NO.
2007-098



LEGEND

BSC Site Boundary

Hertz former property boundary

Various Property Boundaries

Aerial Photo Source: Google Earth Pro
Aerial Photo Date: June 27, 2016

0 60 120
Approximate Scale in Feet

KANE ENVIRONMENTAL INC
3815 Woodland Park Avenue North, Suite 102
Seattle, WA - 206-691-0476
www.kane-environmental.com

DRAFT RI/FS & CAP
Bothell Service Center
18107 Bothell Way NE
Bothell, Washington

Figure 14
Bothell Service Center
Site Boundary

APPENDIX A

BORING LOGS

(on CD)

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
More than 50% Retained on No. 200 Sieve Size			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 Former Hertz
Bothell, Washington

LEGEND OF TERMS AND SYMBOLS USED ON EXPLORATION LOGS

PROJECT NO.: 2007-098-998 FIGURE: A-1

DRILLING COMPANY: Holocene Drilling, Inc
DRILLING METHOD: 4-1/4" HSA Truck-mounted Mobile B-61
SAMPLING METHOD: SPT with Autohammer
LOCATION:

SURFACE ELEVATION: 35.40 ± feet
CASING ELEVATION ± feet

DATE STARTED: 5/20/2009
DATE COMPLETED: 5/20/2009
LOGGED BY: HWA - J. Gillie

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	NOTES
0	SM	HMA 1" thick over gravelly, silty SAND 2" thick. **(PAVEMENT SECTION)**				Flush mount monument nad cement surface seal 2-inch Sch 40 PVC casing
		Loose, dark gray, gravelly, silty fine to medium SAND, moist. **(FILL/ALLUVIUM)**	S-1	1-1-2		10/20 filter sand
5		Organics, similar to peat, noted in sample at 5 feet.	S-2	0-0-2	GS	2-inch Sch 40 PVC 10-slot screen
		Interbedded 1" bands of dark gray silt noted at 7.5 feet.	S-3	4-4-4		
10			S-4	2-2-3		
	SM	Loose, very dark brownish gray, gravelly, silty SAND, wet, wood chips noted throughout sample. **(ALLUVIUM)**	S-5	1-2-2	GS	
15	PT	Soft, very dark brown to red brown, woody PEAT, moist.	S-6	1-1-2		Bentonite backfill
		Long rootlets in matrix of sample at 17.5 feet.	S-7	1-1-1		
20			S-8a	0-1-2		
	ML	Soft, very dark brown, SILT with organics, moist, with peat.	S-8b			
		Fiberous organics noted in sample at 22.5 feet.	S-9	1-1-1		
25			S-10	0-1-1		
30	CL	Medium stiff, olive gray, lean CLAY, wet.	S-11	0-0-4	AL	
		Sample grades to fine gravelly, sandy at 31.5 feet.				
35	ML	Hard, gray, SILT, moist, with subvertical partings with fine sand. **(GLACIAL DRIFT)**	S-12	20-50/6"		
40		Boring terminated at 36.0 feet below ground surface. Ground water encountered at 5 feet below ground surface during drilling.				

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 Former Hertz
Bothell, Washington

MONITORING WELL:
BC-16

PAGE: 1 of 1

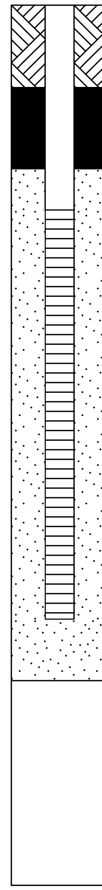
PROJECT NO.: 2007-098-998 FIGURE: A-2

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: Bothell Landing property, northwest property

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 9/4/2009
DATE COMPLETED: 9/4/2009
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	DEPTH (feet)
0			Brown silty TOPSOIL with roots.							Cement surface seal and flush mount monument	0
		SM	Brown silty medium SAND with gravel (FILL), dry.							2-inch Sch. 40 PVC casing	
										Hydrated bentonite seal	
										#2/12 filter sand	
5			Medium dense brown silty SAND with root material, dry grading moist.	■		10/11/12		0		2-inch Sch. 40 PVC 10-slot screen	5
10			Medium stiff brown grading gray SILT with sand, moist grading wet.	■		3/4/5		0.2			10
15			Medium stiff brown sandy SILT, wet.	■		6/11/22		0			15
20			Stiff brown sandy SILT, wet.	■		26/50-6"		0			20
25											25
30											30



Boring completed to 21.5 feet bgs.
Ground water encountered at 10 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 Former Hertz
Bothell, Washington

MONITORING WELL:
BLMW-8

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-3

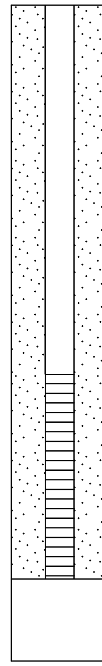
DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: 48" Macrocore Sampler
LOCATION: City of Bothell right of way adjacent to Hertz Property

SURFACE ELEVATION: 42.30 ± feet
CASING ELEVATION ± feet

DATE STARTED: 4/4/2008
DATE COMPLETED: 4/4/2008
LOGGED BY: HWA - J. Speck

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			4 inches asphalt. 8 inches asphalt treated gravel.							
		SM	Dark yellow brown, silty, fine to medium SAND, moist. Trace gravel.							Set temporary 1-inch PVC screen from 9-14 feet bgs.
			3 inch inclusion of 2 inch diameter asphalt.							
			Dark yellow brown, silty, fine to medium SAND, wet.							
5					HB-1-5					
			Grades to no gravel.							
		ML	Dark yellow brown, sandy SILT, wet.							∇
10		SM	Dark yellow brown, silty, fine to medium SAND, wet.							
			Dark yellow brown, silty, fine to medium SAND, wet.							
15		ML	Olive gray, sandy SILT, wet.							

Boring completed to 16 feet bgs.
Boring backfilled with hydrated bentonite



DEPTH (feet): 0, 5, 10, 15, 20, 25, 30

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HB-1

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-4

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

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: 48" Macrocore Sampler
LOCATION: City of Bothell right of way adjacent to Hertz Property

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 4/4/2008
DATE COMPLETED: 4/4/2008
LOGGED BY: J. Speck

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			4 inches asphalt. 8 inches asphalt treated gravel.							
		SM	3 inches dark brown, silty, fine to medium SAND with gravel, moist. Dark yellow brown, silty, fine to medium SAND with gravel, moist. Dark yellow brown, silty, fine to medium SAND, moist. Trace gravel. Dark yellow brown, silty, fine to medium SAND, moist.							Set temporary 1-inch PVC screen from 5-10 feet bgs.
5			Grades less silty.		HB-2-5					
			Grades more moisture.							∇
10			Olive gray, fine to medium SAND, wet.							
		ML	Olive gray, sandy SILT, wet.							
		SM	Olive gray, silty, fine to medium SAND, wet.							
15										
			Boring completed to 16 feet bgs. Boring backfilled with hydrated bentonite							

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HB-2

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-5

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: 48" Macrocore Sampler
LOCATION: City of Bothell right of way adjacent to Hertz Property

SURFACE ELEVATION: 41.40 ± feet
CASING ELEVATION ± feet

DATE STARTED: 4/4/2008
DATE COMPLETED: 4/5/2008
LOGGED BY: HWA - J. Speck

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)
0			4 inches asphalt. 8 inches asphalt treated gravel.								0
		SM	Dark yellow brown, silty, fine to medium SAND, moist.								
					HB-3-4						
5			Dark yellow brown, silty, fine to medium SAND, wet.								5
			Some siltier lenses (not stratified).								
10											10
			Boring completed to 12 feet bgs. Boring backfilled with hydrated bentonite								
15											15
20											20
25											25
30											30

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HB-3

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-6

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

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: GeoProbe
SAMPLING METHOD: 48" Macrocore Sampler with HDPE Liner
LOCATION: Utility Trench, 2 ft east of catchbasin, right-hand westbound lane, SR522

SURFACE ELEVATION: 42.00 ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/28/2013
DATE COMPLETED: 2/28/2013
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			Asphalt/concrete curb line							
		SM	Medium dense brown silty SAND and GRAVEL, some cobbles, moist. **(UTILITY TRENCH BACKFILL)** Excavate 0-3 feet with vac truck to expose utility. Tree roots. Expose top of 12" storm sewer line							
5		ML SM	Medium dense/stiff brown SILT with silty fine SAND layers, moist. **(ALLUVIUM)** Grading wet.							∇
10		ML	Stiff brown grading gray SILT, wet to moist, trace mottling.							

Boring HB-4 completed to 12' bgs.
Ground water encountered at 5.7 feet bgs.
Collect water sample HB-4-W with temporary screen.
Boring backfilled with hydrated bentonite chips and surface restored with concrete.

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HB-4

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-7

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: GeoProbe
SAMPLING METHOD: 48" Macrocore Sampler with HDPE Liner
LOCATION: Utility Trench, 3 ft west of sanitary sewer manhole, right-hand westbound lane, SR522

SURFACE ELEVATION: 42.00 ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/28/2013
DATE COMPLETED: 2/28/2013
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	DEPTH (feet)
0			Asphalt								0
		SM	Medium dense brown silty SAND and GRAVEl, some cobbles, moist. **(UTILITY TRENCH BACKFILL)** Excavate 0-5' with vac truck to expose utility. Tree roots. Asphalt debris (up to 6" diameter) Expose top of 12" sanitary sewer line								
5										∇	5
		ML SM	Medium dense brown fine silty SAND to sandy SILT, wet. **(ALLUVIUM)** Limited sample recovery.								
		ML	Stiff brown SILT with silty fine SAND layers, wet.								
10											10
			Boring HB-5 completed to 12' bgs. Ground water encountered at 5.8 feet bgs. Collect water sample HB-5-W with temporary screen. Boring backfilled with hydrated bentonite chips and surface restored with concrete.								
15											15
20											20
25											25
30											30

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HB-5

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-8

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: N. of former kerosene LUST

SURFACE ELEVATION: 42.00 ± feet
CASING ELEVATION ± feet

DATE STARTED:
DATE COMPLETED:
LOGGED BY: HWA - A. Sugar

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)
0			Asphalt and angular gravel base-course								0
		SM	Poor recovery- brown SILTY SAND (FILL)								
					2			0			
			Brown SILTY SAND, moist grading wet.								
5											5
					6			1		∇	
		SP SM	Brown SILTY SAND and fine SAND, wet.								
					8			1			
10		ML	Tan SILT, slightly plastic, wet.								10
			Stiff gray SILT/SILTY FINE SAND, wet.		12			0			
15											15

Boring completed to 16 feet bgs.
Ground water encountered at 6.7 feet bgs.
Collected ground water sample with temporary screen (7-10 feet bgs).

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-B2

PROJECT NO.: 2007-098-998 FIGURE: A-9

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: S. of former kerosene LUST

SURFACE ELEVATION: 41.00 ± feet
CASING ELEVATION ± feet

DATE STARTED:
DATE COMPLETED:
LOGGED BY: HWA - A. Sugar

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PID (ppm)	NOTES
0		Asphalt and angular gravel base-course			
2	SM	Brown SILTY SAND with angular gravel (FILL)	2	5	
6	SP	Clean SAND seam.	6	5	
7	SM	Dark gray GRAVEL and SAND, wet. Possible staining, no odor.			▽
9		Dark brown SILTY FINE SAND, wet. Possible staining.	10	6	
11	ML	Stiff gray SILT/SANDY SILT, wet.			
12	ML SM	As above, grading less silt.	12	3	
13	SP SM	Fine SILTY SAND, wet.	16	5	
17.5		Tan and rust-mottled SILTY SAND, stratified (sand and silty layers), wet.			
18.5	SP	Gray fine SAND, wet.			
19	ML	Stiff gray SILT, wet.			
20		Boring completed to 20 feet bgs. Ground water encountered at 7 feet bgs. Collected ground water sample with temporary screen (7-10 feet bgs). Very slow ground water recovery.			

Other columns: SYMBOL, SAMPLE TYPE, PEN. RESISTANCE (blows/6 inches), OTHER TESTS, WELL COMPLETION SCHEMATIC.

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-B3

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-10

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: S. end of former diesel UST

SURFACE ELEVATION: 40.00 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: HWA - J. Speck

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)
0			4 Inches concrete.								0
		SM	6 inches of asphalt treated base. Dark brown to black, silty, fine to medium SAND with gravel, wet. Trace hydrocarbon odor. Moisture possible perched ground water. Sample grades less moist below. Observed hard drilling at approximately 4 feet below ground surface (possible construction debris).								
5										∇	5
		SP	Dark brown, silty, fine to medium SAND with gravel, wet.								
			Concrete slough (weathered) - possible construction debris.								
		SM	Dark olive gray to olive brown, silty, fine to medium SAND with gravel, moist to wet (in sample tip).	■	HZ-B5-7			356.2			
10			Grades to dark brown. Observe sheen and trace hydrocarbon odor in sample.								10
15			Boring completed to 12 feet bgs. Ground water encountered at 6 feet bgs. Collected ground water sample with temporary screen (7-12 feet bgs). Very slow ground water recovery.								15
20											20
25											25
30											30

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-B5

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-11

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: NE end of former gasoline UST

SURFACE ELEVATION: 39.40 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: HWA - J. Speck

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)
0			6 inches concrete								0
			Gravel fill.		HZ-B6-1			62.2			
		SM	Dark brown to olive gray, silty, fine to medium SAND with gravel, moist.								
5											5
			Construction debris. (Decomposing wood, plastic)								
		SP	Gray, fine to medium SAND, moist to wet. Ground water observed at 7.5 feet below ground surface.							∇	
10			Trace oxidation stains.								10

Boring completed to 12 feet bgs.
Ground water encountered at 7.5 feet bgs.
Collected ground water sample with temporary screen (7-12 feet bgs).
Very slow ground water recovery.

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-B6

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-12

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: Stained asphalt

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: J. Speck

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			Olive gray, asphalt treated base. Light brown to dark browm sandy SILT, dry.		HZ-B7-1			0		
		SM	Yellow brown, silty, fine SAND, moist. Some gravel.							
5		ML SM	Gray, silty, fine SAND to sandy SILT, moist. Low recovery in sampler.							
		ML	Gray, sandy SILT, wet. Trace gravel. Trace hydrocarbon odor. Grades more gravel.							∇
10		PT	Peat.							
15		SP	Gray, fine to medium SAND, wet. Sheen and hydrocarbon odor.							

Boring completed to 16 feet bgs.
Trace ground water encountered at 7.5 feet bgs (possible perched - not enough to sample). Static ground water observed at 14.5 feet below ground surface.
Collected ground water sample with temporary screen (11-16 feet bgs).
Very slow ground water recovery. Free product observed during purging prior to sampling.

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-B7

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-13

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: Downgradient of kerosene UST

SURFACE ELEVATION: 36.80 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: HWA - J. Speck

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)
0			4 inches asphalt.								0
			Asphalt treated base.								
		SM	Dark to olive brown, silty, fine to medium SAND, moist. Some gravel.								
			Fine sand lense from 3.5 to 3.75 feet below ground surface.		HZ-B9-3			0			
5		SM	Dark to olive brown, silty, fine to medium SAND, moist. Some gravel.								5
			Fine sand lense from 6.25 to 6.5 feet below ground surface.								
			Fine sand lense from 7.25 to 7.5 feet below ground surface.							∇	
		SP	Dark brown, fine to medium SAND with gravel, wet.								
10											10
15			Boring completed to 14 feet bgs. Static ground water observed at 7.5 feet below ground surface. Collected ground water sample with temporary screen (7-12 feet bgs).								15
20											20
25											25
30											30

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-B9

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-14

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

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: Northwest property line

SURFACE ELEVATION: 42.70 ± feet
CASING ELEVATION ± feet

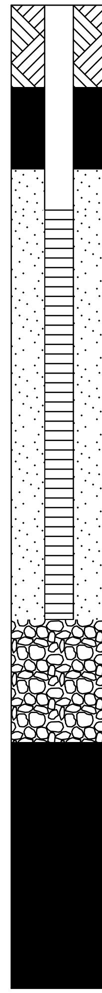
DATE STARTED:
DATE COMPLETED:
LOGGED BY: HWA - A. Sugar

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PID (ppm)
0		Asphalt and angular gravel base-course	1	6
	SM	Tan fine SILTY SAND (FILL)		
5	ML SM	As above, with seams of silt/silty sand, grading wet at 6 feet bgs	6	4
	ML	Stiff tan SILT/SILTY FINE SAND, slightly plastic, wet	10	12
		Stiff gray SILT and SILTY SAND, some rust mottling, slightly plastic, wet.	12	10
15		Stiff gray SILT and SILTY SAND, wet.	16	6
20			20	8

Columns also printed: SYMBOL, SAMPLE TYPE, PEN. RESISTANCE (blows/6 inches), OTHER TESTS, WELL COMPLETION SCHEMATIC

Boring completed to 24 feet bgs. Ground water encountered at 5 feet bgs.
Boring completed as monitoring well. (DOE Unique Well ID#: APL960)

WELL COMPLETION SCHEMATIC



NOTES
- Flush mount monument and cememt surface seal
- Hydrated bentonite seal
- 1-inch Sch. 40 PVC casing
- Filter Sand
- 1-inch Sch. 40 PVC 10-slot screen
- Slough backfill
- Hydrated bentonite chip backfill

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-MW1

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-15

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

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: Upgradient Bothell Service Center

SURFACE ELEVATION: 40.50 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: HWA - J. Speck

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)
0			3 inches asphalt 10 inches concrete								0
		SM	Black to light brown, silty, fine to medium SAND with gravel, dry.		HZ-B4-1			0		Flush mount monument and cement	
		SM	Yellow brown, silty, fine SAND, moist. Oxidation stains. Decomposing wood.							Hydrated bentonite seal	
5										1 inch Sch. 40 PVC casing Filter sand	5
		SW	Brown, silty, fine SAND with gravel, moist to wet. Grades to dark yellow brown, fine SAND, wet. Trace fines. Grades to olive brown, fine SAND, wet. Some fines.							1 inch Sch. 40 PVC 10 slot screen	
10											10
15		SW SM	Interbedded Olive brown, fine SAND and siltier SAND, wet. Trace fines.							Slough backfill Hydrated bentonite chip backfill	15
20											20
25											25
30											30

Boring completed to 20 feet bgs.
Ground water encountered at 8 feet bgs.
Boring completed as monitoring well (DOE Unique Well ID#: APL961)

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-MW4

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-16

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: Downgradient of gas/diesel UST

SURFACE ELEVATION: 38.00 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: HWA - J. Speck

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PID (ppm)	NOTES
0		6 inches asphalt.			
		6 inches asphalt treated base.			
	SM	Dark olive brown, silty, fine SAND, moist.	HZ-B8-1	0	Flush mount monument and cement
	SW	Dark olive brown, fine SAND, moist. Some fines. Decomposing wood at 2.5 feet below ground surface. Some hydrocarbon odor.			Hydrated bentonite seal
			HZ-B8-3.5	16.8	
	SW	Pink, fine SAND, moist (weathered rock/burn slag).			1 inch Sch. 40 PVC casing
5		Dark gray, fine SAND, moist.	HZ-B8-5	0	
	SM	Dark gray, silty, fine to medium SAND with gravel, moist. Observe a sheen and hydrocarbon odor. Grades less silty and more moisture.			
	SP	Trace, fine to medium SAND, with gravel, wet.			
	SM	Olive gray, silty, fine SAND with gravel, wet. Sheen and hydrocarbon odor. Possible free product.			Filter sand
10					
	SP	Decomposing wood.			
		Dark olive brown, fine to medium SAND with gravel, wet.			1 inch Sch. 40 PVC 10 slot screen
	SP-SM	Dark olive brown, silty, fine to medium SAND with gravel, wet. Sheen and hydrocarbon odor.			
	SP	Dark olive brown, fine to medium SAND with gravel, wet.			
15					

Boring completed to 16 feet bgs.
Ground water encountered at 9.5 feet bgs.
Boring completed as monitoring well (DOE Unique Well ID#: APL962)

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-MW8

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-17

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: Hertz property, east boundary

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 9/8/2009
DATE COMPLETED: 9/8/2009
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 Medium dense gray silty SAND with gravel (FILL), dry grading moist.							Cement surface seal and flush mount monument 2-inch Sch. 40 PVC casing
				■		11/10/5		-		Hydrated bentonite seal
			As above,slight hydrocarbon odor.							
5			Medium dense gray-brown silty SAND with gravel, trace wood fragments, moist. Slight hydrocarbon odor.	■		7/5/5		4		
				■		7/8/6		-		#2/12 filter sand
10		SM	Loose gray to dark gray silty SAND, moist grading wet.	■		3/4/3		-		2-inch Sch. 40 PVC 10-slot screen
15			Loose dark gray-brown silty SAND with gravel, wet.	■		3/4/4		-		
20			Loose dark gray silty SAND with peat, wet.	■		4/4/4		-		Hydrated bentonite backfill
25				■		2/2/4				
		OL	Soft red-brown organic SILT, wet.							

Boring completed to 26.5 feet bgs.
Ground water encountered at 10 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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZMW-12

PROJECT NO.: 2007-098-998 FIGURE: A-20

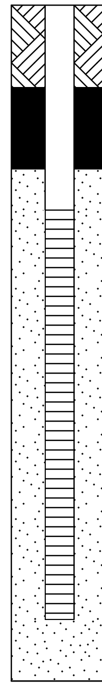
DRILLING COMPANY: Cascade Drilling, Inc.
DRILLING METHOD: CME 75 Truck-mounted 8-inch HSA
SAMPLING METHOD: D&M Split Spoon with 300 lb hammer
LOCATION: Hertz property, east boundary

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 9/8/2009
DATE COMPLETED: 9/8/2009
LOGGED BY: V. Atkins

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	PEN. RESISTANCE (blows/6 inches)	PID (ppm)	NOTES
0		Asphalt			Cement surface seal and flush mount monument
	SM	Red-brown to yellow-brown silty angular GRAVEL and SAND (FILL), dry			2-inch Sch. 40 PVC casing
		Loose brown grading gray-green silty SAND with gravel, moist, slight petroleum odor.	4/3/2	15	Hydrated bentonite seal
	SM				#2/12 filter sand
5		Loose gray silty SAND with gravel, moist grading wet, slight petroleum odor.	0/1/1	20	2-inch Sch. 40 PVC 10-slot screen
		As above, wet, no odor.	1/1/1	-	
10		Loose dark gray silty SAND with wood fragments, wet.	2/2/2	-	
15		Loose dark gray silty SAND with organic silt layer and wood fragments, wet.	2/2/8	-	

Boring completed to 16.5 feet bgs.
Ground water encountered at 7 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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZMW-13

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-21

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Center turn lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/22/2013
DATE COMPLETED: 2/22/2013
LOGGED BY: V. Atkins

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	NOTES
0		Asphalt					Flush mount monument and concrete surface seal
		Concrete					
	SP	Medium dense reddish brown fine to medium SAND with gravel, moist. **(FILL)**					Hydrated bentonite seal
							2-inch Schedule 40 PVC casing
5			5	5/7/11			
		Grading wet.	7.5	4/7/8		0.1	
	SM	Silt layer at 8 feet.					
		Medium dense brown fine silty SAND to sandy SILT, moist to wet. **(ALLUVIUM)**					
10			10	5/6/9		2.2	
		Medium dense brown to gray-brown fine silty SAND with silt layers, wet.	12.5	5/7/7		1	
15		Medium dense gray-brown fine silty SAND, trace orange mottling, wet.	15	5/9/12		2.3	
	ML	Soft gray-brown SILT with fine sand layer, mottled, moist.	17.5	2/3/4		.5	
20	SP SM	Medium dense brown silty SAND with fine to medium sand layers, wet.	20	8/12/15		3	
25							

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 Crossroads
Hertz Parcel RI
Bothell, WA

MONITORING WELL:
HZ-MW14D

PROJECT NO.: 2007-098-931 FIGURE: A-22

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Center turn lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/22/2013
DATE COMPLETED: 2/22/2013
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	DEPTH (feet)
25			Medium dense brown fine silty SAND, occasional oxidixed sand seams.		25	7/11/13		0			25
										10x20 filter sand	
30			Medium dense red-brown fine SAND with silt, wet.		30	5/6/10		0		2-inch Schedule 40 PVC 10-slot screen	30
35			Medium dense light brown fine SAND with silty sand layers, wet.		35	5/11/14		0			35
		ML	Very stiff to hard gray-brown SILT with fine sand, trace mottling, wet to moist.								
40					40	13/25/30		0			40
45											45
50											50

Boring completed to 41.5 feet bgs.
Ground water encountered at 7 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 Crossroads
Hertz Parcel RI
Bothell, WA

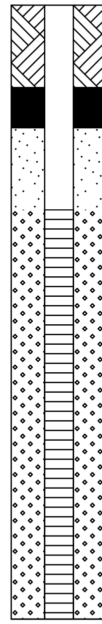
MONITORING WELL:
HZ-MW14D

PROJECT NO.: 2007-098-931 FIGURE: A-22

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Center turn lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/21/2013
DATE COMPLETED: 2/21/2013
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	DEPTH (feet)
0			No soils logged. See boring log HZ-MW-14D for lithology.							Flush mount monument and concrete surface seal Hydrated bentonite seal 2-inch Schedule 40 PVC casing 10x20 filter sand 2-inch Schedule 40 PVC 10-slot screen	0
5											5
10											10
15			Boring completed to 15 feet bgs. Ground water encountered at 7 feet bgs. Boring completed as monitoring well.								15
20											20
25											25
30											30

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-MW14S

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-23

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Right-hand westbound lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/22/2013
DATE COMPLETED: 2/22/2013
LOGGED BY: V. Atkins

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	NOTES
0		Asphalt					Flush mount monument and concrete surface seal
	SP	Medium dense reddish brown SAND and GRAVEL, with cobbles, moist. **(FILL)**					Hydrated bentonite seal; 2-inch Schedule 40 PVC casing
5	ML SM	Loose light brownish yellow SILT and fine SAND, grading wet. **(ALLUVIUM)**	5	2/5/6		0	
		Medium dense light brown-yellow to gray-brown fine silty SAND with fine sand lenses, wet.	7.5	3/4/8		0.1	
10	ML	Medium stiff light brownish yellow SILT with fine sand, wet	10	3/3/3		0.4	
		Stiff light brown SILT.	12.5	8/8/11		2	
15		Stiff brown SILT, trace fine sand, moist to wet.	15	3/5/6		0.4	
		Stiff brown SILT, moist.	17.5	6/7/9		0.4	
20			20	8/12/14		4	
	ML SM	Medium dense brown fine silty SAND, trace oxidation, wet.					10x20 filter sand
25							

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 Crossroads
Hertz Parcel RI
Bothell, WA

MONITORING WELL:
HZ-MW15D

PROJECT NO.: 2007-098-931 FIGURE: A-24

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Right-hand westbound lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/22/2013
DATE COMPLETED: 2/22/2013
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	DEPTH (feet)
25		ML	Very stiff brown SILT, wet.		25	15/19/27		0		2-inch Schedule 40 PVC 10-slot screen	25
30			Stiff brown SILT, with fine silty sand layers, wet.		30	11/15/16		0			30
35			Very stiff brown SILT, trace fine sand, wet.		35	9/14/16		0.2		10x20 filter sand backfill	35
40			Very stiff brown SILT, wet.		40	10/15/21		0			40
45											45
50											50

Boring completed to 41.5 feet bgs.
Ground water encountered at 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 Crossroads
Hertz Parcel RI
Bothell, WA

MONITORING WELL:
HZ-MW15D

PROJECT NO.: 2007-098-931 FIGURE: A-24

MWELL 2007-098-931.GPJ 5/17/13

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Right-hand westbound lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/22/2013
DATE COMPLETED: 2/22/2013
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	DEPTH (feet)
0			No soils logged. See boring log HZ-MW-15D for lithology.							Flush mount monument and concrete surface seal	0
										Hydrated bentonite seal	
										2-inch Schedule 40 PVC casing	
										10x20 filter sand	
5										2-inch Schedule 40 PVC 10-slot screen	5
10											10
15			Boring completed to 15 feet bgs. Ground water encountered at 5 feet bgs. Boring completed as monitoring well.								15
20											20
25											25
30											30

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZ-MW15S

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-25

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

DRILLING COMPANY: Environmental Drilling Inc.
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Stainless steel split spoon
LOCATION:

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 1/8/2014
DATE COMPLETED: 1/8/2014
LOGGED BY: N.Nielsen

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	NOTES
0		Asphalt						Cement surface seal and flush mount monument
	GP	Well graded brown gravelly silty SAND fill, moist						
	SP	Medium dense red-brown to gray-brown fine poorly graded SAND, slightly silty, slightly gravelly, moist						2-inch Sch. 40 PVC casing
				1	6-5-6		0	
								Hydrated bentonite seal
5								
				2	4-5-11		0	
10								
								#10/20 silica sand filter
				3	4-5-9		0	
15		Grading to wet						▽ 2-inch Sch. 40 PVC 10-slot screen
				4	5-8-12		0	
20								
				5	4-4-5		0	
		Becomes loose						
25								

Boring completed to 25 feet bgs
Ground water encountered at 15 feet bgs
Boring completed as monitoring well
WA DOE well tag BHZ 094

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZMW-16

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-26

DRILLING COMPANY: Environmental Drilling Inc.
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Stainless steel split spoon
LOCATION:

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 4/8/2014
DATE COMPLETED: 4/8/2014
LOGGED BY: V. Atkins

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	NOTES
0	SM	Medium dense gray silty SAND and GRAVEL with wood debris (FILL), moist.			Cement surface seal and flush mount monument
			2.5	4/4/5	2-inch Sch. 40 PVC casing
3	ML SM	Medium dense/stiff gray silty SAND and sandy SILT, moist.			Hydrated bentonite seal
5					
			7.5	4/5/5	#10/20 silica sand filter
9	MH	Dark red-brown SILT and PEAT, wet			
10					2-inch Sch. 40 PVC 10-slot screen
11	SP SM	Medium dense/stiff gray SILT and medium SAND interbeds, becoming sandier with depth, wet.			∇
			12.5	6/9/20	
15					
		As above, with coarse SAND and fine GRAVEL layers.	17.5	4/5/10	
20					

Boring completed to 20 feet bgs.
Ground water encountered at 12 feet bgs.
Boring completed as monitoring well.
Ecology Well Tag No. BHZ440

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZMW-17

PAGE: 1 of 1

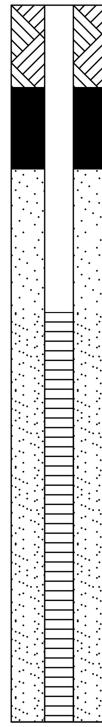
PROJECT NO.: 2007-098-998 FIGURE: A-27

DRILLING COMPANY: Environmental Drilling Inc.
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Stainless steel split spoon
LOCATION:

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 1/6/2014
DATE COMPLETED: 1/6/2014
LOGGED BY: N.Nielsen

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	NOTES
0	GP	Medium dense, well graded brown gravelly silty SAND fill, moist						Cement surface seal and flush mount monument
								Hydrated bentonite seal
			⊠	1	5-6-7		0	2-inch Sch. 40 PVC casing
								#10/20 silica sand filter
7.5	SP	Very loose to loose gray-brown fine poorly graded SAND, slightly silty, slightly gravelly, moist	⊠	2	2-2-2		0	
								2-inch Sch. 40 PVC 10-slot screen
12	PT	Loose dark brown PEAT, moist to wet						∇
			⊠	3	2-2-3		0	



Boring completed to 17.5 feet bgs
Ground water encountered at 12.5 feet bgs
Boring completed as monitoring well
WA DOE well tag BHZ 095

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZMW-18

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-28

DRILLING COMPANY: Environmental Drilling Inc.
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Stainless steel split spoon
LOCATION:

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 1/13/2014
DATE COMPLETED: 1/13/2014
LOGGED BY: N.Nielsen

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)
0		GP	Medium dense, well graded brown gravelly silty SAND fill, moist							Cement surface seal and flush mount monument	0
										Hydrated bentonite seal	
					1	1-2-4		0		2-inch Sch. 40 PVC casing	
										#10/20 silica sand filter	
5											5
			Becomes wet							▽	
		SP	Loose gray-brown fine poorly graded SAND, slightly silty, slightly gravelly, moist		2	1-4-4		0			
10										2-inch Sch. 40 PVC 10-slot screen	10
			Becomes medium dense		3	4-7-12		0			
15			Boring completed to 15 feet bgs Ground water encountered at 6 feet bgs Boring completed as monitoring well WA DOE well tag BHZ 405								15
20											20
25											25
30											30

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZMW-19

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-29

DRILLING COMPANY: Environmental Drilling Inc.
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Stainless steel split spoon
LOCATION:

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 4/10/2014
DATE COMPLETED: 4/10/2014
LOGGED BY: V. Atkins

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	NOTES
0	SM	Medium dense dark brown silty SAND with coarse gravel, moist (FILL).					Cement surface seal and flush mount monument
							2-inch Sch. 40 PVC casing
			2.5	10/15/12			
3	SP	Medium dense yellow-brwon medium to coarse SAND with silt (2010 BACKFILL), moist.					Hydrated bentonite seal
							#10/20 silica sand filter
5		Grading wet.					2-inch Sch. 40 PVC 10-slot screen
			7.5	3/5/5			
			12.5	3/5/5			
13	ML SM	Medium dense gray fine to medium SAND with wood and peat fragments, wet					
15		Interbedded gray fine silty SAND and sandy SILT.	15	6/17/20			Sloughed sand

Boring completed to 16.5 feet bgs
Ground water encountered at 7 feet bgs
Boring completed as monitoring well
WA DOE well tag BHZ 443

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 Former Hertz
Bothell, Washington

MONITORING WELL:
HZMW-20

PAGE: 1 of 1

PROJECT NO.: 2007-098-998 FIGURE: A-30

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

APPENDIX B

HISTORICAL GROUND WATER DATA AND GRADIENT MAPS

(on CD)

HISTORIC GROUND WATER ANALYTICAL DATA
BOTHELL FORMER HERTZ FACILITY
(all results in micrograms per liter (µg/l) except as noted)

Boring		HZ-MW-1	HZ-B2-W	HZ-B3-W	HZ-MW-4	HZ-B5-W	HZ-B6-W	HZ-B7-W	HZ-MW-8	HZ-B9-W	MTCA Method A/B Cleanup level
Location		Northwest, upgradient	North end of former kerosene LUST	South end of former kerosene LUST	Northeast, upgradient	Adjacent east of former diesel and gasoline LUSTs	Adjacent south of former diesel and gasoline LUSTs	East property boundary, stained asphalt	Southwest property	Southeast property	
Approximate Depth to Water (ft bgs)		7.0	6.7	7.0	5.92	6.02	9.3	12	5.42	7.5	
Field Parameters	pH	6.66	6.8	NA***	7.71	6.6	6.3	NA	6.59	6.5	
	Conductivity (µS/cm)	300	NA	NA***	200	201.4	NA	NA	200	338.2	
	Temperature (C)	17.8	19.5	NA***	20.3	18.3	12.8	NA	19.7	15.7	
	Dissolved Oxygen (mg/l)	9.65	6	NA***	10.13	4.2	4.10	NA	9.46	3.0	
Petroleum Hydrocarbons	HCID							Gasoline/ Lube Oil			
	Gasoline Range	<100	<100	<100	<100	<400	<400	**810**	<400	<400	800/1000*
	Diesel Range	<300	<250	<250	<260	<250	<260	<260	**770**	<260	500
	Oil Range	**1500**	<400	<400	<420	<400	<420	**>4000****	**6500**	<420	500
VOCs**	Vinyl Chloride	<0.2	<0.2	<0.2	<0.2	**0.53**	**2**	**0.48**	<0.2	**0.53**	0.2
	Acetone	<5	<5	**5.8**	<5	<1.0	<10	<2.0	<5	<10	800(B)
	cis-1,2-Dichloroethene	<0.2	<0.2	<0.2	<0.2	**0.39**	<0.4	<0.4	<0.2	**0.65**	80 (B)
	Chloroform	<0.2	**0.31**	<0.2	**0.20**	<0.2	<0.4	<0.4	<0.2	<0.4	7.2 (B)
	Benzene	<0.2	<0.2	<0.2	<0.2	**1.6**	**4.9**	**8.8**	**3.3**	**0.83**	5
	Trichloroethene	<0.2	**0.25**	<0.2	<0.2	<0.2	<0.4	<0.4	<0.2	<0.4	5
	Toluene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	**2**	<0.2	<0.4	1000
	Tetrachloroethene	**0.58**	**1.7**	<0.2	<0.2	<0.2	<0.4	<0.4	<0.2	<0.4	5
	Chlorobenzene	<0.4	<0.4	<0.4	<0.4	**63**	<0.4	<0.4	**0.35**	<0.4	160 (B)
	Ethylbenzene	<0.2	<0.2	<0.2	<0.2	**0.25**	<0.4	**1**	<0.2	<0.4	700
	Xylenes	<0.2	<0.2	<0.2	<0.2	**0.27**	<0.4	**32**	**0.61**	<0.4	1000
	Isopropylbenzene	<0.2	<0.2	<0.2	<0.2	**0.2**	<0.4	**2.2**	**0.62**	<0.4	NE
	n-Propylbenzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	**5**	<0.2	<0.4	NE
	1,3,5-Trimethylbenzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	**16**	<0.2	<0.4	400 (B)
	1,2,4-	<0.2	<0.2	<0.2	<0.2	**1.2**	**0.65**	60	<0.2	<0.4	400 (B)

Boring		HZ-MW-1	HZ-B2-W	HZ-B3-W	HZ-MW-4	HZ-B5-W	HZ-B6-W	HZ-B7-W	HZ-MW-8	HZ-B9-W	MTCA Method A/B Cleanup level
	Trimethylbenzene										
	sec-Butylbenzene	<0.2	<0.2	<0.2	<0.2	**0.2**	<0.4	1.1	<0.2	<0.4	NE
	p-Isopropyltoluene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	1.6	<0.2	<0.4	NE
	1,4-Dichlorobenzene	<0.2	<0.2	<0.2	<0.2	**0.82**	<0.4	<0.40	<0.2	<0.4	1.8 (B)
	1,2-Dichlorobenzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	**0.44**	<0.2	<0.4	720 (B)
	n-Butylbenzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**0.50**	<0.4	NE
	Napthalene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.40	**15**	**1.6**	<0.4	160
PAHs	2-Methylnapthalene	NA	NA	NA	NA	NA	NA	NA	**2.4**	NA	320
	1-Methylnapthalene	NA	NA	NA	NA	NA	NA	NA	**2.3**	NA	24
	Phenanthrene	NA	NA	NA	NA	NA	NA	NA	**0.15**	NA	NE
	Pyrene	NA	NA	NA	NA	NA	NA	NA	**0.13**	NA	2400
	Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	**0.067/**	NA	NE
	Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	**0.028/0.0028**	NA	Total cPAHs 0.1
	Chrysene	NA	NA	NA	NA	NA	NA	NA	**0.073/0.00073**	NA	
	Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	**0.023/0.0023**	NA	
	Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	**0.018/0.0018**	NA	
	Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	**0.040/0.040**	NA	
	Ideno(1,2,3-c,d)pyrene	NA	NA	NA	NA	NA	NA	NA	**0.030/0.0030**	NA	
	Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	**0.023/0.0023**	NA	
	Total cPAHs	NA	NA	NA	NA	NA	NA	NA	**0.302/0.05293******	NA	
RCRA Metals (Dissolved)	Arsenic	NA	NA	NA	<3	NA	NA	NA	**21**	NA	5
	Barium	NA	NA	NA	<25	NA	NA	NA	**370**	NA	3200 (B)

Notes:

MTCA A / B – Ecology MTCA Method A / B soil cleanup levels, Chapter 173-340 WAC, shown for reference only. These cleanup levels may not apply at this site, and are provided as a screening level indication of the environmental quality of the site only.
NE – Not Established
< - not detected at listed reporting limit
NA– Not Analyzed
Bold – detected
Bold / highlighted – Analyte exceeds cleanup level
* - The Method A Ground Water cleanup levels for gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylenes are less than 1% of the gasoline mixture are 800 mg/l/all other mixtures are 1000 mg/l
** - Result based on estimated concentration from HCID.
*** Insufficient water volume available in temporary monitoring well.
**** - cPAH values are total/corrected for Toxicity Equivalency Factors under WAC 173-340-708 (c)
All diesel range hydrocarbon sample extracts treated with an acid/silica gel cleanup procedure.
No other VOCs or RCRA metals were detected above laboratory reporting limits (see Appendix D for complete list of compounds analyzed).

TABLE 2
GROUND WATER ANALYTICAL DATA
(all results in micrograms per liter (µg/l) except as noted)

Sample Location	Depth to water (Ft bgs or toc)	Field Parameters				Petroleum Hydrocarbons				HVOCs*		
		pH	Conductivity (µm/cm)	DO (mg/l)	Temperature (°C)	Heavy Oil	Diesel	Gasoline	Toluene	(cis) 1,2-DCE	TCE	PCE
HZMW-14S	6.02	7.48	742	3.26	11.3	<0.16	<0.26	<100	**2.4**	**29**	**47**	**2400**
HZMW-14D	6.35	6.98	664	2.03	12.7	<0.27	<0.44	<100	**1.8**	**21**	**7.6**	**360**
HZMW-15S	4.95	6.59	617	9.29	9.3	<0.26	<0.42	<100	<1	**3.6**	**2.3**	**86**
HZMW-15D	5.85	6.55	580	8.88	12.5	<0.26	<0.42	<100	**2.9**	**12**	**18**	**330**
HB-4	5.85	6.31	535	10.4	13.5	<0.22	<0.35	<100	<1	**1.2**	**0.23**	**17**
HB-5	5.8	6.4	1183	10.7	12.7	<0.31	<0.49	<100	<1	**2.2**	**4.8**	**340**
HZMW-1	6.7	6.36	669	4.15	10.8	<0.30	<0.48	<100	<1	**0.23**	**0.28**	**28**
HZMW-4	5.35	6.51	372	5.4	9.8	<0.27	<0.44	<100	<1	<0.20	<0.20	<0.20
BLMW-8	7.8	5.71	599	3.2	10.5	<0.28	<0.45	<100	<1	<0.20	<0.20	<0.20
MTCA Method A/B						**0.5**	**0.5**	**1000/800****	**1000**	**16 (B)**	**5**	**5**

Notes:

PCE = tetrachloroethylene

TCE = trichloroethylene

(cis) 1,2-DCE = (cis) 1,2-dichloroethelene

MTCA A / B – Ecology MTCA Method A / B Ground water cleanup levels, Chapter 173-340 WAC, shown for reference only. These cleanup levels may not apply at this Site, and are provided as a screening level indication of the environmental quality of the Site only.

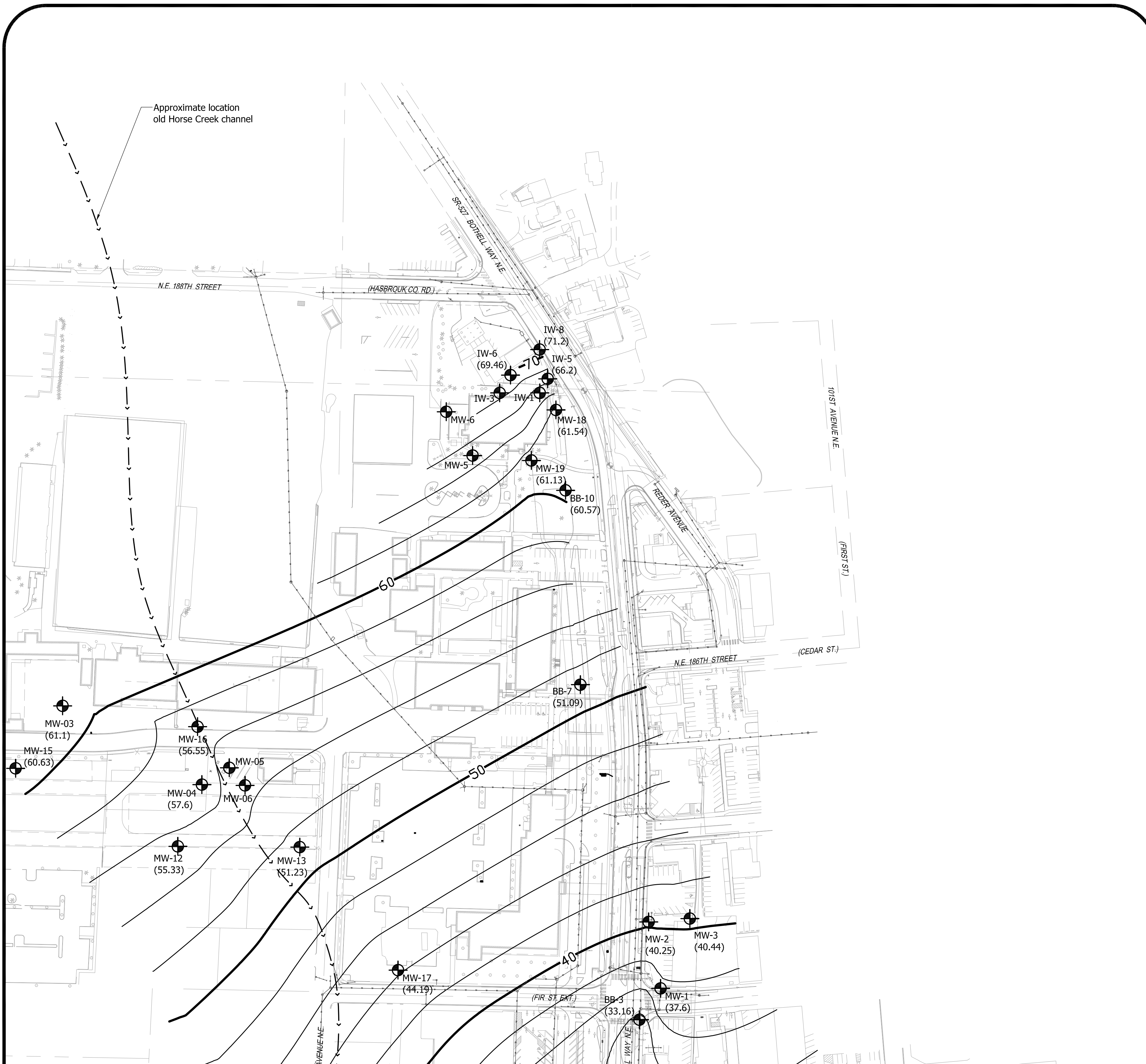
< - not detected at listed reporting limit

Bold – detected

Bold / highlighted – Analyte exceeds cleanup level

* No other HVOCs were detected above laboratory reporting limits (see Appendix A for complete list of compounds analyzed).

** The Method A Ground Water cleanup levels for gasoline mixtures with benzene present is 800 µg/l and without detectable benzene is 1000 µg/l.



BASE MAP PROVIDED BY:

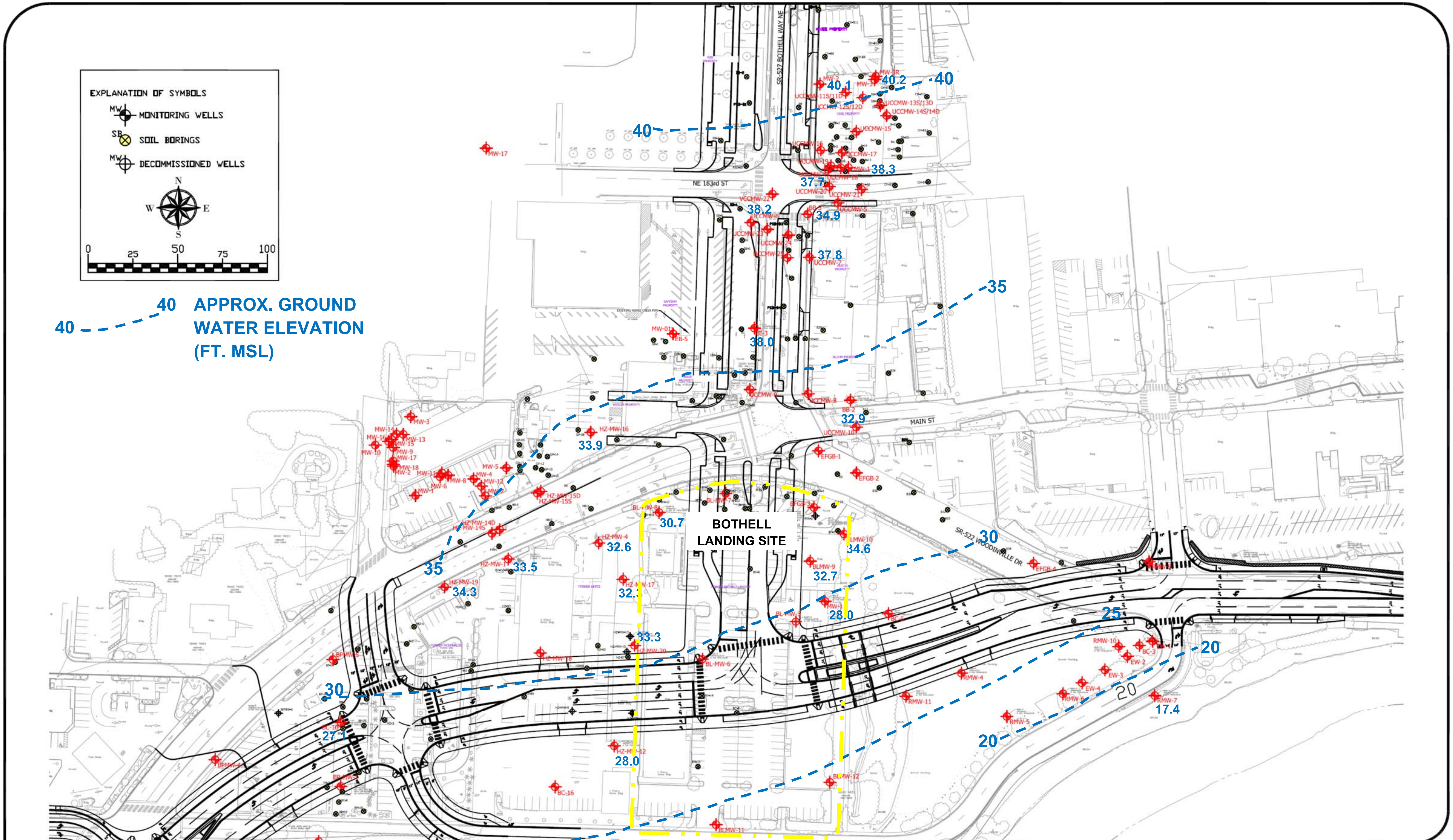
HWA GEOSCIENCES INC.

Area-Wide Gradient Study
Bothell, Washington

Ground Water Gradient
August 29-31, 2012

DRAWN BY: EFK	FIGURE #: 1
CHECK BY: VA	
DATE: 09.07.12	PROJECT #: 2012-098 950

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T950.DWG <GW AUGUST 29-31-12> Plotted: 9/26/2012 3:12 PM



HWA GEOSCIENCES INC.	AREA WIDE GROUND WATER MONITORING NETWORK BOTHELL, WASHINGTON	WATER TABLE ELEVATIONS SEPTEMBER 2014	DRAWN BY EFK CHECK BY NN DATE	FIGURE NO. 3 PROJECT NO. 2007-098 T998

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T998.DWG <11x17 all wells> Plotted: 10/16/2014 11:59 AM

APPENDIX C

CLEANUP LEVEL DETERMINATION, FORMER HERTZ RENTALS PROPERTY

(on CD)

HWA GEOSCIENCES INC.
Geotechnical & Pavement Engineering • Hydrogeology • Geoenvironmental • Planning & Permitting • Inspection & Testing

November 4, 2010
HWA Project No. 2007 098-921

City of Bothell
9654 NE 182nd St.
Bothell, Washington 98021

Attention: Nduta Mbuthia, Project Engineer, Public Works Capital Projects

Subject: **CLEANUP LEVEL DETERMINATION**
Former Hertz Rentals Property
Interim Action Cleanup
Bothell, Washington

Dear Ms. Mbuthia:

This letter describes HWA GeoSciences Inc. (HWA's) determination of risk-based soil cleanup levels at the former Hertz Rentals property, per the Interim Action Work Plan dated May 7, 2010.

1.0 Introduction

The City of Bothell conducted an interim action cleanup at the former Hertz Rentals property (Hertz site) in August and September 2010, consisting of excavation and off site treatment/disposal of metals and petroleum contaminated soils.

In order to establish soil cleanup levels, selected soil samples were collected and analyzed for petroleum hydrocarbon fractionation (VPH/EPH) and other target compounds (BTEX, cPAHs, EDB, EDC, MTBE). The results of the VPH/EPH analyses were then input into Ecology's MTCATPH11.1 spreadsheet model to determine TPH cleanup levels that are protective of direct contact and ground water, per the Ecology approved Interim Action Work Plan. Information regarding the use of petroleum hydrocarbon fractionation data and Ecology's MTCAPH11.1 model to calculate the risk at a petroleum contaminated site is presented in *Workbook Tools for Calculating Soil and Ground Water Cleanup Levels under the Model Toxics Control Act Cleanup Regulation User's Guide* (Ecology Publication No. 01-09-073).

2.0 Method B Soil Cleanup Levels

MTCA Method B cleanup levels are the universal cleanup levels that typically employ a risk-based approach as outlined in WAC 173-340-708. Cleanup levels for a particular

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www.hwageo.com

site are determined after evaluating appropriate exposure pathway endpoints (e.g., direct contact, drinking water, nonpotable ground water, surface water, soil, wildlife, etc.) based on site use, contaminant distribution, etc. The actual clean up *standard* is then based on the calculated cleanup levels, measured at the point of compliance.

HWA evaluated Hertz site soils with respect to Method B cleanup levels for TPH. Under MTCA, once the source of contamination is removed, risk-based Method B (residential exposure scenario) TPH cleanup levels can be established. Method B cleanup levels must be protective for all exposure pathways, including direct contact with soil, leaching to ground water, and volatilization to air. Per the work plan, exposure pathways evaluated include:

- Direct human contact
- Protection of ground water

The vapor/odor pathway was not evaluated at this site, per the Interim Action Work Plan due to the absence of buildings over affected areas. The ground water to surface water pathway was also not evaluated, as the site remedial investigation indicated contaminated ground water was not migrating off site towards the Sammamish River.

Soil and ground water pathways (listed above) are discussed in the following sections.

Calculation of Method B cleanup levels is based on petroleum hydrocarbon fractionation analytical methods, collectively referred to as method E-TPH, that include Ecology methods VPH/EPH for volatile and extractable petroleum hydrocarbon fractions, BTEX, gasoline additives (MTBE, EDB, and EDC), and polynuclear aromatic hydrocarbons (PAHs).

Compounds composed of carbon and hydrogen are divided into two classes: aromatic compounds, which contain benzene rings or similar rings of atoms, and aliphatic compounds, which do not contain aromatic rings. The VPH/EPH method uses a fractionation approach to evaluate complex petroleum mixtures typically found in petroleum fuels and lubricants. The VPH/EPH approach divides petroleum into 12 compound groups (7 aliphatic and 5 aromatic) based on equivalent carbon (EC) number, which relates to the boiling point of a hydrocarbon compound. Hydrocarbons in the same EC group are assumed to have similar chemical, physical, and toxicological properties for the purposes of establishing cleanup levels. Each compound group is treated as if it was an individual chemical. Risks posed by site soils are calculated for each compound group and then summed across compound groups. Predicted ground water concentrations caused by leaching from the current soil concentrations are also estimated for each compound group and then summed across compound groups to produce a total ground water concentration.

2.1 Direct Contact Pathway

In the MTCA Method B risk analysis, the human health risk level for individual carcinogens may not exceed one-in-a-million ($1x10^{-6}$). If more than one type of hazardous substance is present, the total excess carcinogenic risk level at the site may not exceed 1 in 100,000 ($1x10^{-5}$). Cleanup levels protective of direct contact with soil for individual noncarcinogenic compounds are calculated in terms of hazard quotient (HQ), and for two or more compounds having similar toxic response by a hazard index (HI) that is the sum of individual hazard quotients. A HQ or HI less than 1.0 indicates an acceptable noncarcinogenic risk under MTCA Method B. Adverse effects resulting from exposure to two or more hazardous or carcinogenic compounds are assumed to be additive.

HWA used Ecology's MTCATPH11.1 electronic spreadsheet model (available at http://www.ecy.wa.gov/programs/tcp/tools/toolmain.html) to calculate the Method B cleanup levels protective of direct contact with soil. Table 1 summarizes the calculated Method B cleanup levels protective of the direct contact pathway; Appendix A contains the MTCATPH11.1 spreadsheet summary printouts. Per Ecology guidance (Publication No. 01-09-073 cited above), concentrations of TPH compounds not detected at the laboratory's practical quantitation limit (PQL) were entered into MTCATPH11.1 as the laboratory's method detection limit (MDL) – a value typically 5 or more times less than the practical quantitation limit.

2.2 Protection of Ground Water

Protection of ground water was evaluated for two pathways:

- Leaching from soil to ground water
- Residual soil saturation (the TPH concentration in soil at which a non aqueous phase liquid (NAPL) will form)

2.2.1 Leaching from soil to ground water

Soil cleanup levels protective of ground water may be calculated by several methods:

- Partitioning models
- Leaching tests
- Alternative fate & transport models
- Empirical demonstration

The Method B analyses used to calculate risk-based soil cleanup levels at the Hertz site included evaluation of the soil-to-ground water pathway using Ecology's partitioning models (WAC 173-340-747) for two scenarios: potable ground water and the default MTCA Method A ground water cleanup level as the protective concentrations. Table 1

summarizes the calculated Method B soil cleanup levels protective of dircet contact and ground water; Appendix A contains the MTCATPH11.1 spreadsheet summary printouts.

Table 1
Summary of Method B Soil TPH Risk Calculations
Former Hertz Rentals Property

Release area	Former USTs	Former UST		Wooden storm drain catch basin
TPH Type	Gasoline and diesel	Kerosene		Diesel and lube oil range hydrocarbons
Sample	**H-PEX-1-6**	**H-PEX-2-6**	**H-PEX-3-4**	**H-PEX-11-6**
Calculated Method B TPH cleanup level for direct skin contact (mg/Kg)	3,504	4,035	2,505	2,954
Most stringent soil risk criterion for direct skin contact	Hazard Index	Hazard Index	cPAHs mixture	Hazard Index
Method B soil TPH concentration protective of ground water (mg/Kg)	13,263	220	100% NAPL[1]	100% NAPL
Most stringent soil risk criterion for protection of ground water	Total risk = 1E-5	Hazard Index Risk 1E-6	Hazard Index Total risk 1E-5 cPAHs mixture	Hazard Index Total risk 1E-5 cPAHs mixture
Method A soil cleanup levels (mg/Kg)	30[2] (G) 2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)	2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)		
Maximum value detected on site after cleanup[3]	30 (G) 820 (D) 980 (O) <0.31 (Benzene) <0.32 (Toluene) 0.27 (Ethylbenzene) 1.39 (Xylenes)			
Cleanup levels met?	Method A Yes Method B Yes TCs Yes[4]	Method A Yes Method B Yes TCs Yes	Method A Yes Method B Yes TCs Yes	Method A Yes Method B Yes TCs Yes

Notes:
1 - 100% NAPL means soil containing free product would not produce a TPH concentration ≥800 µg/L in ground water
2 - Cleanup level for gasoline mixtures with benzene
3 – Compliance Monitoring Plan did not specify analyses for PAHs, as these were not a contaminant of potential concern at the site
4 - TCs: Cleanup levels for all target compounds (PAHs, EDB, EDC, MTBE, benzene, naphthalenes) were met as indicated by laboratory analysis for the individual compounds

2.2.2. Residual soil saturation

Evaluation of residual saturation concentrations is also required. Residual saturation refers to the soil concentration at which a nonaqueous phase liquid (a.k.a., NAPL or "free product") may form on or in soil or ground water. Residual saturation may be evaluated under MTCA using default screening values or an empirical demonstration. Criteria for an empirical demonstration include:

- NAPL has not formed in soil or ground water at the site
- NAPL will not form in the future, i.e., sufficient time has elapsed for migration of hazardous substances from soil into ground water to occur and that the characteristics of the site (e.g., depth to ground water and infiltration) are representative of future site conditions.

Both of these criteria are met at the site, as no NAPL has been observed in soil or ground water, and the impacted soils have likely been in place for at least 10 years prior to removal from the site.

3.0 Discussion

It is possible to extrapolate the results of the risk calculation to estimate a Method B soil "cleanup level" for total TPH concentrations at the site based on the most stringent pathway. This requires the assumption that the hydrocarbon fractions in the soil sample represents the distribution of hydrocarbon fractions in all residual petroleum hydrocarbons at the site. In general, this assumption is valid for sites where the residual hydrocarbons derive from a single source, or single type of fuel, which appears to be the case at each of the three source areas at this site, based on analytical results. Using this assumption, HWA extrapolated the risk results to indicate an appropriate Method B soil cleanup level for each of the three known release areas at the site, as summarized in Table 1.

HWA evaluated the potential risk to human health and the environment based on TPH concentrations in soil. Based on the Method B evaluation, site confirmation soil samples met the Method B, residential exposure scenario TPH cleanup levels for direct contact (i.e., HI less than 1, individual compound carcinogen risk less than 1E-6, and total carcinogen risk less than 1E-5), and protection of ground water (leaching as predicted by partitioning models and empirical demonstration of residual saturation).

November 4, 2010
HWA Project No. 2007 098-921

4.0 Summary

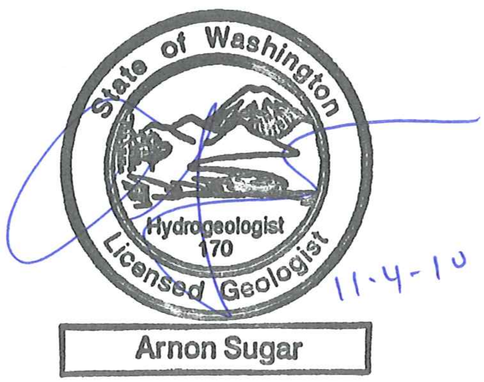
Confirmation soil samples met all applicable cleanup levels, including:

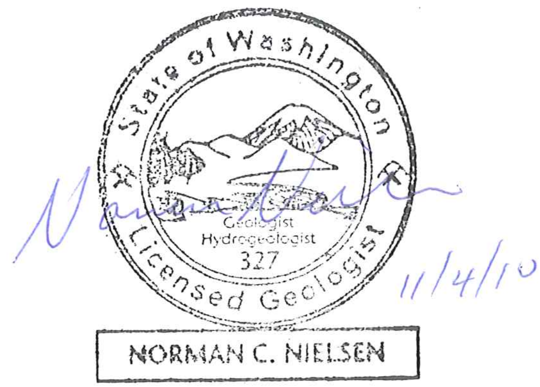
- Method A soil cleanup levels for TPH and all individual target compounds
- Method B soil cleanup levels for all individual target compounds
- Method B TPH soil cleanup levels protective of 1) direct contact, and 2) protection of ground water, calculated per Ecology's MTCATPH11.1.1 spreadsheet model based on the most stringent pathways

Residual soil at the site has been remediated to MTCA Method A or B cleanup levels, and therefore poses no risk to direct-contact exposure under a residential scenario, or to ground water by leaching.

We appreciate the opportunity to provide our services on this project. Please feel free to call us if you have any questions or need more information.

Sincerely,
HWA GEOSCIENCES INC.





Arnie Sugar, LG, LHG
President

Norm Nielsen, LG, LHG, PMP
Senior Hydrogeologist

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-1-6

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.51%
AL_EC >6-8	5	0.51%
AL_EC >8-10	40	4.11%
AL_EC >10-12	110	11.30%
AL_EC >12-16	140	14.38%
AL_EC >16-21	100	10.27%
AL_EC >21-34	300	30.82%
AR_EC >8-10	47	4.83%
AR_EC >10-12	40	4.11%
AR_EC >12-16	33	3.39%
AR_EC >16-21	52.9984	5.45%
AR_EC >21-34	99.9993	10.27%
Benzene	0.0013	0.00%
Toluene	0	0.00%
Ethylbenzene	0.015	0.00%
Total Xylenes	0.015	0.00%
Naphthalene	0.064	0.01%
1-Methyl Naphthalene	0.049	0.01%
2-Methyl Naphthalene	0.068	0.01%
n-Hexane	0.0603	0.01%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.000338	0.00%
Benzo(b)fluoranthene	0.00039	0.00%
Benzo(k)fluoranthene	0.000308	0.00%
Benzo(a)pyrene	0.000261	0.00%
Chrysene	0.0003	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.000373	0.00%
Sum	973.2726864	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here:	800	ug/L

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-1-6
Measured Soil TPH Concentration, mg/kg: **973.273**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	3,504	6.76E-09	2.78E-01	Pass
	Method C	49,041	1.48E-09	1.98E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	13,263	5.26E-06	8.26E-01	Pass
	Target TPH GW Conc. @ 800 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**3,504.28**	**49,041.15**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	3.50E+03	2.43E-08	1.00E+00	YES	4.90E+04	7.44E-08	1.00E+00
Total Risk=1E-5	*NO*	1.44E+06	1.00E-05	4.11E+02	*NO*	6.59E+06	1.00E-05	1.34E+02
Risk of Benzene= 1E-6	*NO*	1.36E+07	9.44E-05	3.88E+03	NA			
Risk of cPAHs mixture= 1E-6	*NO*	2.30E+05	1.60E-06	6.56E+01				
EDB	*NO*	3.98E+05	2.76E-06	1.13E+02				
EDC	*NO*	2.31E+08	1.60E-03	6.59E+04				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**Total Risk = 1E-5**
Protective Ground Water Concentration, ug/L	**406.26**
Protective Soil Concentration, mg/kg	**13262.86**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL
Total Risk = 1E-5	YES	4.06E+02	1.00E-05	9.17E-01	1.33E+04
Total Risk = 1E-6	YES	1.68E+02	1.00E-06	4.36E-01	1.05E+02
Risk of cPAHs mixture= 1E-5	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL
Benzene MCL = 5 ug/L	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL
MTBE = 20 ug/L	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL

Note: 100% NAPL is 72000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	4.10E+02	1.06E-05	9.24E-01	**100% NAPL**

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-2-6

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.62%
AL_EC >6-8	5	0.62%
AL_EC >8-10	48	5.96%
AL_EC >10-12	180	22.36%
AL_EC >12-16	7	0.87%
AL_EC >16-21	80	9.94%
AL_EC >21-34	230	28.57%
AR_EC >8-10	110	13.66%
AR_EC >10-12	40	4.97%
AR_EC >12-16	11	1.37%
AR_EC >16-21	23.9913	2.98%
AR_EC >21-34	64.9993	8.07%
Benzene	0.0000159	0.00%
Toluene	0.000011	0.00%
Ethylbenzene	0.0000096	0.00%
Total Xylenes	0.000021	0.00%
Naphthalene	0.032	0.00%
1-Methyl Naphthalene	0.0088	0.00%
2-Methyl Naphthalene	0.013	0.00%
n-Hexane	0.0603	0.01%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.000338	0.00%
Benzo(b)fluoranthene	0.00039	0.00%
Benzo(k)fluoranthene	0.000308	0.00%
Benzo(a)pyrene	0.000261	0.00%
Chrysene	0.0074	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.000373	0.00%
Sum	805.1142439	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here:	800	ug/L

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-2-6
Measured Soil TPH Concentration, mg/kg: **805.114**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc RISK @	With Measured Soil Conc HI @	Does Measured Soil Conc Pass or Fail?
Protection of Soil Direct Contact: Human Health	Method B	4,035	7.37E-09	2.00E-01	Pass
	Method C	67,575	1.64E-09	1.19E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	220	5.35E-06	1.32E+00	Fail
	Target TPH GW Conc. @ 800 ug/L	2,618	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**4,034.80**	**67,574.75**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	4.03E+03	3.69E-08	1.00E+00	YES	6.76E+04	1.37E-07	1.00E+00
Total Risk=1E-5	*NO*	1.09E+06	1.00E-05	2.71E+02	*NO*	4.92E+06	1.00E-05	7.28E+01
Risk of Benzene= 1E-6	*NO*	9.20E+08	8.42E-03	2.28E+05	NA			
Risk of cPAHs mixture= 1E-6	*NO*	1.64E+05	1.50E-06	4.06E+01				
EDB	*NO*	3.29E+05	3.01E-06	8.15E+01				
EDC	*NO*	1.91E+08	1.75E-03	4.73E+04				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**HI=1**
Protective Ground Water Concentration, ug/L	**518.04**
Protective Soil Concentration, mg/kg	**220.29**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	5.18E+02	2.22E-06	1.00E+00	2.20E+02
Total Risk = 1E-5	*NO*	8.24E+02	1.00E-05	1.46E+00	7.32E+03
Total Risk = 1E-6	YES	3.17E+02	1.00E-06	6.48E-01	8.85E+01
Risk of cPAHs mixture= 1E-5	*NO*	8.36E+02	1.11E-05	1.48E+00	100% NAPL
Benzene MCL = 5 ug/L	*NO*	8.36E+02	1.11E-05	1.48E+00	100% NAPL
MTBE = 20 ug/L	*NO*	8.36E+02	1.11E-05	1.48E+00	100% NAPL

Note: 100% NAPL is 71000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	8.00E+02	8.39E-06	1.43E+00	**2.62E+03**

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-3-4

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.24%
AL_EC >6-8	5	0.24%
AL_EC >8-10	84	4.09%
AL_EC >10-12	66	3.21%
AL_EC >12-16	45	2.19%
AL_EC >16-21	120	5.84%
AL_EC >21-34	1400	68.09%
AR_EC >8-10	5	0.24%
AR_EC >10-12	7	0.34%
AR_EC >12-16	18	0.88%
AR_EC >16-21	47.8039	2.33%
AR_EC >21-34	249.9914	12.16%
Benzene	0.0000159	0.00%
Toluene	0.000011	0.00%
Ethylbenzene	0.0000096	0.00%
Total Xylenes	0.0015	0.00%
Naphthalene	0.093	0.00%
1-Methyl Naphthalene	1.2	0.06%
2-Methyl Naphthalene	1.6	0.08%
n-Hexane	0.0603	0.00%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.035	0.00%
Benzo(b)fluoranthene	0.012	0.00%
Benzo(k)fluoranthene	0.0091	0.00%
Benzo(a)pyrene	0.078	0.00%
Chrysene	0.062	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.0083	0.00%
Sum	2055.954923	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: 800 ug/L

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-3-4
Measured Soil TPH Concentration, mg/kg: **2,055.955**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc RISK @	With Measured Soil Conc HI @	Does Measured Soil Conc Pass or Fail?
Protection of Soil Direct Contact: Human Health	Method B	2,505	8.23E-07	2.67E-01	Pass
	Method C	100,673	2.04E-07	1.97E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	100% NAPL	4.03E-06	1.60E-01	Pass
	Target TPH GW Conc. @ 800 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).
Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**2,504.80**	**100,673.17**
Most Stringent Criterion	**Risk of cPAHs mixture= 1E-6**	**Total Risk=1E-5**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	*NO*	7.70E+03	3.08E-06	1.00E+00	*NO*	1.05E+05	1.04E-05	1.00E+00
Total Risk=1E-5	*NO*	2.50E+04	1.00E-05	3.24E+00	YES	1.01E+05	1.00E-05	9.63E-01
Risk of Benzene= 1E-6	*NO*	2.35E+09	9.40E-01	3.05E+05	NA			
Risk of cPAHs mixture= 1E-6	YES	2.50E+03	1.00E-06	3.25E-01				
EDB	*NO*	8.40E+05	3.36E-04	1.09E+02				
EDC	*NO*	4.88E+08	1.95E-01	6.33E+04				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**NA**
Protective Ground Water Concentration, ug/L	**NA**
Protective Soil Concentration, mg/kg	**Soil-to-Ground Water is not a critical pathway!**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
Total Risk = 1E-5	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
Total Risk = 1E-6	YES	3.14E+01	1.00E-06	1.08E-01	2.46E+02
Risk of cPAHs mixture= 1E-5	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
Benzene MCL = 5 ug/L	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
MTBE = 20 ug/L	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL

Note: 100% NAPL is 72000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	5.95E+01	6.73E-06	1.72E-01	**100% NAPL**

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-11-6

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.08%
AL_EC >6-8	9.3	0.15%
AL_EC >8-10	17	0.28%
AL_EC >10-12	290	4.81%
AL_EC >12-16	1100	18.24%
AL_EC >16-21	870	14.42%
AL_EC >21-34	1200	19.89%
AR_EC >8-10	65.3700	1.08%
AR_EC >10-12	61	1.01%
AR_EC >12-16	780	12.93%
AR_EC >16-21	799.6112	13.26%
AR_EC >21-34	809.9797	13.43%
Benzene	0.0000159	0.00%
Toluene	0.000011	0.00%
Ethylbenzene	0.25	0.00%
Total Xylenes	0.38	0.01%
Naphthalene	1.4	0.02%
1-Methyl Naphthalene	8.4	0.14%
2-Methyl Naphthalene	14	0.23%
n-Hexane	0.0603	0.00%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.073	0.00%
Benzo(b)fluoranthene	0.055	0.00%
Benzo(k)fluoranthene	0.0078	0.00%
Benzo(a)pyrene	0.043	0.00%
Chrysene	0.21	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.02	0.00%
Sum	6032.160455	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: 800 ug/L

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-11-6
Measured Soil TPH Concentration, mg/kg: **6,032.160**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	2,954	5.88E-07	2.04E+00	Fail
	Method C	37,194	1.46E-07	1.62E-01	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	100% NAPL	1.45E-06	4.30E-01	Pass
	Target TPH GW Conc. @ 800 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**2,953.52**	**37,194.47**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	2.95E+03	2.88E-07	9.99E-01	YES	3.72E+04	8.99E-07	9.99E-01
Total Risk=1E-5	*NO*	1.03E+05	1.00E-05	3.47E+01	*NO*	4.14E+05	1.00E-05	1.11E+01
Risk of Benzene= 1E-6	*NO*	6.89E+09	6.72E-01	2.33E+06	NA			
Risk of cPAHs mixture= 1E-6	*NO*	1.03E+04	1.00E-06	3.48E+00				
EDB	*NO*	2.46E+06	2.40E-04	8.34E+02				
EDC	*NO*	1.43E+09	1.39E-01	4.84E+05				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**NA**
Protective Ground Water Concentration, ug/L	**NA**
Protective Soil Concentration, mg/kg	**Soil-to-Ground Water is not a critical pathway!**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
Total Risk = 1E-5	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
Total Risk = 1E-6	YES	1.47E+02	1.00E-06	4.10E-01	1.49E+03
Risk of cPAHs mixture= 1E-5	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
Benzene MCL = 5 ug/L	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
MTBE = 20 ug/L	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL

Note: 100% NAPL is 77000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	1.57E+02	1.67E-06	4.36E-01	**100% NAPL**

APPENDIX D

HWA DOCUMENTATION OF SOIL CLEANUP AT BOTHELL FORMER HERTZ FACILITY, BOTHELL, WASHINGTON, 2011

(on CD)

DOCUMENTATION OF SOIL CLEANUP AT BOTHELL FORMER HERTZ FACILITY BOTHELL, WASHINGTON

Prepared for
City of Bothell

January 28, 2011

HWA GEOSCIENCES INC.

- Geotechnical Engineering
- Hydrogeology
- Geoenvironmental Services
- Inspection & Testing

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SOIL CLEANUP REPORT
BOTHELL FORMER HERTZ FACILITY
BOTHELL, WASHINGTON

1.0 INTRODUCTION

This report documents the results of the soil cleanup conducted in September 2010 by the City of Bothell (City) at the Bothell Former Hertz Facility (Site). The City owns the Site, part of which will accommodate the realignment of State Route (SR) 522, which is currently under construction (Bothell Crossroads Project). Figure 1 is a vicinity map and Figure 2 depicts the future alignment of SR 522 through the Site and adjacent properties.

The soil cleanup was performed as an independent remedial action; however, the City may enter into an Agreed Order with the Washington Department of Ecology (Ecology) to conduct a remedial investigation (RI), feasibility study (FS), RI/FS Report, and draft cleanup action plan (DCAP). Tasks performed to date at the Site include:

1. Phase II Environmental Site Assessment (HWA, 2008b)
2. Preparation and submittal to Ecology of the *Limited Remedial Investigation and Feasibility Study Work Plan* (HWA, 2010a)
3. Preparation and submittal to Ecology of an *Interim Action Work Plan* (HWA, 2010b)
4. Completion of soil cleanup, described herein

Remaining tasks to fulfill terms and conditions of a future Agreed Order include preparation of a RI, FS, RI/FS Report, and draft cleanup action plan (DCAP) that address remaining ground water contamination at the Site..

1.1 SITE LOCATION AND DESCRIPTION

The City acquired the Former Hertz Facility from Odegard and Boseck, LLC in June 2009. The Site is located at 18030 Bothell Way NE in Bothell, Washington between downtown Bothell and the Sammamish River (Figure 1). The Site is listed by Ecology under Facility Site ID No. 11687976 as the AA Rentals of Bothell facility; the Site is also known as the former Hertz Rentals Property because Hertz Equipment Rentals Corporation was the last tenant. The latitude of the site is 47.75899 and the longitude is -122.20927. The King County Tax Parcel number of the Site is 945720005004.

The 1.92-acre Site is an approximately rectangular lot located south of Bothell Way Northeast (SR 522). The property was formerly developed with a combined office warehouse and shop building that occupied approximately one quarter of the property, as well as three smaller buildings along the east side of the property, with asphalt-paved parking and storage constituting most of the remainder of the property. All buildings were demolished in May 2010, in advance of the soil cleanup work and subsequent construction of a new roadway. The Site is being redeveloped as part of the City's overall Downtown Revitalization Plan and will mostly accommodate the new SR 522 roadway which will roughly bisect the property. Remnant portions of the property north and south of the new roadway may be redeveloped after the roadway is completed.

1.2 AUTHORIZATION / SCOPE OF WORK

HWA GeoSciences' (HWA) work for this project was authorized under an On-Call Hazardous Materials Services Consultant Agreement with the City dated April 2010. HWA's scope of work for this portion of the project included:

- Perform environmental assessments, prepare technical documentation and develop remedial designs for cleanup of contaminated downtown properties
- Provide permitting support
- Provide contract bid phase services
- Assist in coordinating with State and Federal environmental regulatory agencies.
- Conduct cleanup monitoring, confirmation sampling, backfill & compaction monitoring during construction
- Prepare this Soil Cleanup Report

1.3 OBJECTIVES

The objective of the soil cleanup was to reduce the threat to the environment and human health posed by petroleum hydrocarbon impacted soil in areas that were accessible to the maximum extent possible consistent with the requirements of Washington's Model Toxics Control Act (MTCA) cleanup regulations (Chapter 173-340 WAC).

1.4 HISTORIC PROPERTY USE AND PREVIOUS SITE ASSESSMENTS

Details of historic property use and the site assessments performed to date at the Site can be found in ECOSS (2006), DLH (1993a, b; 2007), and HWA (2008a, b). The following is a summary of those assessments.

According to historical information and interviews, the Site has been developed since 1918; businesses operating at the Site included automobile repair and dealerships, fueling, and equipment rental (ECOSS, 2008). In 1993 three leaking underground storage tanks (LUSTs) were removed from the property followed by site assessments (DLH, 1993a, b; 2007). With reference to Figure 3; these were:

1. A tank containing less than 1,100 gallons of kerosene located in the northwestern area of the Site
2. A 500-gallon diesel fuel tank located in the east-central area of the site

3. A 7,000-gallon leaded gasoline tank co-located in the same excavation as the diesel fuel UST

To the north of the Site across SR 522, Simon and Sons Fine Dry Cleaning (18107 Bothell Way NE) is listed on Ecology's Confirmed or Suspected Contaminated Sites List (CSCSL). This former dry cleaning facility had releases of chlorinated solvents to ground water with off-site migration of contamination in the direction of the Bothell Former Hertz Facility.

The Phase II Environmental Site Assessment (HWA, 2008b) did not identify any USTs remaining at the Site. Soils in the northern and eastern portions of the Site in the vicinity of the three former LUSTs contained petroleum hydrocarbons exceeding Ecology MTCA Method A cleanup levels, and associated volatile organic compounds (VOCs) below cleanup levels. Ground water in several areas of the Site, including near the LUSTs, also contained petroleum hydrocarbons and VOCs exceeding MTCA Method A cleanup levels. Petroleum hydrocarbons detected in soil and ground water at the Site appeared to be from multiple releases, as several petroleum types were identified (i.e., gasoline, diesel, oil). Some of the VOCs detected in ground water at the Site are typically associated with petroleum products, while some chlorinated VOCs detected in ground water likely originated at the nearby Simon and Sons Fine Dry Cleaning facility. Other investigations in the vicinity have also confirmed off-site impacts from the Simon and Sons Fine Dry Cleaning facility.

1.5 CURRENT AND PLANNED SITE USE

All buildings were demolished in May 2010, in advance of planned cleanup actions and subsequent roadway construction. The Site is being redeveloped as part of the City's overall Downtown Revitalization Plan and will accommodate the new SR 522 roadway. Remnant portions of the property north and south of the new roadway may be redeveloped after the roadway is completed.

2.0 ENVIRONMENTAL SETTING

2.1 PHYSICAL CONDITIONS / TOPOGRAPHY

Figure 3 shows the site plan prior to the soil cleanup. The Site is approximately 1.92 acres in area and vacant with all buildings demolished. Concrete foundations and asphalt paving remained in place prior to the soil cleanup. The property is generally flat with an elevation of approximately 30 feet above mean sea level. The surrounding land is generally flat or slopes down to the south towards the Sammamish River.

2.2 GEOLOGY

Surficial soils in the vicinity of the Site are primarily recent alluvium (Booth and others, 2004) most likely deposited by the adjacent Sammamish River. Per HWA (2008b), soil at the site typically consists of approximately two to seven feet of silty sand fill over alluvial soil consisting of interbedded silt and silty sand. Much of the fill material is likely dredged spoils placed on the property from realignment of the Sammamish River in the 1960s. Peat or silt beds with high organic content up to four feet thick are present in alluvial soils generally below 14 feet below ground surface (bgs). These organic-rich beds may not represent a contiguous layer. Interbedded alluvial sand and silty sand typically occurs below 15 feet.

2.3 HYDROGEOLOGY

The water table at the Site is approximately 5 and 8 feet bgs with a higher surface occurring in the wet season. Based on water level surveys of the area, ground water flow is to the east-southeast, toward the Sammamish River located approximately 300 feet to the southeast. The measured ground water gradient, i, ranged from 0.035 to 0.06 feet per foot. The estimated hydraulic conductivity, K, for the water-bearing zone ranged from 6.8×10^{-4} to 1.1×10^{-3} feet per minute (0.98 to 1.58 feet per day) based on slug testing (Parametrix, 2009). Assuming an effective porosity, n_e, of 0.2 for the aquifer materials at the site, ground water flow velocities in the water-bearing zone, based on the relationship $V = Ki / n_e$ are estimated to range from:

0.98 ft/d x 0.03536 / 0.2 = 0.17 feet/day = 63 feet/year to
1.58 ft/d x 0.0576 / 0.2 = 0.45 feet/day = 166 feet/year.

3.0 NATURE AND EXTENT OF CONTAMINATION

3.1 CHEMICALS OF POTENTIAL CONCERN

Based on the *Phase II Environmental Site Assessment* (HWA, 2008b), chemicals of potential concern (COPCs) present in Site soils were associated with the three leaking USTs and included:

- Total petroleum hydrocarbons (TPH in the gasoline-, diesel-, and lube oil-ranges)
- Aromatic hydrocarbons (benzene, toluene, ethylbenzene, and xylenes (BTEX))

COPCs present in site ground water were associated with 1) the three leaking USTs, 2) chlorinated solvent releases likely originating at the nearby Simon and Sons Fine Dry Cleaning Facility, and 3) arsenic apparently mobilized as a result of reducing conditions caused by the presence of organics in the aquifer. The COPCs present in ground water included:

- Total petroleum hydrocarbons (TPH in the gasoline-, diesel-, and lube oil-ranges)
- Aromatic hydrocarbons (BTEX)
- Vinyl chloride
- Arsenic

3.2 EXTENT OF CONTAMINATION

Soils in the northern and eastern portions of the Site in the vicinity of the three former LUSTs contained petroleum hydrocarbons exceeding Ecology MTCA Method A cleanup levels, and associated aromatic hydrocarbons below cleanup levels. Ground water in several areas of the Site, including near the LUSTs, also contained petroleum hydrocarbons and aromatic hydrocarbons exceeding MTCA Method A cleanup levels. Petroleum hydrocarbons detected in soil and ground water at the Site appeared to be from multiple releases, as several petroleum types were identified (i.e., gasoline, diesel, oil).

Some of the aromatic hydrocarbons detected in ground water at the Site (e.g., BTEX) are typically associated with petroleum products. Chlorinated VOCs detected in ground water (e.g., vinyl chloride) likely originated at the nearby Simon and Sons Fine Dry Cleaning facility; other investigations in the vicinity have also confirmed off-site impacts from that facility.

3.3 CLEANUP STANDARDS

Remediation levels proposed in the *Interim Action Work Plan* (HWA, 2010b) include:

- MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (WAC 173-340, Table 740-1).
- MTCA Method B Soil TPH Cleanup Levels for direct contact and protection of ground water

In order to evaluate whether the standard MTCA Method A soil cleanup levels were appropriate for the Site compared to MTCA Method B risk-based soil TPH cleanup levels, results of petroleum hydrocarbon fractionation analyses (NWVPH/NWEPH analysis) were input into Ecology's MTCATPH11.1 spreadsheet model to determine TPH soil cleanup levels protective of human health via direct contact and via leaching to a source of potable ground water. HWA's evaluation of MTCA Method B risk-based cleanup levels for TPH-impacted soil at the site is presented in Appendix A of this report. Table 1 summarizes the results of the analysis. The calculated Method B TPH cleanup levels for diesel- and oil-range petroleum hydrocarbons, including kerosene, at the Site range between 220 to 13,263 milligrams per kilogram (mg/kg) depending on the mixture of hydrocarbon fractions and specific compounds, particularly carcinogenic polynuclear aromatic hydrocarbons (cPAHs). The MTCA Method A soil cleanup level for diesel- and oil-range petroleum hydrocarbons is 2,000 mg/kg. The calculated Method B soil cleanup level for gasoline-range petroleum hydrocarbons at the Site is 3,504 mg/kg; compared to the MTCA Method A cleanup level of 100 mg/kg for soil having no benzene present and if the total of ethylbenzene, toluene, and xylenes is less than one percent of the gasoline mixture. The MTCA Method cleanup level for gasoline-range petroleum hydrocarbons is 30 mg/kg for all other mixtures.

The resulting soil remediation levels used (i.e., the more stringent of Method A or B) are extremely conservative, as following redevelopment most of the site will be covered by pavement and buildings, eliminating the direct contact pathway, and reducing ground water recharge by precipitation. These remediation levels meet all the requirements of WAC 173-340-720 through 173-340-760 and should be considered the Site cleanup levels.

3.4 REMEDIAL ACTION OBJECTIVES

The following remedial action objectives (RAOs) were established for the cleanup (HWA, 2010b):

- Achieve MTCA Method A and B soil cleanup levels at the point of compliance, thus reducing or eliminating human exposure through direct contact and inhalation of vapors.
- Use permanent solutions to the maximum extent practicable (which includes consideration of cost-effectiveness).

- Properly manage contaminated ground water that may be generated during site development activities, and ensure that activities at the site do not result in exposure to the contaminated ground water that has migrated onto the site.
- Use confirmation sampling in excavation to determine remaining contamination at that portion of the site. Confirmation samples will be further analyzed for the purpose of determining Method B cleanup levels for the remedial investigation/feasibility study and other contaminants of concern. The location of confirmation samples above cleanup levels will also determine the direction further characterization and remediation must go.

4.0 SOIL CLEANUP

The cleanup for contaminated soil at the Site included excavation and off-site disposal of all accessible impacted soils. The following sections describe the cleanup.

The City engaged a construction contractor, Hos Brothers Construction (Contractor) of Woodinville, Washington, to perform the soil cleanup from August through October 2010; HWA personnel monitored the cleanup activities and sampled soil to confirm successful cleanup. Prior to site cleanup, the Contractor demolished all the building slabs and parking lots (Photo 1 in Appendix D) and cleared and grubbed the Site in preparation for the soil cleanup and subsequent construction of the SR 522 realignment.

4.1 PRE-CLEANUP CHARACTERIZATION

Prior to large scale excavation activities at the Site, HWA personnel conducted test pit characterization (i.e., "pot holing") to delineate clean overburden soils at the Site, and to assess the lateral and vertical extent of TPH-impacted soils with respect to previous investigations.

HWA's test pit characterization activities included collecting samples of TPH-impacted soil for analysis of petroleum hydrocarbon fractionation and other target compounds in order to calculate MTCA Method B risk-based soil cleanup levels for protection of human health and potable ground water (see Section 3.2 above). The results of the of the Method B risk analysis are presented in Appendix A and summarized in Table 1.

Twenty nine test pits were excavated between August 30th and September 16th 2010 using a rubber-tired backhoe operated by the Contractor's personnel; Figure 4 shows test pit locations. Test pits were excavated to a maximum depth of 10 feet bgs. HWA personnel collected 55 representative soil samples at various depths within the test pits for chemical analysis. The test pit data indicated that 1,302 cubic yards (approximately 2,080 tons) of soil could be stockpiled on site for later reuse. Subsequent sampling and analysis of the soil stockpiles confirmed that the soil was chemically and structurally suitable for reuse; the analytical data for the stockpiled soil are summarized at the bottom of Table 2.

OnSite Environmental Inc. of Redmond, Washington, an Ecology accredited laboratory, performed the soil chemical analyses; laboratory reports are presented in Appendix B. Appendix C presents a project quality assurance audit including verification of the analytical data; the audit found that with minor exceptions, all reported data should be considered valid as qualified and acceptable for further use.

4.2 SOIL EXCAVATION

The Contractor excavated contaminated soil at the Site between September 8 and September 22, 2010. HWA personnel directed the cleanup based upon prior sampling, as well as field screening information such as soil color, odor, and photoionization detector readings. When the screening information indicated clean soil, HWA collected confirmation samples for laboratory analysis to document that the soils left in place met the Site cleanup levels. Where confirmation sample results exceeded cleanup levels, the Contractor and HWA performed additional excavation and sampling until the cleanup goals were achieved.

Soil excavation generally proceeded from north to south. Contaminated soil was excavated generally down to the contact with a peat layer underlying the site (Photos 2 and 3 in Appendix D), which was found to meet the cleanup levels. The approximate limits of soil excavation are shown on Figure 4. The final excavation was approximately 180 by 180 feet in its maximum width and length. The depth of the excavation ranged from about 5 to 16 feet bgs.

A total of 11,182.41 tons of soil were excavated and transported to the CEMEX USA soil remediation facility in Everett, Washington. Assuming a bulk density of 1.6 tons per bank cubic yard, the volume of soil excavated and transported to CEMEX was approximately 6,989 cubic yards. A copy of the CEMEX Release of Liability/Certificate of Disposal for the soil is presented in Appendix E.

Four buried hydraulic lifts and their associated oil reservoirs were removed early into the cleanup (Photos 4 and 5 in Appendix D). The lifts and oil reservoirs were decontaminated, and the housings recycled along with rebar and other steel reclaimed during site demolition.

On September 13th a small old wooden catch basin was unearthed in the northeastern extent of the excavation at the location shown on Figure 3. The catch basin held lube oil floating on top of water (Photos 6 and 7 in Appendix D), and did not appear to have a functional outlet or connect to any other utilities. Nor did it appear to have been in service for many years as indicated by the limited extent of oil impacted soil surrounding the catch basin. HWA collected a sample of the petroleum impacted soil adjacent to the catch basin and submitted it to OnSite Environmental for analysis (sample P-PEX-11 in Table 2). On September 14th an industrial vacuum truck service pumped water and oil out of the catch basin and transported it to a petroleum reclamation facility. The Contractor subsequently excavated the catch basin components and the short lengths of associated drain pipe and transported them with petroleum impacted soil to the CEMEX facility for thermal treatment.

4.3 CONFIRMATION SAMPLING

HWA personnel collected 17 excavation sidewall and 21 excavation bottom to confirm soil cleanup (Table 2). Figure 4 depicts confirmation sample locations. Laboratory certificates are included in Appendix B. Ten pre-excavation test pit samples collected at the extents of the excavation, and in some cases beyond, are included in Table 2 as confirmation samples because the soils represented by those samples did not contain chemicals of potential concern at concentrations exceeding site cleanup levels. Table 2 confirms that the cleanup achieved the site cleanup levels. In particular, the calculated Method B TPH soil cleanup level of 220 mg/kg for kerosene-impacted soil was achieved in the vicinity of the former kerosene LUST (samples H-PEX-4, H-PEX-7, H-PEX-8, and H-PEX-17).

4.4 GROUND WATER MANAGEMENT

Minor ground water seepage was present at approximately 8 to 10 feet below original grade at the Site (Photos 2 and 3 in Appendix D). Ground water flow into the excavation was managed by creating sumps and ponding the water behind soil berms. Accumulated water was removed with a gasoline powered 'trash' pump for temporary storage and settling in an on-site 20,000 gallon storage tank. This dewatering effluent was stored, tested, and discharged by the Contractor under a King County Industrial Waste Division temporary dewatering discharge permit to sanitary sewer, for treatment at King County's wastewater treatment plant.

4.5 ORC PLACEMENT

To facilitate bioremediation of ground water following soil removal, the Contractor applied 1,416 pounds of Oxygen Release Compound® (ORC) along the excavation sidewalls and bottom. The ORC was prepared by mixing the powdered compound with water in an excavator bucket to form a slurry. HWA estimates that the ORC will slowly release dissolved oxygen to ground water for approximately a year following cleanup thus encouraging destruction of residual hydrocarbons in soil and ground water by naturally-occurring aerobic bacteria in the soil, and reducing the possibility of re-contamination of clean fill.

4.6 WELL DECOMMISSIONING

Prior to cleanup actions at the Site, Slead Construction Inc, a Washington State licensed well drilling contractor under subcontract to the Contractor, decommissioned ground water monitoring wells HZ-MW-2, HZ-MW-10, HZ-MW-11, and HZ-MW-13 in accordance with WAC 173-160-381. These wells were decommissioned because of their locations within the cleanup excavation. Slead Construction personnel also decommissioned monitoring well HZ-MW-08 following the cleanup; although not within the cleanup excavation footprint, this well was decommissioned because it will be covered by the new roadway.

4.7 SITE RESTORATION

After excavation of contaminated soil and receipt of confirmation sample analytical results, the Contractor backfilled and compacted the excavation with a combination of clean imported structural fill soils meeting the requirements of Select Borrow, per WSDOT Standard Specification 2-03.3(14)K, and 1,302 cubic yards of previously excavated soils from the Site that were tested and found to meet Site cleanup levels. The imported select borrow was obtained from CEMEX, who mined the sandy soils from a quarry in Granite Falls, Washington (i.e., not excavated or reused from any developed property).

The select borrow and native soils were compacted to Method B of WSDOT Standard Specification 2-03.3(14)C, i.e., 90 percent of maximum dry density as determined using test method ASTM D 1557 (Modified Proctor) below two feet bgs, and 95 percent of maximum dry density for the upper two feet.

The backfilling occurred in stages as portions of the Site were confirmed to have been cleaned up. The excavation was generally backfilled from the northwest to southeast as contaminated soil was removed from the Site. The remediation area was then hydro-seeded for erosion control.

5.0 REFERENCES

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6.0 LIMITATIONS

The conclusions expressed by HWA are based solely on material referenced in this report. Observations were made under the conditions stated. Within the limitations of scope, schedule and budget, HWA attempted to execute these services in accordance with generally accepted professional principles and practices in the area at the time the report was prepared. No warranty, expressed or implied, is made. Experience has shown that subsurface soil and ground water conditions can vary significantly over small distances. It is always possible that contamination may exist in areas that were not sampled. HWA's findings and conclusions must not be considered as scientific or engineering certainties, but rather as our professional opinion concerning the significance of the limited data gathered and interpreted during the course of the assessment.

This study and report have been prepared on behalf of City of Bothell, for the specific application to the subject property. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

We appreciate the opportunity to provide professional services on this project. Please feel free to call us if you have any questions or need more information.

Sincerely,

HWA GEOSCIENCES INC.

State of Washington
Geologist
Hydrogeologist
327
Licensed Geologist
NORMAN C. NIELSEN
1/28/11

State of Washington
Hydrogeologist
170
Licensed Geologist
Arnon Sugar
1-28-11

Norm Nielsen, LG, LHG
Senior Hydrogeologist

Arnie Sugar, LG, LHG
President

Table 1
Summary of Method B Soil TPH Risk Calculations
Bothell Former Hertz Facility

Release area	Former USTs	Former UST		Wooden storm drain catch basin
TPH Type	**Gasoline and diesel**	**Kerosene**		**Diesel and lube oil range hydrocarbons**
Sample	**H-PEX-1-6**	**H-PEX-2-6**	**H-PEX-3-4**	**H-PEX-11-6**
Calculated Method B TPH cleanup level for direct skin contact (mg/Kg)	3,504	4,035	2,505	2,954
Most stringent soil risk criterion for direct skin contact	Hazard Index	Hazard Index	cPAHs mixture	Hazard Index
Method B soil TPH concentration protective of ground water (mg/Kg)	13,263	220	100% NAPL[1]	100% NAPL
Most stringent soil risk criterion for protection of ground water	Total risk = 1E-5	Hazard Index Risk 1E-6	Hazard Index Total risk 1E-5 cPAHs mixture	Hazard Index Total risk 1E-5 cPAHs mixture
Method A soil cleanup levels (mg/Kg)	30[2] (G) 2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)	2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)		

Notes:
1 - 100% NAPL means soil containing free product would not produce a TPH concentration $\geq$800 µg/L in ground water
2 - Cleanup level for gasoline mixtures with benzene

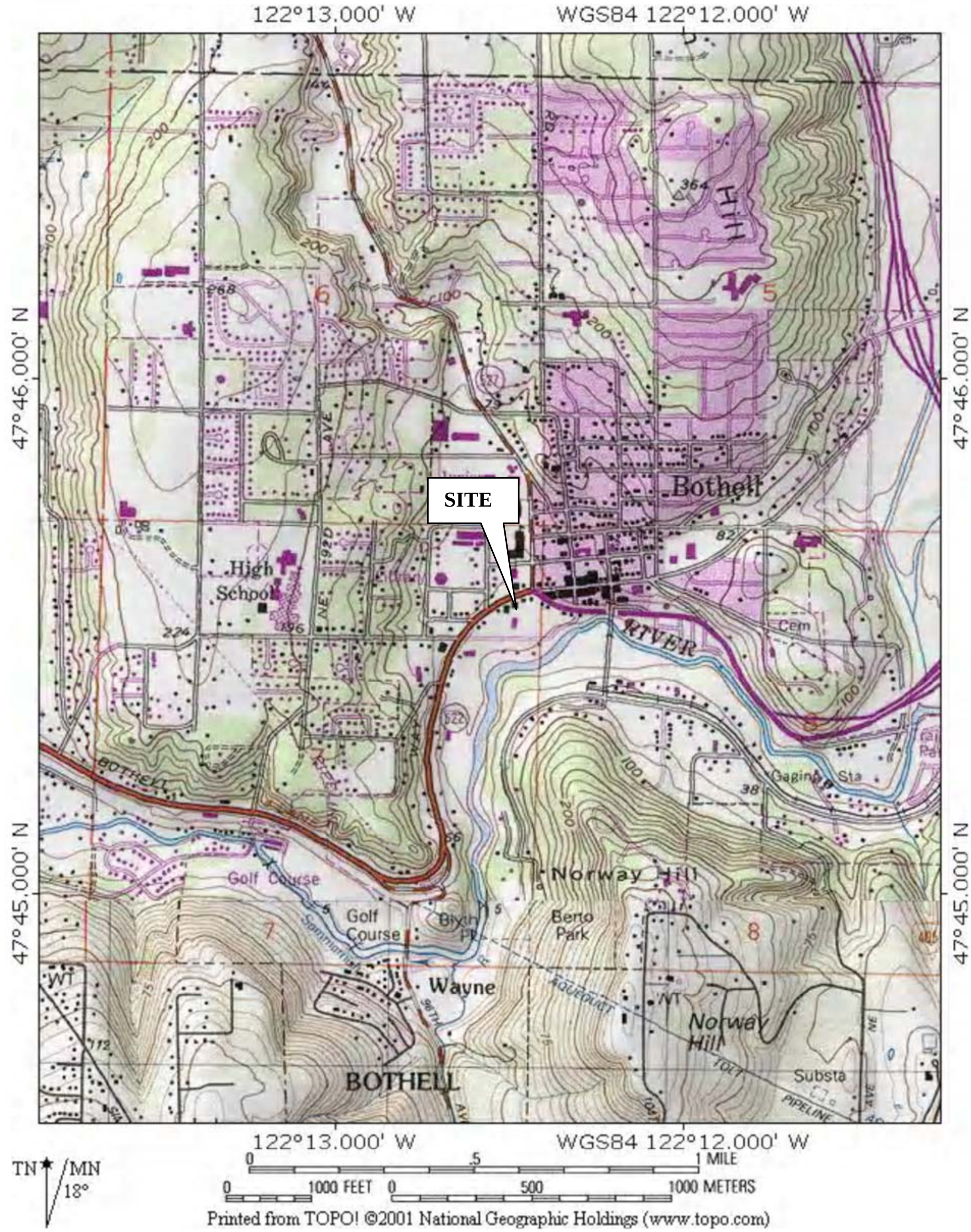
TABLE 2
SOIL CLEANUP ANALYTICAL RESULTS
BOTHELL FORMER HERTZ FACILITY
(all results in milligrams per kilogram (mg/kg))

		Confirmation Sample[1]																				
Sample location	Sample Depth ft bgs	Sidewall	Bottom	Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Total Naphthalenes[2]	cPAHs TEC[3]	PCBs	Notes
H-TP-1-3	3			<29	<58	<6.5	<0.02	<0.065	<0.065	<0.065												
H-TP-1-8	8			**25000**	<610	<71	<0.14	<0.71	**2.1**	**9.4**												
H-TP-2-4	4			<27	<55	<5.5	<0.02	<0.055	<0.055	<0.055												
H-TP-2-10	10			<33	<66	<7.3	<0.02	<0.073	<0.073	<0.073												
H-TP-3-3	3	X		<29	**140**	<7	<0.02	<0.07	<0.07	<0.07												
H-TP-3-8	8		X	<32	<64	<7.4	<0.02	<0.074	<0.074	<0.074												
H-TP-4-3	3	X		<29	<58	<4.6	<0.02	<0.046	<0.046	<0.046												
H-TP-4-7	7		X	<31	<61	<6.5	<0.02	<0.065	<0.065	<0.065												
H-TP-5-4	4			<27	<54	<6.3	<0.02	<0.063	<0.063	<0.063												
H-TP-5-7	7			<32	<63	<6.4	<0.02	<0.064	<0.064	<0.064												
H-TP-6-3	3			**2700**	**11000**	**150**	<0.02	<0.054	**0.055**	**0.23**												
H-TP-6-6	6			**1600**	**7500**	**200**	<0.023	<0.12	<0.12	**0.26**												
H-TP-6-7	4			**70**	**420**	**10**	<0.02	<0.074	<0.074	<0.074												
H-TP-7-5	5			<28	<56	<5.7	<0.02	<0.057	<0.057	<0.057												
H-TP-7-7	7			<32	**110**	<7	<0.02	<0.07	<0.07	<0.07												
H-TP-8-5	5	X		<28	**120**	**6.2**	<0.02	<0.058	<0.058	<0.058												
H-TP-8-7	7		X	<30	<60	<6	<0.02	<0.06	<0.06	<0.06												
H-TP-9-4	4			<28	<56	<7.3	<0.02	<0.073	<0.073	<0.073	<11	**43**	<0.56	**27**	<5.6	<0.28	<11	<0.56				
H-TP-9-7	7			**92**	<60	<6.6	<0.02	<0.066	<0.066	<0.066	<12	**73**	<0.60	**42**	**7.6**	<0.3	<12	<0.60				
H-TP-10-3	3			<28	<56	<6.5	<0.02	<0.065	<0.065	<0.065	<11	**46**	<0.56	**31**	<5.6	<0.28	<11	<0.56				
H-TP-10-7	7			**1900**	<65	<16	<0.033	<0.16	**1**	**7.59**	<13	**53**	<0.65	**28**	<6.5	<0.33	<13	<0.65				
H-TP-11-4	4	X		<30	<60	<7.3	<0.02	<0.073	<0.073	<0.073	<12	**95**	<0.60	**29**	<6	<0.3	<12	<0.60				
H-TP-11-7	7		X	<32	<64	<6.4	<0.02	<0.064	<0.064	<0.064	<13	**56**	<0.63	**39**	<6.3	<0.32	<13	<0.63				
H-TP-12-3	3			<28	<57	<5.9	<0.02	<0.059	<0.059	<0.059	<11	**70**	<0.57	**30**	<5.7	<0.28	<11	<0.57				
H-TP-12-7	7			<30	<60	<6.9	<0.02	<0.069	<0.069	<0.069	<12	**40**	<0.60	**21**	<6	<0.3	<12	<0.60				
H-TP-13-3	3			<820	**2200**	**750**	<0.047	<0.24	**0.67**	**1.9**	<11	**44**	<0.56	**31**	**7.1**	<0.28	<11	<0.56				
H-TP-13-8	8			**6100**	**5400**	**1700**	<0.1	<0.52	**1.1**	**2.9**	<12	**58**	<0.60	**24**	**58**	<0.3	<12	<0.60				
H-TP-14-3	3			<28	<56	<5	<0.02	<0.05	<0.05	<0.05	<11	**41**	<0.56	**28**	<5.6	<0.28	<11	<0.56				
H-TP-14-8	8			<510	**1200**	**2100**	0.079	<0.11	**0.37**	**4.1**	<12	**41**	<0.59	**33**	**9.5**	<0.3	<12	<0.59				
H-TP-15-3	3			<620	**2300**	<5.5	<0.02	<0.055	**0.11**	**0.38**	<11	**45**	<0.55	**31**	24	<0.28	<11	<0.55				
H-TP-15-8	8			<110	**280**	**120**	<0.02	<0.051	**0.7**	**0.18**	<11	**42**	<0.56	**26**	<5.6	<0.28	<11	<0.56				
H-TP-16-3	3	X		<30	**190**	**57**	<0.02	<0.076	<0.076	**0.15**												
H-TP-16-7	7		X	<140	**290**	**72**	<0.02	<0.066	<0.066	<0.066												
H-TP-17-3	3	X		<31	**99**	<7.5	<0.02	<0.075	<0.075	<0.075												
H-TP-17-6	6		X	<31	<62	<7.3	<0.02	<0.073	<0.073	<0.073												
H-TP-18-3	3			<28	<56	<5.3	<0.02	<0.053	<0.053	<0.053												
H-TP-18-7	7			<1600	**2300**	**1900**	<0.058	<0.29	**0.95**	**5.7**												
H-TP-19-4	4			<130	**450**	<6.2	<0.02	<0.062	<0.062	<0.062												
H-TP-19-6	6			<55	**220**	<5.8	<0.02	<0.058	<0.058	<0.058												
H-TP-20-3	3			<27	<54	<5.5	<0.02	<0.055	<0.055	<0.055												
H-TP-20-6	6			<1700	**5800**	**18**	<0.028	**0.83**	<0.14	<0.14												
H-TP-21-2	2			<580	**2300**	**20**	<0.02	<0.061	<0.061	<0.061												
H-TP-21-7	7			<29	**110**	<5.4	<0.02	<0.054	<0.054	<0.054												
H-TP-22-8	8		X	<63	**300**	**12**	<0.020	<0.064	**0.27**	**1.39**												
H-TP-23-7	7			**5400**	**680**	<30	<0.060	<0.30	**0.65**	**0.72**												
H-TP-24-3	3	X		<55	**200**	<6.4	<0.02	<0.064	<0.064	<0.064												
H-TP-24-8	8		X	<29	<58	<5.1	<0.02	<0.051	<0.051	<0.051												
H-TP-25-2	2			<28	<56	<6.3	<0.02	<0.063	<0.063	<0.063												
H-TP-25-8	8			**5400**	**1700**	<16	<0.032	<0.16	**0.31**	0.42												
H-TP-26-4	4			<28	**150**	<6.0	<0.020	<0.060	<0.060	<0.060												
H-TP-26-9	9			**3600**	**1800**	<28	<0.056	<0.28	**0.53**	**0.72**												
H-TP-27-5	5	X		<30	<59	<5.7	<0.020	<0.057	<0.057	<0.057												
H-TP-27-9	9		X	<31	<62	<6.8	<0.020	<0.068	<0.068	<0.068												
H-TP-28-9	9		X	<29	<59	<5.1	<0.020	<0.051	<0.051	<0.051												
H-TP-29-6	6	X		<31	<62	<4.6	<0.020	<0.046	<0.046	<0.046												
H-PEX-1-6	6			**220**	**280**	**270**	**0.0013**	<0.0053	**0.015**	<0.0011	<12	**69**	<0.6	**35**	<6	<0.3	<12	<0.60	**0.181**	0.000	<0.060	EPH VPH Analyses
H-PEX-2-6	6			<400	**720**	**390**	<0.0014	<0.0068	<0.0014	**0.0021**	<11	**41**	<0.56	**27**	**18**	<0.28	<11	<0.56	**0.054**	0.000	<0.056	EPH VPH Analyses
H-PEX-3-4	4			**1800**	**7300**	**22**	<0.0011	<0.0055	<0.0011	**0.0015**	<12	**79**	<0.61	**26**	**130**	<0.3	<12	<0.61	**2.893**	**0.085**	<0.061	EPH VPH Analyses
H-PEX-4-8	8		X			<8.4	<0.020	<0.084	<0.084	<0.084	<14											
H-PEX-5-8	8		X			<31	<0.31	<0.31	<0.31	<0.31	<17											
H-PEX-6-4	4		X			<6.2	<0.020	<0.062	<0.062	<0.062	<12											
H-PEX-7-5	5	X				<7.9	<0.020	<0.079	<0.079	<0.079	<13											
H-PEX-8-6	6	X				<10	<0.021	<0.10	<0.10	<0.10	<11											
H-PEX-9-5	5		X	**820**	<110	<14	<0.027	<0.14	<0.14	<0.14												
H-PEX-10-7	7	X		**600**	**86**	<12	<0.023	<0.12	<0.12	<0.12												

TABLE 2
SOIL CLEANUP ANALYTICAL RESULTS
BOTHELL FORMER HERTZ FACILITY
(all results in milligrams per kilogram (mg/kg))

Sample location	Sample Depth ft bgs	Confirmation Sample[1] Sidewall	Confirmation Sample[1] Bottom	Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Total Naphthalenes[2]	cPAHs TEC[3]	PCBs	Notes
H-PEX-11-6	6			**1900**	**2700**	<13	<0.027	<0.13	<0.13	**0.38**	<11	**50**	<0.57	**23**	**37**	<0.29	<11	<0.57	**23.8**	**0.061**	<0.057	EPH VPH analyses of soil next to buried wood catch basin
H-PEX-12-12	12	X		<31	<61	<5.7	<0.020	<0.057	<0.057	<0.057												
H-PEX-13-14	14			<120	**700**	**15**	<0.029	<0.15	<0.15	<0.15												Removed
H-PEX-14-14	14		X	<91	**390**	<32	<0.32	<0.32	<0.32	<0.32												
H-PEX-15-10	10		X	<33	<65	<7.2	<0.020	<0.072	<0.072	<0.072												
H-PEX-16-14	14		X	<130	**980**	**30**	<0.053	<0.27	<0.27	**0.94**												
H-PEX-17-7	7	X		<31	<61	<7.2	<0.020	<0.072	<0.072	<0.072												
H-PEX-18-11	11		X	**300**	**320**	<6.9	<0.020	<0.069	<0.069	<0.069												
H-PEX-19-6	6			**320**	**740**	<7.0	<0.020	<0.070	<0.070	<0.070												Removed
H-PEX-20-6	6		X	<32	<64	<7.3	<0.020	<0.073	<0.073	<0.073												
H-PEX-21-16	16		X	<33	<65	<6.8	<0.020	<0.068	<0.068	<0.068												Over excavation of H-PEX-13-14
H-PEX-22-12	12		X	<30	<60	<6.3	<0.020	<0.063	<0.063	<0.063												
H-PEX-23-9	9			<310	**1600**	**12**	<0.020	<0.061	<0.061	<0.061												Removed
H-PEX-24-6	6	X		<27	**58**	<5.7	<0.020	<0.057	<0.057	<0.057	<11	**49**	<0.55	**25**	**28**	<0.27	<11	<0.55				Over excavation of H-PEX-19-6
H-PEX-25-6	6	X		**41**	**220**	<6.5	<0.020	<0.065	<0.065	<0.065	<11	**49**	<0.56	**23**	**22**	<0.28	<11	<0.56				
H-PEX-26-8	8	X		<30	**81**																	Over excavation of H-PEX-23-9
Stockpiles																						
H-SP-1				<28	<56	<5.5	<0.020	<0.055	<0.055	<0.055	<11	**37**	<0.56	**21**	**8.2**	<0.28	<11	<0.56	0.000	0.000		
H-SP-2				**55**	**250**	<7.2	<0.020	<0.072	<0.072	<0.072	<12	**48**	<0.61	**25**	**31**	<0.31	<12	<0.61	**0.710**	**0.081**		
H-SP-3				<28	**250**	<5.1	<0.020	<0.051	<0.051	<0.051	<11	**34**	<0.56	**17**	**19**	<0.28	<11	<0.56	**0.037**	**0.020**		
HZ-SP-101110-1				<29	<57						<11		<0.57	**31**	<5.7	<0.29						
HZ-SP-101110-2				<29	**100**						<12		<0.59	**30**	**13**	<0.29						
HZ-SP-101110-3				<33	**230**						<12		<0.58	**24**	**14**	<0.29						
HZ-SP-101110-4				<52	**320**						<12		<0.62	**30**	**91**	<0.31						
HZ-SP-101110-5				<31	**220**						<12		<0.62	**30**	**28**	<0.31						
MTCA Method A Cleanup Level[4]				2000		100/30[5]	0.03	7	6	9	20	NA	2	2000/19[6]	250	2	NA	NA	5	0.100	1	
MTCA Method B Cleanup Level[7]				2954 - 4035 (220 for kerosene)		3504	18	6,400	800	160,000	24	16,000	80	120,000	NA	24	400	400			0.5	
Background[8]				NA		NA	NA	NA	NA	NA	7	255	1	48	24	0.07	0.78	0.61	NA	NA	NA	

Notes:
< - Not detected at laboratory's reporting limit
Blank - Sample was not analyzed for this constituent
NA - Not applicable
Bold - Analyte Detected
Bold/Highlighted - Analyte detected above MTCA Method A soil cleanup level
- Sample in area that was subsequently excavated
1 - Confirmation that soil remaining in place meets MTCA cleanup levels or was left in place at the limits of excavation adjacent to SR 522
2 - Sum of Napthalene + 1-Methylnaphthalene + 2-Methylnaphthalene
3 - Toxic Equivalent Concentration of carcinogenic polynuclear aromatic hydrocarbons (cPAHs) per WAC 173-340-708(e)
4 - Washington Model Toxics Control Act Method A (Table 740-1) soil cleanup levels for unrestricted land use
5 - The MTCA Method A soil cleanup level is 100 mg/kg for gasoline mixtures without benzene and if the total of ethylbenzene, toluene, plus xylenes is less than 1% of the gasoline mixture. The soil cleanup level for all other gasoline mixtures is 30 mg/kg
6 - The MTCA Method A soil cleanup level for trivalent chromium is 2,000 mg/kg. Geochemical conditions on site would not cause oxidation to hexavalent chromium having a cleanup level of 19
7 - Method B TPH cleanup levels are site specific values calculated using MTCATPH1.1. Method B cleanup levels for metals are from Ecology's CLARC (Cleanup Level & Risk Calculations) database for non-carcinogens
8 - Background metals concentrations per *Natural Background Soil Metals Concentrations in Washington State* (Ecology, 1994) for the Puget Sound area



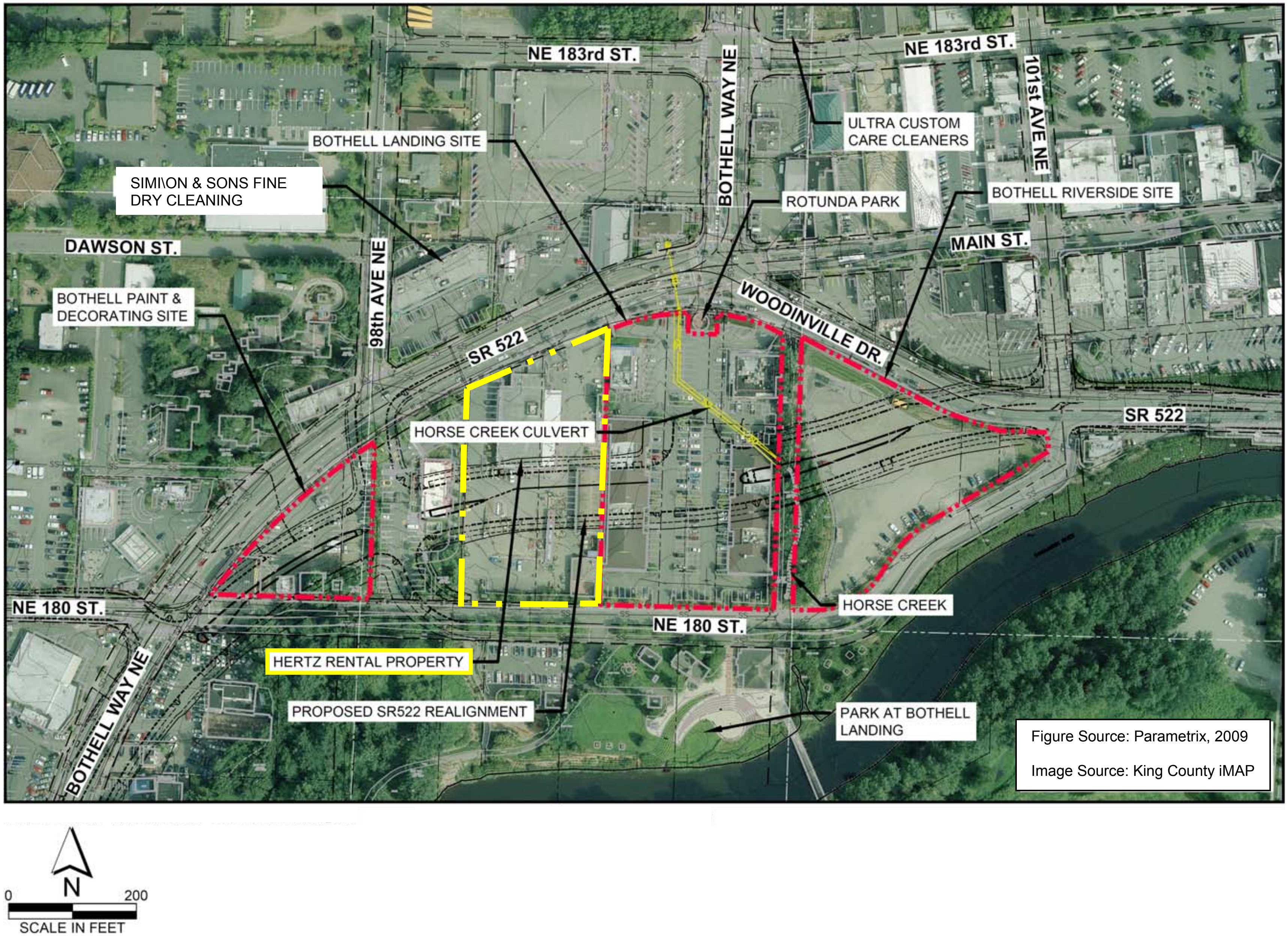
HWA GEOSCIENCES INC.

SITE VICINITY

BOTHELL FORMER HERTZ FACILITY
SOIL CLEANUP
BOTHELL, WASHINGTON

FIGURE NO.
1

PROJECT NO.
2007-098-921



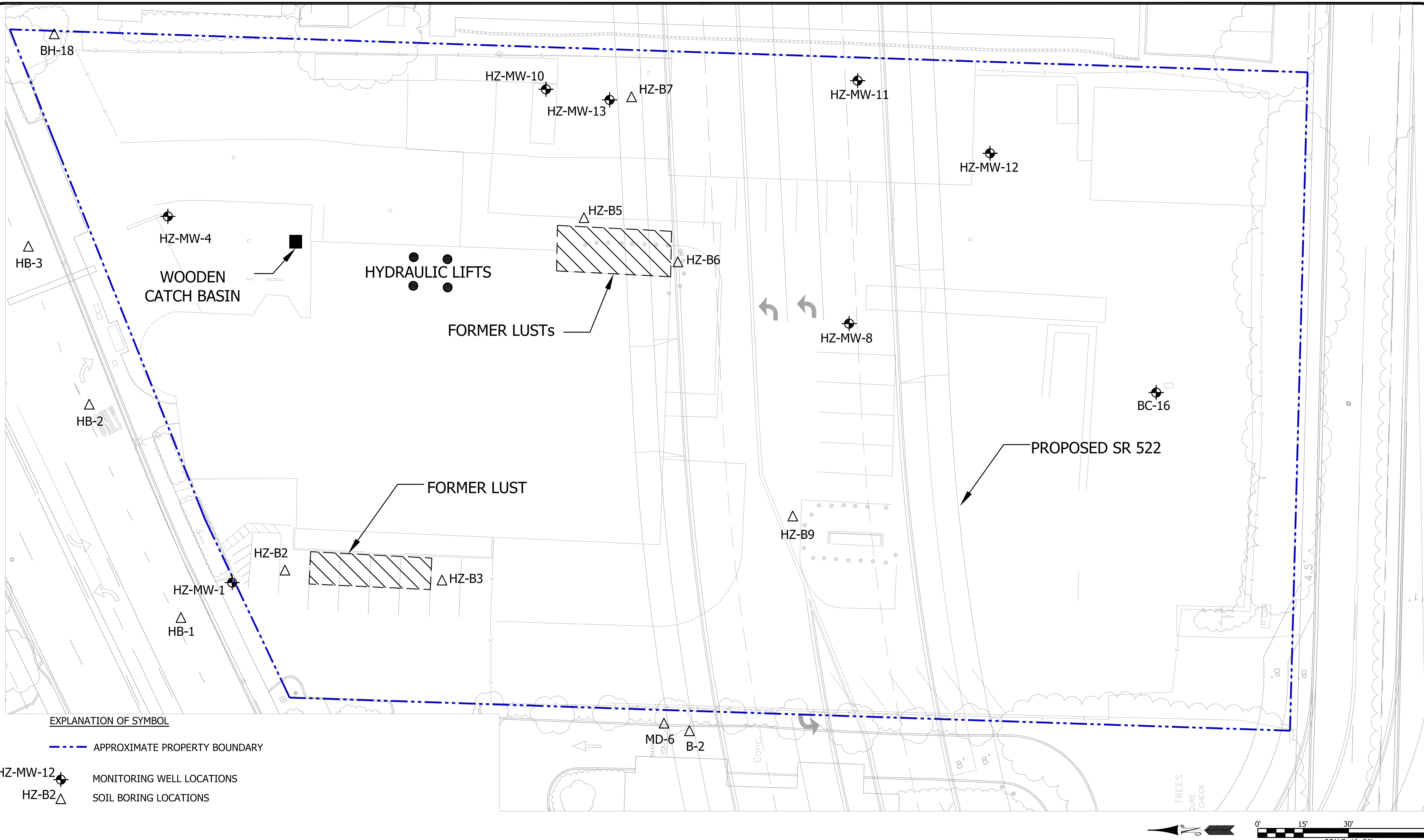
HWA GEOSCIENCES INC.

SITE LOCATION & ADJACENT PROPERTIES

BOTHELL FORMER HERTZ FACILITY
SOIL CLEANUP
BOTHELL, WASHINGTON

FIGURE NO.
2

PROJECT NO.
2007-098-921



BASE MAP PROVIDED BY PARAMETRIX

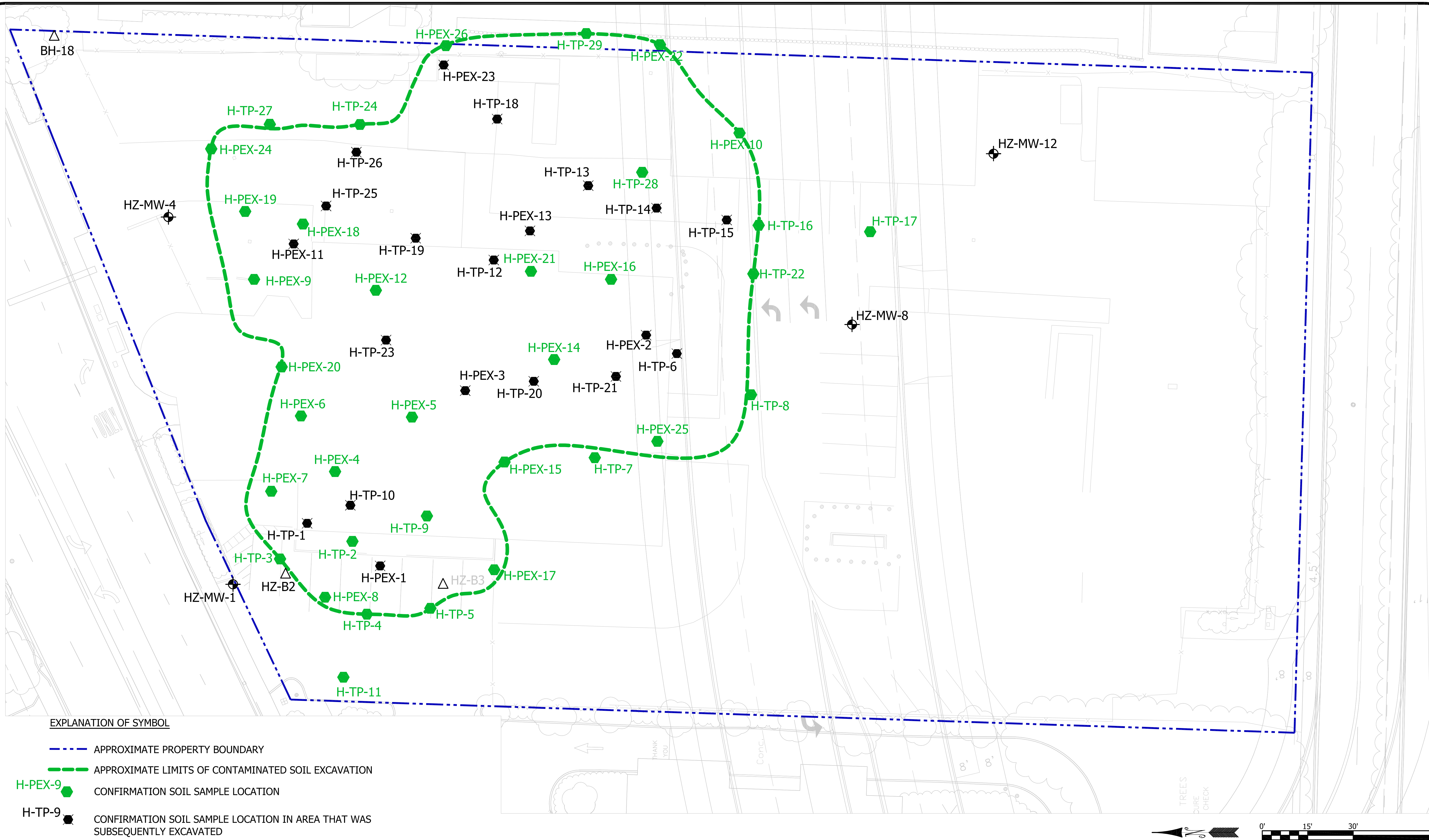
HWA GEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY
SOIL CLEANUP
BOTHELL, WASHINGTON

SITE PLAN
PRIOR TO CLEANUP

DRAWN BY EFK	FIGURE NO. 3
CHECK BY NN	PROJECT NO.
DATE 12.22.10	2007-098 T921

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T210.DWG <HERTZ PRIOR FIG 3> Plotted: 1/21/2011 10:30 AM



EXPLANATION OF SYMBOL

APPROXIMATE PROPERTY BOUNDARY

APPROXIMATE LIMITS OF CONTAMINATED SOIL EXCAVATION

H-PEX-9 CONFIRMATION SOIL SAMPLE LOCATION

H-TP-9 CONFIRMATION SOIL SAMPLE LOCATION IN AREA THAT WAS SUBSEQUENTLY EXCAVATED

HZ-MW-12 / HZ-B2 PRE-CLEANUP SOIL SAMPLE MEETING MTCA CLEANUP LEVELS

BASE MAP PROVIDED BY PARAMETRIX

HWA GEOSCIENCES INC.	BOTHELL FORMER HERTZ FACILITY SOIL CLEANUP BOTHELL, WASHINGTON	EXTENT OF SOIL CLEANUP	DRAWN BY EFK CHECK BY NN DATE 12.22.10	FIGURE NO. 4 PROJECT NO. 2007-098 T921

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T210.DWG <HERTZ CLEANUP FIG 4> Plotted: 1/21/2011 10:35 AM

APPENDIX A

DETERMINATION OF RISK-BASED CLEANUP LEVELS FOR THE SITE

HWA GEOSCIENCES INC.
Geotechnical & Pavement Engineering • Hydrogeology • Geoenvironmental • Planning & Permitting • Inspection & Testing

November 4, 2010
HWA Project No. 2007 098-921

City of Bothell
9654 NE 182nd St.
Bothell, Washington 98021

Attention: Nduta Mbuthia, Project Engineer, Public Works Capital Projects

Subject: **CLEANUP LEVEL DETERMINATION**
Former Hertz Rentals Property
Interim Action Cleanup
Bothell, Washington

Dear Ms. Mbuthia:

This letter describes HWA GeoSciences Inc. (HWA's) determination of risk-based soil cleanup levels at the former Hertz Rentals property, per the Interim Action Work Plan dated May 7, 2010.

1.0 Introduction

The City of Bothell conducted an interim action cleanup at the former Hertz Rentals property (Hertz site) in August and September 2010, consisting of excavation and off site treatment/disposal of metals and petroleum contaminated soils.

In order to establish soil cleanup levels, selected soil samples were collected and analyzed for petroleum hydrocarbon fractionation (VPH/EPH) and other target compounds (BTEX, cPAHs, EDB, EDC, MTBE). The results of the VPH/EPH analyses were then input into Ecology's MTCATPH11.1 spreadsheet model to determine TPH cleanup levels that are protective of direct contact and ground water, per the Ecology approved Interim Action Work Plan. Information regarding the use of petroleum hydrocarbon fractionation data and Ecology's MTCAPH11.1 model to calculate the risk at a petroleum contaminated site is presented in *Workbook Tools for Calculating Soil and Ground Water Cleanup Levels under the Model Toxics Control Act Cleanup Regulation User's Guide* (Ecology Publication No. 01-09-073).

2.0 Method B Soil Cleanup Levels

MTCA Method B cleanup levels are the universal cleanup levels that typically employ a risk-based approach as outlined in WAC 173-340-708. Cleanup levels for a particular

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site are determined after evaluating appropriate exposure pathway endpoints (e.g., direct contact, drinking water, nonpotable ground water, surface water, soil, wildlife, etc.) based on site use, contaminant distribution, etc. The actual clean up *standard* is then based on the calculated cleanup levels, measured at the point of compliance.

HWA evaluated Hertz site soils with respect to Method B cleanup levels for TPH. Under MTCA, once the source of contamination is removed, risk-based Method B (residential exposure scenario) TPH cleanup levels can be established. Method B cleanup levels must be protective for all exposure pathways, including direct contact with soil, leaching to ground water, and volatilization to air. Per the work plan, exposure pathways evaluated include:

- Direct human contact
- Protection of ground water

The vapor/odor pathway was not evaluated at this site, per the Interim Action Work Plan due to the absence of buildings over affected areas. The ground water to surface water pathway was also not evaluated, as the site remedial investigation indicated contaminated ground water was not migrating off site towards the Sammamish River.

Soil and ground water pathways (listed above) are discussed in the following sections.

Calculation of Method B cleanup levels is based on petroleum hydrocarbon fractionation analytical methods, collectively referred to as method E-TPH, that include Ecology methods VPH/EPH for volatile and extractable petroleum hydrocarbon fractions, BTEX, gasoline additives (MTBE, EDB, and EDC), and polynuclear aromatic hydrocarbons (PAHs).

Compounds composed of carbon and hydrogen are divided into two classes: aromatic compounds, which contain benzene rings or similar rings of atoms, and aliphatic compounds, which do not contain aromatic rings. The VPH/EPH method uses a fractionation approach to evaluate complex petroleum mixtures typically found in petroleum fuels and lubricants. The VPH/EPH approach divides petroleum into 12 compound groups (7 aliphatic and 5 aromatic) based on equivalent carbon (EC) number, which relates to the boiling point of a hydrocarbon compound. Hydrocarbons in the same EC group are assumed to have similar chemical, physical, and toxicological properties for the purposes of establishing cleanup levels. Each compound group is treated as if it was an individual chemical. Risks posed by site soils are calculated for each compound group and then summed across compound groups. Predicted ground water concentrations caused by leaching from the current soil concentrations are also estimated for each compound group and then summed across compound groups to produce a total ground water concentration.

2.1 Direct Contact Pathway

In the MTCA Method B risk analysis, the human health risk level for individual carcinogens may not exceed one-in-a-million ($1x10^{-6}$). If more than one type of hazardous substance is present, the total excess carcinogenic risk level at the site may not exceed 1 in 100,000 ($1x10^{-5}$). Cleanup levels protective of direct contact with soil for individual noncarcinogenic compounds are calculated in terms of hazard quotient (HQ), and for two or more compounds having similar toxic response by a hazard index (HI) that is the sum of individual hazard quotients. A HQ or HI less than 1.0 indicates an acceptable noncarcinogenic risk under MTCA Method B. Adverse effects resulting from exposure to two or more hazardous or carcinogenic compounds are assumed to be additive.

HWA used Ecology's MTCATPH11.1 electronic spreadsheet model (available at http://www.ecy.wa.gov/programs/tcp/tools/toolmain.html) to calculate the Method B cleanup levels protective of direct contact with soil. Table 1 summarizes the calculated Method B cleanup levels protective of the direct contact pathway; Appendix A contains the MTCATPH11.1 spreadsheet summary printouts. Per Ecology guidance (Publication No. 01-09-073 cited above), concentrations of TPH compounds not detected at the laboratory's practical quantitation limit (PQL) were entered into MTCATPH11.1 as the laboratory's method detection limit (MDL) – a value typically 5 or more times less than the practical quantitation limit.

2.2 Protection of Ground Water

Protection of ground water was evaluated for two pathways:

- Leaching from soil to ground water
- Residual soil saturation (the TPH concentration in soil at which a non aqueous phase liquid (NAPL) will form)

2.2.1 Leaching from soil to ground water

Soil cleanup levels protective of ground water may be calculated by several methods:

- Partitioning models
- Leaching tests
- Alternative fate & transport models
- Empirical demonstration

The Method B analyses used to calculate risk-based soil cleanup levels at the Hertz site included evaluation of the soil-to-ground water pathway using Ecology's partitioning models (WAC 173-340-747) for two scenarios: potable ground water and the default MTCA Method A ground water cleanup level as the protective concentrations. Table 1

summarizes the calculated Method B soil cleanup levels protective of dircet contact and ground water; Appendix A contains the MTCATPH11.1 spreadsheet summary printouts.

Table 1
Summary of Method B Soil TPH Risk Calculations
Former Hertz Rentals Property

Release area	Former USTs	Former UST		Wooden storm drain catch basin
TPH Type	**Gasoline and diesel**	**Kerosene**		**Diesel and lube oil range hydrocarbons**
Sample	**H-PEX-1-6**	**H-PEX-2-6**	**H-PEX-3-4**	**H-PEX-11-6**
Calculated Method B TPH cleanup level for direct skin contact (mg/Kg)	3,504	4,035	2,505	2,954
Most stringent soil risk criterion for direct skin contact	Hazard Index	Hazard Index	cPAHs mixture	Hazard Index
Method B soil TPH concentration protective of ground water (mg/Kg)	13,263	220	100% NAPL[1]	100% NAPL
Most stringent soil risk criterion for protection of ground water	Total risk = 1E-5	Hazard Index Risk 1E-6	Hazard Index Total risk 1E-5 cPAHs mixture	Hazard Index Total risk 1E-5 cPAHs mixture
Method A soil cleanup levels (mg/Kg)	30[2] (G) 2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)	2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)		
Maximum value detected on site after cleanup[3]	30 (G) 820 (D) 980 (O) <0.31 (Benzene) <0.32 (Toluene) 0.27 (Ethylbenzene) 1.39 (Xylenes)			
Cleanup levels met?	Method A Yes Method B Yes TCs Yes[4]	Method A Yes Method B Yes TCs Yes	Method A Yes Method B Yes TCs Yes	Method A Yes Method B Yes TCs Yes

Notes:
1 - 100% NAPL means soil containing free product would not produce a TPH concentration ≥800 µg/L in ground water
2 - Cleanup level for gasoline mixtures with benzene
3 – Compliance Monitoring Plan did not specify analyses for PAHs, as these were not a contaminant of potential concern at the site
4 - TCs: Cleanup levels for all target compounds (PAHs, EDB, EDC, MTBE, benzene, naphthalenes) were met as indicated by laboratory analysis for the individual compounds

2.2.2. Residual soil saturation

Evaluation of residual saturation concentrations is also required. Residual saturation refers to the soil concentration at which a nonaqueous phase liquid (a.k.a., NAPL or "free product") may form on or in soil or ground water. Residual saturation may be evaluated under MTCA using default screening values or an empirical demonstration. Criteria for an empirical demonstration include:

- NAPL has not formed in soil or ground water at the site
- NAPL will not form in the future, i.e., sufficient time has elapsed for migration of hazardous substances from soil into ground water to occur and that the characteristics of the site (e.g., depth to ground water and infiltration) are representative of future site conditions.

Both of these criteria are met at the site, as no NAPL has been observed in soil or ground water, and the impacted soils have likely been in place for at least 10 years prior to removal from the site.

3.0 Discussion

It is possible to extrapolate the results of the risk calculation to estimate a Method B soil "cleanup level" for total TPH concentrations at the site based on the most stringent pathway. This requires the assumption that the hydrocarbon fractions in the soil sample represents the distribution of hydrocarbon fractions in all residual petroleum hydrocarbons at the site. In general, this assumption is valid for sites where the residual hydrocarbons derive from a single source, or single type of fuel, which appears to be the case at each of the three source areas at this site, based on analytical results. Using this assumption, HWA extrapolated the risk results to indicate an appropriate Method B soil cleanup level for each of the three known release areas at the site, as summarized in Table 1.

HWA evaluated the potential risk to human health and the environment based on TPH concentrations in soil. Based on the Method B evaluation, site confirmation soil samples met the Method B, residential exposure scenario TPH cleanup levels for direct contact (i.e., HI less than 1, individual compound carcinogen risk less than 1E-6, and total carcinogen risk less than 1E-5), and protection of ground water (leaching as predicted by partitioning models and empirical demonstration of residual saturation).

4.0 Summary

Confirmation soil samples met all applicable cleanup levels, including:

- Method A soil cleanup levels for TPH and all individual target compounds
- Method B soil cleanup levels for all individual target compounds
- Method B TPH soil cleanup levels protective of 1) direct contact, and 2) protection of ground water, calculated per Ecology's MTCATPH11.1.1 spreadsheet model based on the most stringent pathways

Residual soil at the site has been remediated to MTCA Method A or B cleanup levels, and therefore poses no risk to direct-contact exposure under a residential scenario, or to ground water by leaching.

We appreciate the opportunity to provide our services on this project. Please feel free to call us if you have any questions or need more information.

Sincerely,
HWA GeoSciences Inc.

State of Washington Hydrogeologist 170 Licensed Geologist
11-4-10
Arnon Sugar

State of Washington Geologist Hydrogeologist 327 Licensed Geologist
11/4/10
NORMAN C. NIELSEN

Arnie Sugar, LG, LHG
President

Norm Nielsen, LG, LHG, PMP
Senior Hydrogeologist

APPENDIX A

MTCATPH11.1 METHOD B SPREADSHEET PRINTOUTS

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-1-6

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.51%
AL_EC >6-8	5	0.51%
AL_EC >8-10	40	4.11%
AL_EC >10-12	110	11.30%
AL_EC >12-16	140	14.38%
AL_EC >16-21	100	10.27%
AL_EC >21-34	300	30.82%
AR_EC >8-10	47	4.83%
AR_EC >10-12	40	4.11%
AR_EC >12-16	33	3.39%
AR_EC >16-21	52.9984	5.45%
AR_EC >21-34	99.9993	10.27%
Benzene	0.0013	0.00%
Toluene	0	0.00%
Ethylbenzene	0.015	0.00%
Total Xylenes	0.015	0.00%
Naphthalene	0.064	0.01%
1-Methyl Naphthalene	0.049	0.01%
2-Methyl Naphthalene	0.068	0.01%
n-Hexane	0.0603	0.01%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.000338	0.00%
Benzo(b)fluoranthene	0.00039	0.00%
Benzo(k)fluoranthene	0.000308	0.00%
Benzo(a)pyrene	0.000261	0.00%
Chrysene	0.0003	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.000373	0.00%
Sum	973.2726864	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here:	800	ug/L

Notes for Data Entry | Set Default Hydrogeology

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared previously

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-1-6
Measured Soil TPH Concentration, mg/kg: **973.273**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	3,504	6.76E-09	2.78E-01	Pass
	Method C	49,041	1.48E-09	1.98E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	13,263	5.26E-06	8.26E-01	Pass
	Target TPH GW Conc. @ 800 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**3,504.28**	**49,041.15**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	3.50E+03	2.43E-08	1.00E+00	YES	4.90E+04	7.44E-08	1.00E+00
Total Risk=1E-5	*NO*	1.44E+06	1.00E-05	4.11E+02	*NO*	6.59E+06	1.00E-05	1.34E+02
Risk of Benzene= 1E-6	*NO*	1.36E+07	9.44E-05	3.88E+03	NA			
Risk of cPAHs mixture= 1E-6	*NO*	2.30E+05	1.60E-06	6.56E+01				
EDB	*NO*	3.98E+05	2.76E-06	1.13E+02				
EDC	*NO*	2.31E+08	1.60E-03	6.59E+04				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**Total Risk = 1E-5**
Protective Ground Water Concentration, ug/L	**406.26**
Protective Soil Concentration, mg/kg	**13262.86**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL
Total Risk = 1E-5	YES	4.06E+02	1.00E-05	9.17E-01	1.33E+04
Total Risk = 1E-6	YES	1.68E+02	1.00E-06	4.36E-01	1.05E+02
Risk of cPAHs mixture= 1E-5	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL
Benzene MCL = 5 ug/L	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL
MTBE = 20 ug/L	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL

Note: 100% NAPL is 72000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	4.10E+02	1.06E-05	9.24E-01	**100% NAPL**

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-2-6

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.62%
AL_EC >6-8	5	0.62%
AL_EC >8-10	48	5.96%
AL_EC >10-12	180	22.36%
AL_EC >12-16	7	0.87%
AL_EC >16-21	80	9.94%
AL_EC >21-34	230	28.57%
AR_EC >8-10	110	13.66%
AR_EC >10-12	40	4.97%
AR_EC >12-16	11	1.37%
AR_EC >16-21	23.9913	2.98%
AR_EC >21-34	64.9993	8.07%
Benzene	0.0000159	0.00%
Toluene	0.000011	0.00%
Ethylbenzene	0.0000096	0.00%
Total Xylenes	0.000021	0.00%
Naphthalene	0.032	0.00%
1-Methyl Naphthalene	0.0088	0.00%
2-Methyl Naphthalene	0.013	0.00%
n-Hexane	0.0603	0.01%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.000338	0.00%
Benzo(b)fluoranthene	0.00039	0.00%
Benzo(k)fluoranthene	0.000308	0.00%
Benzo(a)pyrene	0.000261	0.00%
Chrysene	0.0074	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.000373	0.00%
Sum	805.1142439	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here:	800	ug/L

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-2-6
Measured Soil TPH Concentration, mg/kg: **805.114**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	4,035	7.37E-09	2.00E-01	Pass
	Method C	67,575	1.64E-09	1.19E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	220	5.35E-06	1.32E+00	Fail
	Target TPH GW Conc. @ 800 ug/L	2,618	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**4,034.80**	**67,574.75**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	4.03E+03	3.69E-08	1.00E+00	YES	6.76E+04	1.37E-07	1.00E+00
Total Risk=1E-5	*NO*	1.09E+06	1.00E-05	2.71E+02	*NO*	4.92E+06	1.00E-05	7.28E+01
Risk of Benzene= 1E-6	*NO*	9.20E+08	8.42E-03	2.28E+05	NA			
Risk of cPAHs mixture= 1E-6	*NO*	1.64E+05	1.50E-06	4.06E+01				
EDB	*NO*	3.29E+05	3.01E-06	8.15E+01				
EDC	*NO*	1.91E+08	1.75E-03	4.73E+04				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**HI=1**
Protective Ground Water Concentration, ug/L	**518.04**
Protective Soil Concentration, mg/kg	**220.29**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	5.18E+02	2.22E-06	1.00E+00	2.20E+02
Total Risk = 1E-5	*NO*	8.24E+02	1.00E-05	1.46E+00	7.32E+03
Total Risk = 1E-6	YES	3.17E+02	1.00E-06	6.48E-01	8.85E+01
Risk of cPAHs mixture= 1E-5	*NO*	8.36E+02	1.11E-05	1.48E+00	100% NAPL
Benzene MCL = 5 ug/L	*NO*	8.36E+02	1.11E-05	1.48E+00	100% NAPL
MTBE = 20 ug/L	*NO*	8.36E+02	1.11E-05	1.48E+00	100% NAPL

Note: 100% NAPL is 71000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	8.00E+02	8.39E-06	1.43E+00	**2.62E+03**

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-3-4

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.24%
AL_EC >6-8	5	0.24%
AL_EC >8-10	84	4.09%
AL_EC >10-12	66	3.21%
AL_EC >12-16	45	2.19%
AL_EC >16-21	120	5.84%
AL_EC >21-34	1400	68.09%
AR_EC >8-10	5	0.24%
AR_EC >10-12	7	0.34%
AR_EC >12-16	18	0.88%
AR_EC >16-21	47.8039	2.33%
AR_EC >21-34	249.9914	12.16%
Benzene	0.0000159	0.00%
Toluene	0.000011	0.00%
Ethylbenzene	0.0000096	0.00%
Total Xylenes	0.0015	0.00%
Naphthalene	0.093	0.00%
1-Methyl Naphthalene	1.2	0.06%
2-Methyl Naphthalene	1.6	0.08%
n-Hexane	0.0603	0.00%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.035	0.00%
Benzo(b)fluoranthene	0.012	0.00%
Benzo(k)fluoranthene	0.0091	0.00%
Benzo(a)pyrene	0.078	0.00%
Chrysene	0.062	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.0083	0.00%
Sum	2055.954923	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: 800 ug/L

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-3-4
Measured Soil TPH Concentration, mg/kg: **2,055.955**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc RISK @	With Measured Soil Conc HI @	Does Measured Soil Conc Pass or Fail?
Protection of Soil Direct Contact: Human Health	Method B	2,505	8.23E-07	2.67E-01	Pass
	Method C	100,673	2.04E-07	1.97E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	100% NAPL	4.03E-06	1.60E-01	Pass
	Target TPH GW Conc. @ 800 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**2,504.80**	**100,673.17**
Most Stringent Criterion	**Risk of cPAHs mixture= 1E-6**	**Total Risk=1E-5**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	*NO*	7.70E+03	3.08E-06	1.00E+00	*NO*	1.05E+05	1.04E-05	1.00E+00
Total Risk=1E-5	*NO*	2.50E+04	1.00E-05	3.24E+00	YES	1.01E+05	1.00E-05	9.63E-01
Risk of Benzene= 1E-6	*NO*	2.35E+09	9.40E-01	3.05E+05	NA			
Risk of cPAHs mixture= 1E-6	YES	2.50E+03	1.00E-06	3.25E-01				
EDB	*NO*	8.40E+05	3.36E-04	1.09E+02				
EDC	*NO*	4.88E+08	1.95E-01	6.33E+04				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**NA**
Protective Ground Water Concentration, ug/L	**NA**
Protective Soil Concentration, mg/kg	**Soil-to-Ground Water is not a critical pathway!**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
Total Risk = 1E-5	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
Total Risk = 1E-6	YES	3.14E+01	1.00E-06	1.08E-01	2.46E+02
Risk of cPAHs mixture= 1E-5	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
Benzene MCL = 5 ug/L	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
MTBE = 20 ug/L	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL

Note: 100% NAPL is 72000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	5.95E+01	6.73E-06	1.72E-01	**100% NAPL**

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-11-6

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.08%
AL_EC >6-8	9.3	0.15%
AL_EC >8-10	17	0.28%
AL_EC >10-12	290	4.81%
AL_EC >12-16	1100	18.24%
AL_EC >16-21	870	14.42%
AL_EC >21-34	1200	19.89%
AR_EC >8-10	65.3700	1.08%
AR_EC >10-12	61	1.01%
AR_EC >12-16	780	12.93%
AR_EC >16-21	799.6112	13.26%
AR_EC >21-34	809.9797	13.43%
Benzene	0.0000159	0.00%
Toluene	0.000011	0.00%
Ethylbenzene	0.25	0.00%
Total Xylenes	0.38	0.01%
Naphthalene	1.4	0.02%
1-Methyl Naphthalene	8.4	0.14%
2-Methyl Naphthalene	14	0.23%
n-Hexane	0.0603	0.00%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.073	0.00%
Benzo(b)fluoranthene	0.055	0.00%
Benzo(k)fluoranthene	0.0078	0.00%
Benzo(a)pyrene	0.043	0.00%
Chrysene	0.21	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.02	0.00%
Sum	6032.160455	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: 800 ug/L

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-11-6
Measured Soil TPH Concentration, mg/kg: **6,032.160**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc RISK @	With Measured Soil Conc HI @	Does Measured Soil Conc Pass or Fail?
Protection of Soil Direct Contact: Human Health	Method B	2,954	5.88E-07	2.04E+00	Fail
	Method C	37,194	1.46E-07	1.62E-01	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	100% NAPL	1.45E-06	4.30E-01	Pass
	Target TPH GW Conc. @ 800 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**2,953.52**	**37,194.47**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	2.95E+03	2.88E-07	9.99E-01	YES	3.72E+04	8.99E-07	9.99E-01
Total Risk=1E-5	*NO*	1.03E+05	1.00E-05	3.47E+01	*NO*	4.14E+05	1.00E-05	1.11E+01
Risk of Benzene= 1E-6	*NO*	6.89E+09	6.72E-01	2.33E+06	NA			
Risk of cPAHs mixture= 1E-6	*NO*	1.03E+04	1.00E-06	3.48E+00				
EDB	*NO*	2.46E+06	2.40E-04	8.34E+02				
EDC	*NO*	1.43E+09	1.39E-01	4.84E+05				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**NA**
Protective Ground Water Concentration, ug/L	**NA**
Protective Soil Concentration, mg/kg	**Soil-to-Ground Water is not a critical pathway!**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
Total Risk = 1E-5	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
Total Risk = 1E-6	YES	1.47E+02	1.00E-06	4.10E-01	1.49E+03
Risk of cPAHs mixture= 1E-5	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
Benzene MCL = 5 ug/L	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
MTBE = 20 ug/L	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL

Note: 100% NAPL is 77000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	1.57E+02	1.67E-06	4.36E-01	**100% NAPL**

APPENDIX B

LABORATORY CERTIFICATES OF ANALYSIS

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

September 3, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1008-237

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on August 31, 2010.

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: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

Case Narrative

Samples were collected on August 30, 2010 and received by the laboratory on August 31, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH-G/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The MTCA Method A clean-up level for Benzene in sample H-TP-1-8 is non-achievable due to the necessary dilution of the sample.

The chromatograms for samples H-TP-6-3 and H-TP-6-6 are similar to mineral spirits.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-1-3**					
Laboratory ID:	08-237-01					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	58	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*94*	*50-150*				
Client ID:	**H-TP-1-8**					
Laboratory ID:	08-237-02					
Diesel Fuel #1	**25000**	300	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	610	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	---	*50-150*				S
Client ID:	**H-TP-2-10**					
Laboratory ID:	08-237-04					
Diesel Range Organics	**ND**	33	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	66	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*115*	*50-150*				
Client ID:	**H-TP-2-4**					
Laboratory ID:	08-237-05					
Diesel Range Organics	**ND**	27	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	55	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				
Client ID:	**H-TP-3-3**					
Laboratory ID:	08-237-06					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil	**140**	59	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				
Client ID:	**H-TP-3-8**					
Laboratory ID:	08-237-07					
Diesel Range Organics	**ND**	32	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	64	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-4-3**					
Laboratory ID:	08-237-08					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	58	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				
Client ID:	**H-TP-4-7**					
Laboratory ID:	08-237-09					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*95*	*50-150*				
Client ID:	**H-TP-5-4**					
Laboratory ID:	08-237-10					
Diesel Range Organics	**ND**	27	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	54	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				
Client ID:	**H-TP-5-7**					
Laboratory ID:	08-237-11					
Diesel Range Organics	**ND**	32	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	63	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*94*	*50-150*				
Client ID:	**H-TP-6-3**					
Laboratory ID:	08-237-12					
Diesel Range Organics	**2700**	140	NWTPH-Dx	9-1-10	9-2-10	N
Lube Oil	**11000**	280	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*121*	*50-150*				
Client ID:	**H-TP-6-6**					
Laboratory ID:	08-237-13					
Diesel Range Organics	**1600**	140	NWTPH-Dx	9-1-10	9-2-10	N
Lube Oil	**7500**	290	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*113*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-6-7**					
Laboratory ID:	08-237-14					
Diesel Range Organics	**70**	33	NWTPH-Dx	9-1-10	9-2-10	N
Lube Oil	**420**	65	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				
Client ID:	**H-TP-7-5**					
Laboratory ID:	08-237-15					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				
Client ID:	**H-TP-7-7**					
Laboratory ID:	08-237-16					
Diesel Range Organics	**ND**	32	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil	**110**	63	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				
Client ID:	**H-TP-8-5**					
Laboratory ID:	08-237-17					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil	**120**	56	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**H-TP-8-7**					
Laboratory ID:	08-237-18					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0901S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*125*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	08-237-05							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*109*	*101*	*50-150*			
Laboratory ID:	08-237-10							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*104*	*98*	*50-150*			

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-1-3**					
Laboratory ID:	08-237-01					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.5	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				
Client ID:	**H-TP-1-8**					
Laboratory ID:	08-237-02					
Benzene	**ND**	0.14	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.71	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**2.1**	0.71	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**6.4**	0.71	EPA 8021	9-1-10	9-1-10	
o-Xylene	**3.0**	0.71	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	71	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-2-10**					
Laboratory ID:	08-237-04					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-2-10	
Toluene	**ND**	0.073	EPA 8021	9-1-10	9-2-10	
Ethyl Benzene	**ND**	0.073	EPA 8021	9-1-10	9-2-10	
m,p-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-2-10	
o-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-2-10	
Gasoline	**ND**	7.3	NWTPH-Gx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-2-4**					
Laboratory ID:	08-237-05					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.055	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.055	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.055	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.055	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.5	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				
Client ID:	**H-TP-3-3**					
Laboratory ID:	08-237-06					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	7.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				
Client ID:	**H-TP-3-8**					
Laboratory ID:	08-237-07					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	7.4	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-4-3**					
Laboratory ID:	08-237-08					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.046	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.046	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.046	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.046	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	4.6	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*109*	*55-127*				
Client ID:	**H-TP-4-7**					
Laboratory ID:	08-237-09					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.5	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*55-127*				
Client ID:	**H-TP-5-4**					
Laboratory ID:	08-237-10					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.063	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.063	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.063	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.063	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.3	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*55-127*				

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Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-5-7**					
Laboratory ID:	08-237-11					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.4	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				
Client ID:	**H-TP-6-3**					
Laboratory ID:	08-237-12					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.054	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**0.055**	0.054	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**0.23**	0.054	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.27	EPA 8021	9-1-10	9-1-10	U1
Gasoline	**150**	5.4	NWTPH-Gx	9-1-10	9-1-10	Z,O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-TP-6-6**					
Laboratory ID:	08-237-13					
Benzene	**ND**	0.023	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.12	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.12	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**0.26**	0.12	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.60	EPA 8021	9-1-10	9-1-10	U1
Gasoline	**200**	12	NWTPH-Gx	9-1-10	9-1-10	Z,O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
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Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-6-7**					
Laboratory ID:	08-237-14					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
Gasoline	**10**	7.4	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*106*	*55-127*				
Client ID:	**H-TP-7-5**					
Laboratory ID:	08-237-15					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.057	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.057	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.057	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.057	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.7	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				
Client ID:	**H-TP-7-7**					
Laboratory ID:	08-237-16					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	7.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*109*	*55-127*				

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Samples Submitted: August 31, 2010
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Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-8-5**					
Laboratory ID:	08-237-17					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.058	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.058	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.058	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.058	EPA 8021	9-1-10	9-1-10	
Gasoline	**6.2**	5.8	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-8-7**					
Laboratory ID:	08-237-18					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.060	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.060	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.060	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.060	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
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Project: 2007-098

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0901S1					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*55-127*				
Laboratory ID:	MB0901S2					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-237-17										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**5.51**	**5.30**	NA	NA		NA		NA	4	30	
Surrogate:											
Fluorobenzene						*100*	*101*	*55-127*			
Laboratory ID:	08-237-18										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*98*	*97*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0901S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.03**	**1.04**	1.00	1.00		**103**	**104**	75-113	1	9	
Toluene	**0.989**	**1.01**	1.00	1.00		**99**	**101**	75-116	2	10	
Ethyl Benzene	**0.997**	**1.02**	1.00	1.00		**100**	**102**	82-117	2	10	
m,p-Xylene	**1.01**	**1.03**	1.00	1.00		**101**	**103**	81-122	2	10	
o-Xylene	**1.01**	**1.03**	1.00	1.00		**101**	**103**	83-118	2	10	
Surrogate:											
Fluorobenzene						*98*	*98*	*55-127*			

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

% MOISTURE

Date Analyzed: 9-1-10

Client ID	Lab ID	% Moisture
H-TP-1-3	08-237-01	14
H-TP-1-8	08-237-02	17
H-TP-2-10	08-237-04	24
H-TP-2-4	08-237-05	9
H-TP-3-3	08-237-06	15
H-TP-3-8	08-237-07	22
H-TP-4-3	08-237-08	14
H-TP-4-7	08-237-09	18
H-TP-5-4	08-237-10	8
H-TP-5-7	08-237-11	21
H-TP-6-3	08-237-12	9
H-TP-6-6	08-237-13	13
H-TP-6-7	08-237-14	23
H-TP-7-5	08-237-15	11
H-TP-7-7	08-237-16	21
H-TP-8-5	08-237-17	10
H-TP-8-7	08-237-18	16

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits.

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 8/30/10
PAGE: ____ of ____

PROJECT NAME: Bothell #: 2007-098
SITE CODE: Hertz Rentals
SAMPLERS NAME: Atkins PHONE:
SAMPLERS SIGNATURE: [signature]
HWA CONTACT: PHONE:

08-237
48 Hr
TAT

ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH-Gx/BTEX	% MOISTURE	REMARKS
H-TP-1-3	8/30/10	1100	S	1	2	/	/	X	
H-TP-1-8		1115		2		/	/		
H-TP-2-6		1130		3					
H-TP-2-10		1140		4		/	/	X	
H-TP-2-4		1120		5		/	/		
H-TP-3-3		1150		6		/	/		
H-TP-3-8		1200		7		/	/		
H-TP-4-3		1215		8		/	/		
H-TP-4-7		1230		9		/	/		
H-TP-5-21		1245		10		/	/		
H-TP-5-7		1300		11		/	/		
H-TP-6-3		1330		12		/	/		
H-TP-6-6		1340		13		/	/		
H-TP-6-7		1350		14		/	/		
H-TP-7-5		1400		15		/	/		
H-TP-7-7		1410		16		/	/		
H-TP-8-5		1415		17		/	/		
H-TP-8-7		1430		18		/	/		

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:						
Received by:	Michael Daugherty	[signature]	Speedy	8-31-10	0830	
Relinquished by:	[signature]	Michael Daugherty	Speedy	8-31-10	0917	
Received by:	M. Voun	[signature]	OSE	8/31/10	0920	

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 3, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-011

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 1, 2010.

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: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

Case Narrative

Samples were collected on September 1 2010 and received by the laboratory on September 1, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The MTCA Method A clean-up level for Benzene in sample H-TP-10-7 is non-achievable due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-01					
Client ID:	**H-TP-9-4**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**43**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.56	6010B	9-2-10	9-2-10	
Chromium	**27**	0.56	6010B	9-2-10	9-2-10	
Lead	**ND**	5.6	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-1-10	9-1-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.56	6010B	9-2-10	9-2-10	
Lab ID:	09-011-02					
Client ID:	**H-TP-9-7**					
Arsenic	**ND**	12	6010B	9-2-10	9-2-10	
Barium	**73**	3.0	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.60	6010B	9-2-10	9-2-10	
Chromium	**42**	0.60	6010B	9-2-10	9-2-10	
Lead	**7.6**	6.0	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.30	7471A	9-1-10	9-1-10	
Selenium	**ND**	12	6010B	9-2-10	9-2-10	
Silver	**ND**	0.60	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-03					
Client ID:	**H-TP-10-3**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**46**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.56	6010B	9-2-10	9-2-10	
Chromium	**31**	0.56	6010B	9-2-10	9-2-10	
Lead	**ND**	5.6	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-1-10	9-1-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.56	6010B	9-2-10	9-2-10	

Lab ID:	09-011-04					
Client ID:	**H-TP-10-7**					
Arsenic	**ND**	13	6010B	9-2-10	9-2-10	
Barium	**53**	3.3	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.65	6010B	9-2-10	9-2-10	
Chromium	**28**	0.65	6010B	9-2-10	9-2-10	
Lead	**ND**	6.5	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.33	7471A	9-1-10	9-1-10	
Selenium	**ND**	13	6010B	9-2-10	9-2-10	
Silver	**ND**	0.65	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-05					
Client ID:	**H-TP-11-4**					
Arsenic	**ND**	12	6010B	9-2-10	9-2-10	
Barium	**95**	3.0	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.60	6010B	9-2-10	9-2-10	
Chromium	**29**	0.60	6010B	9-2-10	9-2-10	
Lead	**ND**	6.0	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.30	7471A	9-1-10	9-1-10	
Selenium	**ND**	12	6010B	9-2-10	9-2-10	
Silver	**ND**	0.60	6010B	9-2-10	9-2-10	

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-06					
Client ID:	**H-TP-11-7**					
Arsenic	**ND**	13	6010B	9-2-10	9-2-10	
Barium	**56**	3.2	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.63	6010B	9-2-10	9-2-10	
Chromium	**39**	0.63	6010B	9-2-10	9-2-10	
Lead	**ND**	6.3	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.32	7471A	9-1-10	9-1-10	
Selenium	**ND**	13	6010B	9-2-10	9-2-10	
Silver	**ND**	0.63	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-07					
Client ID:	**H-TP-12-3**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**70**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.57	6010B	9-2-10	9-2-10	
Chromium	**30**	0.57	6010B	9-2-10	9-2-10	
Lead	**ND**	5.7	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-1-10	9-1-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.57	6010B	9-2-10	9-2-10	
Lab ID:	09-011-08					
Client ID:	**H-TP-12-7**					
Arsenic	**ND**	12	6010B	9-2-10	9-2-10	
Barium	**40**	3.0	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.60	6010B	9-2-10	9-2-10	
Chromium	**21**	0.60	6010B	9-2-10	9-2-10	
Lead	**ND**	6.0	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.30	7471A	9-1-10	9-1-10	
Selenium	**ND**	12	6010B	9-2-10	9-2-10	
Silver	**ND**	0.60	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-09					
Client ID:	**H-DUP-090110**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**67**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.57	6010B	9-2-10	9-2-10	
Chromium	**26**	0.57	6010B	9-2-10	9-2-10	
Lead	**ND**	5.7	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-1-10	9-1-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.57	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-1&2-10
Date Analyzed:	9-1&2-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0901S5&MB0902S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-1&2-10
Date Analyzed: 9-1&2-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-011-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**38.3**	**35.9**	6	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**23.9**	**24.4**	2	0.50	
Lead	**ND**	**ND**	NA	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-1&2-10
Date Analyzed: 9-1&2-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-011-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**88.5**	88	**91.3**	91	3	
Barium	100	**129**	91	**126**	88	3	
Cadmium	50	**44.5**	89	**44.4**	89	0	
Chromium	100	**113**	89	**112**	88	1	
Lead	250	**226**	90	**229**	92	1	
Mercury	0.50	**0.495**	99	**0.485**	97	2	
Selenium	100	**89.7**	90	**91.3**	91	2	
Silver	25	**20.7**	83	**21.6**	86	4	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-9-4**					
Laboratory ID:	09-011-01					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*125*	*50-150*				
Client ID:	**H-TP-9-7**					
Laboratory ID:	09-011-02					
Diesel Fuel #1	**92**	30	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*112*	*50-150*				
Client ID:	**H-TP-10-3**					
Laboratory ID:	09-011-03					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*113*	*50-150*				
Client ID:	**H-TP-10-7**					
Laboratory ID:	09-011-04					
Diesel Fuel #1	**1900**	33	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	65	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				
Client ID:	**H-TP-11-4**					
Laboratory ID:	09-011-05					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*116*	*50-150*				
Client ID:	**H-TP-11-7**					
Laboratory ID:	09-011-06					
Diesel Range Organics	**ND**	32	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	64	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*106*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-12-3**					
Laboratory ID:	09-011-07					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	57	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*112*	*50-150*				
Client ID:	**H-TP-12-7**					
Laboratory ID:	09-011-08					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*102*	*50-150*				
Client ID:	**H-DUP-090110**					
Laboratory ID:	09-011-09					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	57	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*123*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
METHOD BLANK						
Laboratory ID:	MB0901S2					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*132*	*50-150*				

Analyte	**Result**		**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
DUPLICATE								
Laboratory ID:	09-011-03							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*113*	*110*	*50-150*			

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-9-4**					
Laboratory ID:	09-011-01					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	7.3	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				
Client ID:	**H-TP-9-7**					
Laboratory ID:	09-011-02					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.066	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.066	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.066	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.066	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.6	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*111*	*55-127*				
Client ID:	**H-TP-10-3**					
Laboratory ID:	09-011-03					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.5	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-10-7**					
Laboratory ID:	09-011-04					
Benzene	**ND**	0.033	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.16	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**1.0**	0.16	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**7.3**	0.16	EPA 8021	9-1-10	9-1-10	
o-Xylene	**0.29**	0.16	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	16	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				
Client ID:	**H-TP-11-4**					
Laboratory ID:	09-011-05					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	7.3	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*108*	*55-127*				
Client ID:	**H-TP-11-7**					
Laboratory ID:	09-011-06					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.4	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-12-3**					
Laboratory ID:	09-011-07					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.059	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.059	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.059	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.059	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.9	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*55-127*				
Client ID:	**H-TP-12-7**					
Laboratory ID:	09-011-08					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.069	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.069	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.069	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.069	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.9	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*55-127*				
Client ID:	**H-DUP-090110**					
Laboratory ID:	09-011-09					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.061	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.061	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.061	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.061	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.1	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0901S3					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-011-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*103*	*100*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0901S2										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.981**	**1.02**	1.00	1.00		**98**	**102**	75-113	4	9	
Toluene	**1.00**	**1.06**	1.00	1.00		**100**	**106**	75-116	6	10	
Ethyl Benzene	**1.03**	**1.07**	1.00	1.00		**103**	**107**	82-117	4	10	
m,p-Xylene	**1.02**	**1.07**	1.00	1.00		**102**	**107**	81-122	5	10	
o-Xylene	**1.03**	**1.09**	1.00	1.00		**103**	**109**	83-118	6	10	
Surrogate:											
Fluorobenzene						*96*	*97*	*55-127*			

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

% MOISTURE

Date Analyzed: 9-1-10

Client ID	Lab ID	% Moisture
H-TP-9-4	09-011-01	11
H-TP-9-7	09-011-02	17
H-TP-10-3	09-011-03	11
H-TP-10-7	09-011-04	23
H-TP-11-4	09-011-05	17
H-TP-11-7	09-011-06	21
H-TP-12-3	09-011-07	12
H-TP-12-7	09-011-08	16
H-DUP-090110	09-011-09	12

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

09-011

DATE: 9/1/10
PAGE: 1 of 1

PROJECT NAME: Bothell Crossroads #: 2007-098
SITE CODE:
SAMPLERS NAME: Pete Pearson PHONE:
SAMPLERS SIGNATURE:
HWA CONTACT: PHONE:

1 DAY TAT

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	RCRA-8	TPH-Dx	TPH-Gx/BTEX		% Moisture	REMARKS
H-TP-9-4	9/1/10	1230	S	1	2	X	X	X		X	
H-TP-9-7		12:35		2		X	X	X		X	
H-TP-10-3		12:50		3		X	X	X		X	
H-TP-10-7		13:04		4		X	X	X		X	
H-TP-11-4		13:15		5		X	X	X		X	
H-TP-11-7		13:25		6		X	X	X		X	
H-TP-12-3		13:40		7		X	X	X		X	
H-TP-12-7		13:48		8	5	X	X	X		X	
H-DUP-090110	9/1/10	-	S	9	2	X	X	X		X	

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson		HWA	9/1/10	14:00	
Received by:	Michael Daugherty		Speedy	9-1-10	14:00	
Relinquished by:	Michael Daugherty		Speedy	9-1-10	1415	
Received by:	Bla Goodrow		OnSite Env	9/1/10	1418	

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 3, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-017

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 1, 2010.

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: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

Case Narrative

Samples were collected on September 1, 2010 and received by the laboratory on September 1, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The chromatograms for samples H-TP-13-3, H-TP-13-8, H-TP-14-8, H-TP-15-3 and H-TP-15-8 are similar to mineral spirits.

The MTCA Method A clean-up level for Benzene in samples H-TP-13-3 and H-TP-13-8 is non-achievable due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-13-3**					
Laboratory ID:	09-017-01					
Benzene	**ND**	0.047	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.24	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**0.67**	0.24	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**1.9**	0.24	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	1.2	EPA 8021	9-2-10	9-3-10	U1
Gasoline	**750**	24	NWTPH-Gx	9-2-10	9-3-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-TP-13-8**					
Laboratory ID:	09-017-02					
Benzene	**ND**	0.10	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.52	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**1.1**	0.52	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**2.9**	0.52	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	2.6	EPA 8021	9-2-10	9-3-10	U1
Gasoline	**1700**	52	NWTPH-Gx	9-2-10	9-3-10	Z,O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				
Client ID:	**H-TP-14-3**					
Laboratory ID:	09-017-03					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-14-8**					
Laboratory ID:	09-017-04					
Benzene	**0.079**	0.022	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.11	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**0.37**	0.11	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**4.1**	1.1	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	1.1	EPA 8021	9-2-10	9-3-10	U1
Gasoline	**2100**	110	NWTPH-Gx	9-2-10	9-3-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				
Client ID:	**H-TP-15-3**					
Laboratory ID:	09-017-05					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**0.11**	0.055	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**0.38**	0.055	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	U1
Gasoline	**210**	5.5	NWTPH-Gx	9-2-10	9-2-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-15-8**					
Laboratory ID:	09-017-06					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.051	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**0.070**	0.051	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**0.18**	0.051	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.051	EPA 8021	9-2-10	9-2-10	
Gasoline	**120**	5.1	NWTPH-Gx	9-2-10	9-2-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0902S1					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-017-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*102*	*108*	*55-127*			
MATRIX SPIKES											
Laboratory ID:	08-202-03										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**1.10**	**1.11**	1.00	1.00	ND	**110**	**111**	80-120	1	10	
Toluene	**1.06**	**1.06**	1.00	1.00	ND	**106**	**106**	82-120	0	11	
Ethyl Benzene	**1.07**	**1.07**	1.00	1.00	ND	**107**	**107**	83-120	0	10	
m,p-Xylene	**1.09**	**1.08**	1.00	1.00	ND	**109**	**108**	82-120	1	10	
o-Xylene	**1.09**	**1.09**	1.00	1.00	ND	**109**	**109**	80-120	0	10	
Surrogate:											
Fluorobenzene						*102*	*100*	*55-127*			

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-13-3**					
Laboratory ID:	09-017-01					
Diesel Range Organics	**ND**	820	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**2200**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*122*	*50-150*				
Client ID:	**H-TP-13-8**					
Laboratory ID:	09-017-02					
Diesel Range Organics	**6100**	150	NWTPH-Dx	9-2-10	9-3-10	
Lube Oil	**5400**	300	NWTPH-Dx	9-2-10	9-3-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*121*	*50-150*				
Client ID:	**H-TP-14-3**					
Laboratory ID:	09-017-03					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*119*	*50-150*				
Client ID:	**H-TP-14-8**					
Laboratory ID:	09-017-04					
Diesel Range Organics	**ND**	510	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**1200**	59	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*123*	*50-150*				
Client ID:	**H-TP-15-3**					
Laboratory ID:	09-017-05					
Diesel Range Organics	**ND**	620	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**2300**	280	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*131*	*50-150*				
Client ID:	**H-TP-15-8**					
Laboratory ID:	09-017-06					
Diesel Range Organics	**ND**	110	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**280**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*116*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0902S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*125*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-017-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	U1
Lube Oil	**1920**	**1510**				24	NA	
Surrogate:								
o-Terphenyl			*122*	*117*	*50-150*			

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-017-01					
Client ID:	**H-TP-13-3**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**44**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.56	6010B	9-2-10	9-2-10	
Chromium	**31**	0.56	6010B	9-2-10	9-2-10	
Lead	**7.1**	5.6	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-3-10	9-3-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.56	6010B	9-2-10	9-2-10	
Lab ID:	09-017-02					
Client ID:	**H-TP-13-8**					
Arsenic	**ND**	12	6010B	9-2-10	9-2-10	
Barium	**58**	3.0	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.60	6010B	9-2-10	9-2-10	
Chromium	**24**	0.60	6010B	9-2-10	9-2-10	
Lead	**58**	6.0	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.30	7471A	9-3-10	9-3-10	
Selenium	**ND**	12	6010B	9-2-10	9-2-10	
Silver	**ND**	0.60	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-017-03					
Client ID:	**H-TP-14-3**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**41**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.56	6010B	9-2-10	9-2-10	
Chromium	**28**	0.56	6010B	9-2-10	9-2-10	
Lead	**ND**	5.6	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-3-10	9-3-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.56	6010B	9-2-10	9-2-10	
Lab ID:	09-017-04					
Client ID:	**H-TP-14-8**					
Arsenic	**ND**	12	6010B	9-2-10	9-2-10	
Barium	**41**	3.0	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.59	6010B	9-2-10	9-2-10	
Chromium	**33**	0.59	6010B	9-2-10	9-2-10	
Lead	**9.5**	5.9	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.30	7471A	9-3-10	9-3-10	
Selenium	**ND**	12	6010B	9-2-10	9-2-10	
Silver	**ND**	0.59	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-017-05					
Client ID:	**H-TP-15-3**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**45**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.55	6010B	9-2-10	9-2-10	
Chromium	**31**	0.55	6010B	9-2-10	9-2-10	
Lead	**24**	5.5	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-3-10	9-3-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.55	6010B	9-2-10	9-2-10	

Lab ID:	09-017-06					
Client ID:	**H-TP-15-8**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**42**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.56	6010B	9-2-10	9-2-10	
Chromium	**26**	0.56	6010B	9-2-10	9-2-10	
Lead	**ND**	5.6	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-3-10	9-3-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.56	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted: 9-2-10
Date Analyzed: 9-2-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0902S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL MERCURY
EPA 7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-3-10
Date Analyzed:	9-3-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0903S1

Analyte	Method	Result	PQL
Mercury	7471A	**ND**	0.25

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 9-2-10
Date Analyzed: 9-2-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-011-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**38.3**	**35.9**	6	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**23.9**	**24.4**	2	0.50	
Lead	**ND**	**ND**	NA	5.0	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL MERCURY
EPA 7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-3-10
Date Analyzed: 9-3-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-017-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 9-2-10
Date Analyzed: 9-2-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-011-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**88.5**	88	**91.3**	91	3	
Barium	100	**129**	91	**126**	88	3	
Cadmium	50	**44.5**	89	**44.4**	89	0	
Chromium	100	**113**	89	**112**	88	1	
Lead	250	**226**	90	**229**	92	1	
Selenium	100	**89.7**	90	**91.3**	91	2	
Silver	25	**20.7**	83	**21.6**	86	4	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL MERCURY
EPA 7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-3-10
Date Analyzed: 9-3-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-017-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	0.50	**0.539**	108	**0.544**	109	1	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

% MOISTURE

Date Analyzed: 9-2-10

Client ID	Lab ID	% Moisture
H-TP-13-3	09-017-01	11
H-TP-13-8	09-017-02	16
H-TP-14-3	09-017-03	10
H-TP-14-8	09-017-04	15
H-TP-15-3	09-017-05	10
H-TP-15-8	09-017-06	11

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits.

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

OnSite Environmental Inc.

14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Laboratory Number: 09-017

Company: AWA
Project Number: 2007-098
Project Name: Bothell Henge
Project Manager: Atkins
Sampled by: Atkins

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ~~☐ 1 Day~~
- ☒ 2 Day
- ☐ 3 Day
- ☐ Standard (7 working days) (TPH analysis 5 working days)
- ☐ ________ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664							% Moisture
1	H-TP-13-3	9/1/10	1410	S	2		/	/								/									/
2	H-TP-13-8		1415				/	/								/									
3	H-TP-14-3		1430				/	/								/									
4	H-TP-14-8		1440				/	/								/									
5	H-TP-15-3		1450				/	/								/									
6	H-TP-15-8		1500				/	/								/									

	Signature	Company	Date	Time
Relinquished by	Va Gm	AWA	9/1/10	1540
Received by	[illegible]	OSE	9/1/10	1540
Relinquished by				
Received by				
Relinquished by				
Received by				

Reviewed by/Date

Reviewed by/Date

Comments/Special Instructions:

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Client Copy

OnSite Environmental Inc.
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September 3, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-023

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 2, 2010.

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: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

Case Narrative

Samples were collected on September 2, 2010 and received by the laboratory on September 2, 2010. They were maintained at the laboratory at a temperature of 2^{o}C to 6^{o}C.

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.

<u>NWTPH Gx/BTEX Analysis</u>

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^{o}C and -20^{o}C until extraction or analysis.

The chromatograms for samples H-TP-16-3, H-TP-16-7, H-TP-18-7 and H-TP-21-2 are similar to mineral spirits.

The MTCA Method A clean-up level for Benzene in sample H-TP-18-7 is non-achievable due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-16-3**					
Laboratory ID:	09-023-01					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil	**190**	59	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**H-TP-16-7**					
Laboratory ID:	09-023-02					
Diesel Range Organics	**ND**	140	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**290**	61	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**H-TP-17-3**					
Laboratory ID:	09-023-03					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil	**99**	62	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**H-TP-17-6**					
Laboratory ID:	09-023-04					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*94*	*50-150*				
Client ID:	**H-TP-18-3**					
Laboratory ID:	09-023-05					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				
Client ID:	**H-TP-18-7**					
Laboratory ID:	09-023-06					
Diesel Range Organics	**ND**	1600	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**2300**	58	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-19-4**					
Laboratory ID:	09-023-07					
Diesel Range Organics	**ND**	130	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**450**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**H-TP-19-6**					
Laboratory ID:	09-023-08					
Diesel Range Organics	**ND**	55	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**220**	57	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				
Client ID:	**H-TP-20-3**					
Laboratory ID:	09-023-09					
Diesel Range Organics	**ND**	27	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	54	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				
Client ID:	**H-TP-20-6**					
Laboratory ID:	09-023-10					
Diesel Range Organics	**ND**	1700	NWTPH-Dx	9-2-10	9-3-10	U1
Lube Oil	**5800**	300	NWTPH-Dx	9-2-10	9-3-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*119*	*50-150*				
Client ID:	**H-TP-21-2**					
Laboratory ID:	09-023-11					
Diesel Range Organics	**ND**	580	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**2300**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**H-TP-21-7**					
Laboratory ID:	09-023-12					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil	**110**	59	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*78*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
METHOD BLANK						
Laboratory ID:	MB0902S2					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				

Analyte	**Result**		**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
DUPLICATE								
Laboratory ID:	09-023-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil	**161**	**65.4**				84	NA	
Surrogate:								
o-Terphenyl			*97*	*81*	*50-150*			
Laboratory ID:	09-023-09							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*99*	*82*	*50-150*			

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-16-3**					
Laboratory ID:	09-023-01					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.076	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.076	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**0.15**	0.076	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.076	EPA 8021	9-2-10	9-2-10	
Gasoline	**57**	7.6	NWTPH-Gx	9-2-10	9-2-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				
Client ID:	**H-TP-16-7**					
Laboratory ID:	09-023-02					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.066	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**ND**	0.066	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**ND**	0.066	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	0.066	EPA 8021	9-2-10	9-3-10	
Gasoline	**72**	6.6	NWTPH-Gx	9-2-10	9-3-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				
Client ID:	**H-TP-17-3**					
Laboratory ID:	09-023-03					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.075	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.075	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.075	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.075	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	7.5	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-17-6**					
Laboratory ID:	09-023-04					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.073	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.073	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.073	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.073	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	7.3	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-18-3**					
Laboratory ID:	09-023-05					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.053	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.053	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.053	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.053	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.3	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-18-7**					
Laboratory ID:	09-023-06					
Benzene	**ND**	0.058	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.29	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**0.95**	0.29	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**5.7**	0.29	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	2.9	EPA 8021	9-2-10	9-3-10	U1
Gasoline	**1900**	29	NWTPH-Gx	9-2-10	9-3-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-19-4**					
Laboratory ID:	09-023-07					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.062	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**ND**	0.062	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**ND**	0.062	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	0.062	EPA 8021	9-2-10	9-3-10	
Gasoline	**ND**	6.2	NWTPH-Gx	9-2-10	9-3-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-TP-19-6**					
Laboratory ID:	09-023-08					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.058	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**ND**	0.058	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**ND**	0.058	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	0.058	EPA 8021	9-2-10	9-3-10	
Gasoline	**ND**	5.8	NWTPH-Gx	9-2-10	9-3-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-20-3**					
Laboratory ID:	09-023-09					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.5	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-20-6**					
Laboratory ID:	09-023-10					
Benzene	**ND**	0.028	EPA 8021	9-2-10	9-2-10	
Toluene	**0.83**	0.14	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.14	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.14	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.14	EPA 8021	9-2-10	9-2-10	
Gasoline	**18**	14	NWTPH-Gx	9-2-10	9-2-10	O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*55-127*				
Client ID:	**H-TP-21-2**					
Laboratory ID:	09-023-11					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.061	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.061	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.061	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.061	EPA 8021	9-2-10	9-2-10	
Gasoline	**20**	6.1	NWTPH-Gx	9-2-10	9-2-10	Z,O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				
Client ID:	**H-TP-21-7**					
Laboratory ID:	09-023-12					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.054	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.054	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.054	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.054	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.4	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*105*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0902S2					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*55-127*				
Laboratory ID:	MB0902S3					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	**Result**		**Spike Level**		**Source Result**	**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
DUPLICATE											
Laboratory ID:	09-017-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*102*	*108*	*55-127*			
Laboratory ID:	09-023-09										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*103*	*99*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0902S2										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.01**	**1.06**	1.00	1.00		**101**	**106**	75-113	5	9	
Toluene	**1.02**	**1.06**	1.00	1.00		**102**	**106**	75-116	4	10	
Ethyl Benzene	**1.03**	**1.07**	1.00	1.00		**103**	**107**	82-117	4	10	
m,p-Xylene	**1.03**	**1.07**	1.00	1.00		**103**	**107**	81-122	4	10	
o-Xylene	**1.02**	**1.07**	1.00	1.00		**102**	**107**	83-118	5	10	
Surrogate:											
Fluorobenzene						*98*	*101*	*55-127*			

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

% MOISTURE

Date Analyzed: 9-2-10

Client ID	Lab ID	% Moisture
H-TP-16-3	09-023-01	16
H-TP-16-7	09-023-02	18
H-TP-17-3	09-023-03	19
H-TP-17-6	09-023-04	19
H-TP-18-3	09-023-05	11
H-TP-18-7	09-023-06	14
H-TP-19-4	09-023-07	10
H-TP-19-6	09-023-08	12
H-TP-20-3	09-023-09	7
H-TP-20-6	09-023-10	16
H-TP-21-2	09-023-11	10
H-TP-21-7	09-023-12	14

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits.

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 9/2/10
PAGE: 1 of 1

09-023

PROJECT NAME: Bothell Crossroads - Hertz #: 2007-049
SITE CODE:
SAMPLERS NAME: P. Pearson PHONE: 206 794 3113
SAMPLERS SIGNATURE:
HWA CONTACT: Vince Atkins PHONE: 206 794 3124

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH Gx/BTEX	~~RCRA 8~~	%MOISTURE	REMARKS
H-TP-16-3	9/2/10	8:15	S	1	3	X	X	~~X~~	X	
H-TP-16-7		8:25		2		X	X	~~X~~		
H-TP-17-3		9:10		3		X	X	~~X~~		
H-TP-17-6		9:20		4		X	X	~~X~~		
H-TP-18-3		9:25		5		X	X	~~X~~		
H-TP-18-7		9:30		6		X	X	~~X~~		
H-TP-19-4		10:05		7		X	X	~~X~~		
H-TP-19-6		10:20		8		X	X	~~X~~		
H-TP-20-3		10:40		9		X	X	~~X~~		
H-TP-20-6		10:50		10		X	X	~~X~~		
H-TP-21-2		11:00		11		X	X	~~X~~		
H-TP-21-7		11:15		12		X	X	~~X~~		

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Vince Atkins		HWA	9/2/10	1310	
Received by:	M. VOUN		OSE	9/2/10	1310	
Relinquished by:						
Received by:						

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 14, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-074

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 8, 2010.

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: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

Case Narrative

Samples were collected on September 8, 2010 and received by the laboratory on September 8, 2010. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

Volatiles EPA 8260B Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

NWTPH Gx Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

The chromatogram for sample H-PEX-2-6 is similar to mineral spirits with diesel fuel.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

PAHs EPA 8270D/SIM Analysis

Sample MS/MSD pair had several recoveries fall outside of control limits believed to be caused by sample matrix. The SB/SBD pair extracted with this batch had all parameters in control, no further action was deemed necessary.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILE PETROLEUM HYDROCARBONS

Date Extracted:	9-9-10
Date Analyzed:	9-10-10
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	09-074-01
Client ID:	**H-PEX-1-6**

VPH:	**Results**	**PQL**
Aliphatic C5-C6	ND	5.0
Aliphatic C6-C8	ND	5.0
Aliphatic C8-C10	5.9	5.0
Aliphatic C10-C12	97	5.0
Total Aliphatic:	100	
Aromatic C8-C10	47	5.0
Aromatic C10-C12	40	5.0
Aromatic C12-C13	15	5.0
Total Aromatic:	100	

Surrogate:	**Percent Recovery**	**Control Limits**
Fluorobenzene	81	60-126

Flags:

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILE PETROLEUM HYDROCARBONS

Date Extracted:	9-9-10
Date Analyzed:	9-10&13-10
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	09-074-02
Client ID:	**H-PEX-2-6**

VPH:	**Results**	**PQL**
Aliphatic C5-C6	ND	5.0
Aliphatic C6-C8	ND	5.0
Aliphatic C8-C10	48	5.0
Aliphatic C10-C12	180	5.0
Total Aliphatic:	230	
Aromatic C8-C10	110	5.0
Aromatic C10-C12	40	5.0
Aromatic C12-C13	11	5.0
Total Aromatic:	160	

Surrogate:	**Percent Recovery**	**Control Limits**
Fluorobenzene	78	60-126

Flags:

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILE PETROLEUM HYDROCARBONS

Date Extracted:	9-9-10
Date Analyzed:	9-10-10
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	09-074-03
Client ID:	**H-PEX-3-4**

VPH:	**Results**	**PQL**
Aliphatic C5-C6	ND	5.0
Aliphatic C6-C8	ND	5.0
Aliphatic C8-C10	ND	5.0
Aliphatic C10-C12	11	5.0
Total Aliphatic:	11	
Aromatic C8-C10	ND	5.0
Aromatic C10-C12	ND	5.0
Aromatic C12-C13	ND	5.0
Total Aromatic:	NA	

Surrogate:	**Percent Recovery**	**Control Limits**
Fluorobenzene	85	60-126

Flags:

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILE PETROLEUM HYDROCARBONS
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-9-10
Date Analyzed:	9-10-10
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID: MB0909S1

VPH:	**Results**	**PQL**
Aliphatic C5-C6	ND	5.0
Aliphatic C6-C8	ND	5.0
Aliphatic C8-C10	ND	5.0
Aliphatic C10-C12	ND	5.0
Total Aliphatic:	NA	
Aromatic C8-C10	ND	5.0
Aromatic C10-C12	ND	5.0
Aromatic C12-C13	ND	5.0
Total Aromatic:	NA	

Surrogate:	**Percent Recovery**	**Control Limits**
Fluorobenzene	99	60-126

Flags:

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
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Date Extracted: 9-9-10
Date Analyzed: 9-9-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-074-01
Client ID: H-PEX-1-6

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0011
Chloromethane	ND		0.0053
Vinyl Chloride	ND		0.0011
Bromomethane	ND		0.0011
Chloroethane	ND		0.0053
Trichlorofluoromethane	ND		0.0011
1,1-Dichloroethene	ND		0.0011
Acetone	0.058		0.0053
Iodomethane	ND		0.0053
Carbon Disulfide	ND		0.0011
Methylene Chloride	ND		0.0053
(trans) 1,2-Dichloroethene	ND		0.0011
Methyl t-Butyl Ether	ND		0.0011
1,1-Dichloroethane	ND		0.0011
Vinyl Acetate	ND		0.0053
2,2-Dichloropropane	ND		0.0011
(cis) 1,2-Dichloroethene	ND		0.0011
2-Butanone	0.017		0.0053
Bromochloromethane	ND		0.0011
Chloroform	ND		0.0011
1,1,1-Trichloroethane	ND		0.0011
Carbon Tetrachloride	ND		0.0011
1,1-Dichloropropene	ND		0.0011
Benzene	0.0013		0.0011
1,2-Dichloroethane	ND		0.0011
Trichloroethene	ND		0.0011
1,2-Dichloropropane	ND		0.0011
Dibromomethane	ND		0.0011
Bromodichloromethane	ND		0.0011
2-Chloroethyl Vinyl Ether	ND		0.0053
(cis) 1,3-Dichloropropene	ND		0.0011
Methyl Isobutyl Ketone	ND		0.0053
Toluene	ND		0.0053
(trans) 1,3-Dichloropropene	ND		0.0011

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

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Lab ID: 09-074-01
Client ID: H-PEX-1-6

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0011
Tetrachloroethene	ND		0.0011
1,3-Dichloropropane	ND		0.0011
2-Hexanone	ND		0.0053
Dibromochloromethane	ND		0.0011
1,2-Dibromoethane	ND		0.0011
Chlorobenzene	ND		0.0011
1,1,1,2-Tetrachloroethane	ND		0.0011
Ethylbenzene	0.015		0.0011
m,p-Xylene	0.015		0.0021
o-Xylene	ND		0.0011
Styrene	ND		0.0011
Bromoform	ND		0.0011
Isopropylbenzene	0.066		0.0011
Bromobenzene	ND		0.0011
1,1,2,2-Tetrachloroethane	ND		0.0011
1,2,3-Trichloropropane	ND		0.0011
n-Propylbenzene	0.22		0.0011
2-Chlorotoluene	ND		0.0011
4-Chlorotoluene	ND		0.0011
1,3,5-Trimethylbenzene	0.020		0.0011
tert-Butylbenzene	0.0088		0.0011
1,2,4-Trimethylbenzene	0.091		0.0011
sec-Butylbenzene	0.13		0.0011
1,3-Dichlorobenzene	ND		0.0011
p-Isopropyltoluene	0.024		0.0011
1,4-Dichlorobenzene	ND		0.0011
1,2-Dichlorobenzene	ND		0.0011
n-Butylbenzene	0.17		0.0011
1,2-Dibromo-3-chloropropane	ND		0.0053
1,2,4-Trichlorobenzene	ND		0.0011
Hexachlorobutadiene	ND		0.0053
Naphthalene	0.16		0.0011
1,2,3-Trichlorobenzene	ND		0.0011

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	87	66-128
Toluene-d8	103	68-126
4-Bromofluorobenzene	78	53-134

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

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Date Extracted:	9-10-10
Date Analyzed:	9-10-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	09-074-02
Client ID:	**H-PEX-2-6**

Compound	**Results**	**Flags**	**PQL**
Dichlorodifluoromethane	ND		0.0014
Chloromethane	ND		0.0068
Vinyl Chloride	ND		0.0014
Bromomethane	ND		0.0014
Chloroethane	ND		0.0068
Trichlorofluoromethane	ND		0.0014
1,1-Dichloroethene	ND		0.0014
Acetone	ND		0.0068
Iodomethane	ND		0.0068
Carbon Disulfide	ND		0.0014
Methylene Chloride	ND		0.0068
(trans) 1,2-Dichloroethene	ND		0.0014
Methyl t-Butyl Ether	ND		0.0014
1,1-Dichloroethane	ND		0.0014
Vinyl Acetate	ND		0.0068
2,2-Dichloropropane	ND		0.0014
(cis) 1,2-Dichloroethene	ND		0.0014
2-Butanone	ND		0.0068
Bromochloromethane	ND		0.0014
Chloroform	ND		0.0014
1,1,1-Trichloroethane	ND		0.0014
Carbon Tetrachloride	ND		0.0014
1,1-Dichloropropene	ND		0.0014
Benzene	ND		0.0014
1,2-Dichloroethane	ND		0.0014
Trichloroethene	ND		0.0014
1,2-Dichloropropane	ND		0.0014
Dibromomethane	ND		0.0014
Bromodichloromethane	ND		0.0014
2-Chloroethyl Vinyl Ether	ND		0.0068
(cis) 1,3-Dichloropropene	ND		0.0014
Methyl Isobutyl Ketone	ND		0.0068
Toluene	ND		0.0068
(trans) 1,3-Dichloropropene	ND		0.0014

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
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Project: 2007-098

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Lab ID:	09-074-02
Client ID:	**H-PEX-2-6**

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0014
Tetrachloroethene	0.0054		0.0014
1,3-Dichloropropane	ND		0.0014
2-Hexanone	ND		0.0068
Dibromochloromethane	ND		0.0014
1,2-Dibromoethane	ND		0.0014
Chlorobenzene	ND		0.0014
1,1,1,2-Tetrachloroethane	ND		0.0014
Ethylbenzene	ND		0.0014
m,p-Xylene	ND		0.0027
o-Xylene	0.0021		0.0014
Styrene	ND		0.0014
Bromoform	ND		0.0014
Isopropylbenzene	ND		0.0014
Bromobenzene	ND		0.0014
1,1,2,2-Tetrachloroethane	ND		0.0014
1,2,3-Trichloropropane	ND		0.0014
n-Propylbenzene	0.0022		0.0014
2-Chlorotoluene	ND		0.0014
4-Chlorotoluene	ND		0.0014
1,3,5-Trimethylbenzene	0.010		0.0014
tert-Butylbenzene	ND		0.0014
1,2,4-Trimethylbenzene	0.023		0.0014
sec-Butylbenzene	0.0017		0.0014
1,3-Dichlorobenzene	ND		0.0014
p-Isopropyltoluene	0.0023		0.0014
1,4-Dichlorobenzene	ND		0.0014
1,2-Dichlorobenzene	ND		0.0014
n-Butylbenzene	0.0030		0.0014
1,2-Dibromo-3-chloropropane	ND		0.0068
1,2,4-Trichlorobenzene	ND		0.0014
Hexachlorobutadiene	ND		0.0068
Naphthalene	0.043		0.0014
1,2,3-Trichlorobenzene	ND		0.0014

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	84	66-128
Toluene-d8	108	68-126
4-Bromofluorobenzene	83	53-134

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

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Date Extracted:	9-9-10
Date Analyzed:	9-9-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	09-074-03
Client ID:	**H-PEX-3-4**

Compound	**Results**	**Flags**	**PQL**
Dichlorodifluoromethane	ND		0.0011
Chloromethane	ND		0.0055
Vinyl Chloride	ND		0.0011
Bromomethane	ND		0.0011
Chloroethane	ND		0.0055
Trichlorofluoromethane	ND		0.0011
1,1-Dichloroethene	ND		0.0011
Acetone	0.073		0.0055
Iodomethane	ND		0.0055
Carbon Disulfide	ND		0.0011
Methylene Chloride	ND		0.0055
(trans) 1,2-Dichloroethene	ND		0.0011
Methyl t-Butyl Ether	ND		0.0011
1,1-Dichloroethane	ND		0.0011
Vinyl Acetate	ND		0.0055
2,2-Dichloropropane	ND		0.0011
(cis) 1,2-Dichloroethene	ND		0.0011
2-Butanone	0.016		0.0055
Bromochloromethane	ND		0.0011
Chloroform	ND		0.0011
1,1,1-Trichloroethane	ND		0.0011
Carbon Tetrachloride	ND		0.0011
1,1-Dichloropropene	ND		0.0011
Benzene	ND		0.0011
1,2-Dichloroethane	ND		0.0011
Trichloroethene	ND		0.0011
1,2-Dichloropropane	ND		0.0011
Dibromomethane	ND		0.0011
Bromodichloromethane	ND		0.0011
2-Chloroethyl Vinyl Ether	ND		0.0055
(cis) 1,3-Dichloropropene	ND		0.0011
Methyl Isobutyl Ketone	ND		0.0055
Toluene	ND		0.0055
(trans) 1,3-Dichloropropene	ND		0.0011

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
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Lab ID: 09-074-03
Client ID: H-PEX-3-4

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0011
Tetrachloroethene	ND		0.0011
1,3-Dichloropropane	ND		0.0011
2-Hexanone	ND		0.0055
Dibromochloromethane	ND		0.0011
1,2-Dibromoethane	ND		0.0011
Chlorobenzene	ND		0.0011
1,1,1,2-Tetrachloroethane	ND		0.0011
Ethylbenzene	ND		0.0011
m,p-Xylene	ND		0.0022
o-Xylene	0.0015		0.0011
Styrene	ND		0.0011
Bromoform	ND		0.0011
Isopropylbenzene	0.0047		0.0011
Bromobenzene	ND		0.0011
1,1,2,2-Tetrachloroethane	ND		0.0011
1,2,3-Trichloropropane	ND		0.0011
n-Propylbenzene	0.020		0.0011
2-Chlorotoluene	ND		0.0011
4-Chlorotoluene	ND		0.0011
1,3,5-Trimethylbenzene	0.0065		0.0011
tert-Butylbenzene	0.0065		0.0011
1,2,4-Trimethylbenzene	0.040		0.0011
sec-Butylbenzene	0.029		0.0011
1,3-Dichlorobenzene	ND		0.0011
p-Isopropyltoluene	0.0031		0.0011
1,4-Dichlorobenzene	ND		0.0011
1,2-Dichlorobenzene	ND		0.0011
n-Butylbenzene	0.041		0.0011
1,2-Dibromo-3-chloropropane	ND		0.0055
1,2,4-Trichlorobenzene	ND		0.0011
Hexachlorobutadiene	ND		0.0055
Naphthalene	0.0067		0.0011
1,2,3-Trichlorobenzene	ND		0.0011

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	84	66-128
Toluene-d8	101	68-126
4-Bromofluorobenzene	76	53-134

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
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Date Extracted: 9-9-10
Date Analyzed: 9-9-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0909S1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0010
Chloromethane	ND		0.0050
Vinyl Chloride	ND		0.0010
Bromomethane	ND		0.0010
Chloroethane	ND		0.0050
Trichlorofluoromethane	ND		0.0010
1,1-Dichloroethene	ND		0.0010
Acetone	ND		0.0050
Iodomethane	ND		0.0050
Carbon Disulfide	ND		0.0010
Methylene Chloride	ND		0.0050
(trans) 1,2-Dichloroethene	ND		0.0010
Methyl t-Butyl Ether	ND		0.0010
1,1-Dichloroethane	ND		0.0010
Vinyl Acetate	ND		0.0050
2,2-Dichloropropane	ND		0.0010
(cis) 1,2-Dichloroethene	ND		0.0010
2-Butanone	ND		0.0050
Bromochloromethane	ND		0.0010
Chloroform	ND		0.0010
1,1,1-Trichloroethane	ND		0.0010
Carbon Tetrachloride	ND		0.0010
1,1-Dichloropropene	ND		0.0010
Benzene	ND		0.0010
1,2-Dichloroethane	ND		0.0010
Trichloroethene	ND		0.0010
1,2-Dichloropropane	ND		0.0010
Dibromomethane	ND		0.0010
Bromodichloromethane	ND		0.0010
2-Chloroethyl Vinyl Ether	ND		0.0050
(cis) 1,3-Dichloropropene	ND		0.0010
Methyl Isobutyl Ketone	ND		0.0050
Toluene	ND		0.0050
(trans) 1,3-Dichloropropene	ND		0.0010

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
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VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
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Lab ID: MB0909S1

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0010
Tetrachloroethene	ND		0.0010
1,3-Dichloropropane	ND		0.0010
2-Hexanone	ND		0.0050
Dibromochloromethane	ND		0.0010
1,2-Dibromoethane	ND		0.0010
Chlorobenzene	ND		0.0010
1,1,1,2-Tetrachloroethane	ND		0.0010
Ethylbenzene	ND		0.0010
m,p-Xylene	ND		0.0020
o-Xylene	ND		0.0010
Styrene	ND		0.0010
Bromoform	ND		0.0010
Isopropylbenzene	ND		0.0010
Bromobenzene	ND		0.0010
1,1,2,2-Tetrachloroethane	ND		0.0010
1,2,3-Trichloropropane	ND		0.0010
n-Propylbenzene	ND		0.0010
2-Chlorotoluene	ND		0.0010
4-Chlorotoluene	ND		0.0010
1,3,5-Trimethylbenzene	ND		0.0010
tert-Butylbenzene	ND		0.0010
1,2,4-Trimethylbenzene	ND		0.0010
sec-Butylbenzene	ND		0.0010
1,3-Dichlorobenzene	ND		0.0010
p-Isopropyltoluene	ND		0.0010
1,4-Dichlorobenzene	ND		0.0010
1,2-Dichlorobenzene	ND		0.0010
n-Butylbenzene	ND		0.0010
1,2-Dibromo-3-chloropropane	ND		0.0050
1,2,4-Trichlorobenzene	ND		0.0010
Hexachlorobutadiene	ND		0.0050
Naphthalene	ND		0.0010
1,2,3-Trichlorobenzene	ND		0.0010

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	83	66-128
Toluene-d8	95	68-126
4-Bromofluorobenzene	80	53-134

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
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Date Extracted:	9-10-10
Date Analyzed:	9-10-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0910S1

Compound	**Results**	**Flags**	**PQL**
Dichlorodifluoromethane	ND		0.0010
Chloromethane	ND		0.0050
Vinyl Chloride	ND		0.0010
Bromomethane	ND		0.0010
Chloroethane	ND		0.0050
Trichlorofluoromethane	ND		0.0010
1,1-Dichloroethene	ND		0.0010
Acetone	ND		0.0050
Iodomethane	ND		0.0050
Carbon Disulfide	ND		0.0010
Methylene Chloride	ND		0.0050
(trans) 1,2-Dichloroethene	ND		0.0010
Methyl t-Butyl Ether	ND		0.0010
1,1-Dichloroethane	ND		0.0010
Vinyl Acetate	ND		0.0050
2,2-Dichloropropane	ND		0.0010
(cis) 1,2-Dichloroethene	ND		0.0010
2-Butanone	ND		0.0050
Bromochloromethane	ND		0.0010
Chloroform	ND		0.0010
1,1,1-Trichloroethane	ND		0.0010
Carbon Tetrachloride	ND		0.0010
1,1-Dichloropropene	ND		0.0010
Benzene	ND		0.0010
1,2-Dichloroethane	ND		0.0010
Trichloroethene	ND		0.0010
1,2-Dichloropropane	ND		0.0010
Dibromomethane	ND		0.0010
Bromodichloromethane	ND		0.0010
2-Chloroethyl Vinyl Ether	ND		0.0050
(cis) 1,3-Dichloropropene	ND		0.0010
Methyl Isobutyl Ketone	ND		0.0050
Toluene	ND		0.0050
(trans) 1,3-Dichloropropene	ND		0.0010

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

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METHOD BLANK QUALITY CONTROL
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Lab ID: MB0910S1

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0010
Tetrachloroethene	ND		0.0010
1,3-Dichloropropane	ND		0.0010
2-Hexanone	ND		0.0050
Dibromochloromethane	ND		0.0010
1,2-Dibromoethane	ND		0.0010
Chlorobenzene	ND		0.0010
1,1,1,2-Tetrachloroethane	ND		0.0010
Ethylbenzene	ND		0.0010
m,p-Xylene	ND		0.0020
o-Xylene	ND		0.0010
Styrene	ND		0.0010
Bromoform	ND		0.0010
Isopropylbenzene	ND		0.0010
Bromobenzene	ND		0.0010
1,1,2,2-Tetrachloroethane	ND		0.0010
1,2,3-Trichloropropane	ND		0.0010
n-Propylbenzene	ND		0.0010
2-Chlorotoluene	ND		0.0010
4-Chlorotoluene	ND		0.0010
1,3,5-Trimethylbenzene	ND		0.0010
tert-Butylbenzene	ND		0.0010
1,2,4-Trimethylbenzene	ND		0.0010
sec-Butylbenzene	ND		0.0010
1,3-Dichlorobenzene	ND		0.0010
p-Isopropyltoluene	ND		0.0010
1,4-Dichlorobenzene	ND		0.0010
1,2-Dichlorobenzene	ND		0.0010
n-Butylbenzene	ND		0.0010
1,2-Dibromo-3-chloropropane	ND		0.0050
1,2,4-Trichlorobenzene	ND		0.0010
Hexachlorobutadiene	ND		0.0050
Naphthalene	ND		0.0010
1,2,3-Trichlorobenzene	ND		0.0010

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	84	66-128
Toluene-d8	101	68-126
4-Bromofluorobenzene	85	53-134

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-9-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: SB0909S1

Compound	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
1,1-Dichloroethene	0.0500	0.0368	74	0.0366	73	70-130	
Benzene	0.0500	0.0406	81	0.0400	80	70-121	
Trichloroethene	0.0500	0.0414	83	0.0419	84	70-124	
Toluene	0.0500	0.0421	84	0.0426	85	70-123	
Chlorobenzene	0.0500	0.0439	88	0.0444	89	71-119	

	RPD	RPD Limit	Flags
1,1-Dichloroethene	1	14	
Benzene	2	10	
Trichloroethene	1	12	
Toluene	1	12	
Chlorobenzene	1	9	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Date Extracted: 9-10-10
Date Analyzed: 9-10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: SB0910S1

Compound	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
1,1-Dichloroethene	0.0500	0.0357	71	0.0376	75	70-130	
Benzene	0.0500	0.0378	76	0.0394	79	70-121	
Trichloroethene	0.0500	0.0414	83	0.0432	86	70-124	
Toluene	0.0500	0.0421	84	0.0428	86	70-123	
Chlorobenzene	0.0500	0.0430	86	0.0435	87	71-119	

	RPD	RPD Limit	Flags
1,1-Dichloroethene	5	14	
Benzene	4	10	
Trichloroethene	4	12	
Toluene	2	12	
Chlorobenzene	1	9	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-1-6**					
Laboratory ID:	09-074-01					
Naphthalene	**0.064**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
2-Methylnaphthalene	**0.068**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
1-Methylnaphthalene	**0.049**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthylene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Fluorene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Phenanthrene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Anthracene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Fluoranthene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Pyrene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]anthracene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Chrysene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[b]fluoranthene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[k]fluoranthene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]pyrene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Dibenz[a,h]anthracene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[g,h,i]perylene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*45 - 101*				
Pyrene-d10	*82*	*52 - 118*				
Terphenyl-d14	*91*	*41 - 106*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-2-6**					
Laboratory ID:	09-074-02					
Naphthalene	**0.032**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
2-Methylnaphthalene	**0.013**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
1-Methylnaphthalene	**0.0088**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthylene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthene	**0.010**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Fluorene	**0.0091**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Phenanthrene	**0.031**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Anthracene	**0.012**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Fluoranthene	**0.017**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Pyrene	**0.020**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]anthracene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Chrysene	**0.0074**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[b]fluoranthene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[k]fluoranthene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]pyrene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Dibenz[a,h]anthracene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[g,h,i]perylene	**0.010**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*69*	*45 - 101*				
Pyrene-d10	*94*	*52 - 118*				
Terphenyl-d14	*77*	*41 - 106*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-3-4**					
Laboratory ID:	09-074-03					
Naphthalene	**0.093**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
2-Methylnaphthalene	**1.6**	0.040	EPA 8270/SIM	9-9-10	9-10-10	
1-Methylnaphthalene	**1.2**	0.040	EPA 8270/SIM	9-9-10	9-10-10	
Acenaphthylene	**0.028**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthene	**0.11**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Fluorene	**0.13**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Phenanthrene	**0.26**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Anthracene	**0.046**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Fluoranthene	**0.083**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Pyrene	**0.19**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]anthracene	**0.035**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Chrysene	**0.062**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[b]fluoranthene	**0.012**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[k]fluoranthene	**0.0091**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]pyrene	**0.078**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Indeno(1,2,3-c,d)pyrene	**0.0083**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Dibenz[a,h]anthracene	**ND**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[g,h,i]perylene	**0.031**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*74*	*45 - 101*				
Pyrene-d10	*88*	*52 - 118*				
Terphenyl-d14	*76*	*41 - 106*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0909S2					
Naphthalene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthylene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Fluorene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Phenanthrene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Anthracene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Pyrene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Chrysene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[k]fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*45 - 101*				
Pyrene-d10	*79*	*52 - 118*				
Terphenyl-d14	*94*	*41 - 106*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-074-02										
	MS	MSD	MS	MSD		MS	MSD				
Naphthalene	**0.0886**	**0.108**	0.0833	0.0833	0.0284	72	96	31 - 115	20	19	L
Acenaphthylene	**0.0643**	**0.0658**	0.0833	0.0833	ND	77	79	40 - 134	2	22	
Acenaphthene	**0.0795**	**0.0822**	0.0833	0.0833	0.00902	85	88	48 - 118	3	17	
Fluorene	**0.0688**	**0.0642**	0.0833	0.0833	0.00814	73	67	54 - 122	7	16	
Phenanthrene	**0.0920**	**0.0961**	0.0833	0.0833	0.0274	78	82	46 - 123	4	19	
Anthracene	**0.0712**	**0.0623**	0.0833	0.0833	0.0107	73	62	53 - 123	13	27	
Fluoranthene	**0.0915**	**0.0786**	0.0833	0.0833	0.0154	91	76	47 - 132	15	26	
Pyrene	**0.0966**	**0.0893**	0.0833	0.0833	0.0177	95	86	41 - 137	8	25	
Benzo[a]anthracene	**0.0671**	**0.0612**	0.0833	0.0833	ND	81	73	43 - 132	9	26	
Chrysene	**0.0656**	**0.0640**	0.0833	0.0833	ND	79	77	46 - 126	2	24	
Benzo[b]fluoranthene	**0.0612**	**0.0525**	0.0833	0.0833	ND	73	63	44 - 134	15	24	
Benzo[k]fluoranthene	**0.0666**	**0.0476**	0.0833	0.0833	ND	80	57	45 - 132	33	20	L
Benzo[a]pyrene	**0.0700**	**0.0609**	0.0833	0.0833	ND	84	73	36 - 136	14	23	
Indeno(1,2,3-c,d)pyrene	**0.0844**	**0.0618**	0.0833	0.0833	ND	101	74	40 - 136	31	16	L
Dibenz[a,h]anthracene	**0.0865**	**0.0646**	0.0833	0.0833	ND	104	78	40 - 142	29	13	L
Benzo[g,h,i]perylene	**0.0809**	**0.0715**	0.0833	0.0833	0.00900	86	75	37 - 137	12	18	
Surrogate:											
2-Fluorobiphenyl						*76*	*81*	*45 - 101*			
Pyrene-d10						*88*	*85*	*52 - 118*			
Terphenyl-d14						*93*	*73*	*41 - 106*			

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0909S2									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.0755**	**0.0787**	0.0833	0.0833	91	94	33 - 105	4	30	
Acenaphthylene	**0.0801**	**0.0754**	0.0833	0.0833	96	91	51 - 110	6	22	
Acenaphthene	**0.0762**	**0.0785**	0.0833	0.0833	91	94	51 - 105	3	20	
Fluorene	**0.0695**	**0.0766**	0.0833	0.0833	83	92	61 - 107	10	17	
Phenanthrene	**0.0718**	**0.0742**	0.0833	0.0833	86	89	61 - 106	3	12	
Anthracene	**0.0691**	**0.0701**	0.0833	0.0833	83	84	59 - 106	1	12	
Fluoranthene	**0.0708**	**0.0709**	0.0833	0.0833	85	85	66 - 116	0	12	
Pyrene	**0.0787**	**0.0756**	0.0833	0.0833	94	91	67 - 118	4	14	
Benzo[a]anthracene	**0.0677**	**0.0710**	0.0833	0.0833	81	85	60 - 114	5	11	
Chrysene	**0.0623**	**0.0649**	0.0833	0.0833	75	78	64 - 112	4	12	
Benzo[b]fluoranthene	**0.0623**	**0.0660**	0.0833	0.0833	75	79	61 - 123	6	14	
Benzo[k]fluoranthene	**0.0641**	**0.0716**	0.0833	0.0833	77	86	50 - 124	11	17	
Benzo[a]pyrene	**0.0728**	**0.0731**	0.0833	0.0833	87	88	50 - 114	0	17	
Indeno(1,2,3-c,d)pyrene	**0.106**	**0.107**	0.0833	0.0833	127	128	56 - 130	1	16	
Dibenz[a,h]anthracene	**0.111**	**0.112**	0.0833	0.0833	133	134	57 - 134	1	16	
Benzo[g,h,i]perylene	**0.101**	**0.0982**	0.0833	0.0833	121	118	56 - 121	3	15	
Surrogate:										
2-Fluorobiphenyl					*88*	*83*	*45 - 101*			
Pyrene-d10					*83*	*78*	*52 - 118*			
Terphenyl-d14					*97*	*95*	*41 - 106*			

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-1-6**					
Laboratory ID:	09-074-01					
Gasoline	**270**	6.3	NWTPH-Gx	9-9-10	9-9-10	O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				
Client ID:	**H-PEX-2-6**					
Laboratory ID:	09-074-02					
Gasoline	**390**	5.8	NWTPH-Gx	9-9-10	9-9-10	Z,O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*55-127*				
Client ID:	**H-PEX-3-4**					
Laboratory ID:	09-074-03					
Gasoline	**22**	7.3	NWTPH-Gx	9-9-10	9-10-10	O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
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Project: 2007-098

NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0909S1					
Gasoline	**ND**	5.0	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-088-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*100*	*97*	*55-127*			

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-1-6**					
Laboratory ID:	09-074-01					
Diesel Range Organics	**220**	30	NWTPH-Dx	9-9-10	9-10-10	N,M
Lube Oil	**280**	60	NWTPH-Dx	9-9-10	9-10-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*92*	*50-150*				
Client ID:	**H-PEX-2-6**					
Laboratory ID:	09-074-02					
Diesel Range Organics	**ND**	400	NWTPH-Dx	9-9-10	9-9-10	U1
Lube Oil	**720**	56	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				
Client ID:	**H-PEX-3-4**					
Laboratory ID:	09-074-03					
Diesel Range Organics	**1800**	150	NWTPH-Dx	9-9-10	9-10-10	N,M
Lube Oil	**7300**	300	NWTPH-Dx	9-9-10	9-10-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0909S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-074-02							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	U1
Lube Oil	**641**	**624**				3	NA	
Surrogate:								
o-Terphenyl			*105*	*104*	*50-150*			

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Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-074-01					
Client ID:	**H-PEX-1-6**					
Arsenic	**ND**	12	6010B	9-9-10	9-10-10	
Barium	**69**	3.0	6010B	9-9-10	9-10-10	
Cadmium	**ND**	0.60	6010B	9-9-10	9-10-10	
Chromium	**35**	0.60	6010B	9-9-10	9-10-10	
Lead	**ND**	6.0	6010B	9-9-10	9-10-10	
Mercury	**ND**	0.30	7471A	9-9-10	9-9-10	
Selenium	**ND**	12	6010B	9-9-10	9-10-10	
Silver	**ND**	0.60	6010B	9-9-10	9-10-10	
Lab ID:	09-074-02					
Client ID:	**H-PEX-2-6**					
Arsenic	**ND**	11	6010B	9-9-10	9-10-10	
Barium	**41**	2.8	6010B	9-9-10	9-10-10	
Cadmium	**ND**	0.56	6010B	9-9-10	9-10-10	
Chromium	**27**	0.56	6010B	9-9-10	9-10-10	
Lead	**18**	5.6	6010B	9-9-10	9-10-10	
Mercury	**ND**	0.28	7471A	9-9-10	9-9-10	
Selenium	**ND**	11	6010B	9-9-10	9-10-10	
Silver	**ND**	0.56	6010B	9-9-10	9-10-10	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-074-03					
Client ID:	**H-PEX-3-4**					
Arsenic	**ND**	12	6010B	9-9-10	9-10-10	
Barium	**79**	3.0	6010B	9-9-10	9-10-10	
Cadmium	**ND**	0.61	6010B	9-9-10	9-10-10	
Chromium	**26**	0.61	6010B	9-9-10	9-10-10	
Lead	**130**	6.1	6010B	9-9-10	9-10-10	
Mercury	**ND**	0.30	7471A	9-9-10	9-9-10	
Selenium	**ND**	12	6010B	9-9-10	9-10-10	
Silver	**ND**	0.61	6010B	9-9-10	9-10-10	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-9&10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0909S1&MB0909S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-9&10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-074-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**36.5**	**38.4**	5	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**23.8**	**24.4**	3	0.50	
Lead	**16.5**	**11.4**	37	5.0	C
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-9&10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-074-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**94.2**	94	**95.1**	95	1	
Barium	100	**134**	97	**133**	96	1	
Cadmium	50	**46.4**	93	**45.8**	92	1	
Chromium	100	**118**	94	**118**	95	0	
Lead	250	**231**	86	**235**	87	2	
Mercury	0.50	**0.504**	101	**0.502**	100	0	
Selenium	100	**95.2**	95	**95.2**	95	0	
Silver	25	**21.7**	87	**21.8**	87	0	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PCBs by EPA 8082

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-1-6**					
Laboratory ID:	09-074-01					
Aroclor 1016	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1221	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1232	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1242	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1248	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1254	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1260	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*71*	*46-122*				
Client ID:	**H-PEX-2-6**					
Laboratory ID:	09-074-02					
Aroclor 1016	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1221	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1232	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1242	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1248	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1254	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1260	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*70*	*46-122*				
Client ID:	**H-PEX-3-4**					
Laboratory ID:	09-074-03					
Aroclor 1016	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1221	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1232	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1242	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1248	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1254	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1260	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*67*	*46-122*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PCBs by EPA 8082
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0909S1					
Aroclor 1016	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1221	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1232	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1242	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1248	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1254	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1260	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*73*	*46-122*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-074-02										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	**0.432**	**0.403**	0.500	0.500	ND	**86**	**81**	36-121	7	15	
Surrogate:											
DCB						*75*	*70*	*46-122*			

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

% MOISTURE

Date Analyzed: 9-9-10

Client ID	Lab ID	% Moisture
H-PEX-1-6	09-074-01	17
H-PEX-2-6	09-074-02	10
H-PEX-3-4	09-074-03	17

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits with diesel fuel.

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

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	9/13/2010
		ALS JOB#:	1009078
		DATE RECEIVED:	9/9/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098
CLIENT SAMPLE ID: 9/8/2010 H-PEX-1-6
ALS SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	**40**	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aliphatics	NWEPH	**110**	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aliphatics	NWEPH	**140**	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aliphatics	NWEPH	**100**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aliphatics	NWEPH	**300**	5.0	1	MG/KG	9/10/2010	EBS
>C8-C10 Aromatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aromatics	NWEPH	**13**	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aromatics	NWEPH	**33**	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aromatics	NWEPH	**53**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aromatics	NWEPH	**100**	5.0	1	MG/KG	9/10/2010	EBS
Total Aliphatics	NWEPH	**690**	10	1	MG/KG	9/10/2010	EBS
Total Aromatics	NWEPH	**200**	10	1	MG/KG	9/10/2010	EBS

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE: ALS JOB#: DATE RECEIVED: WDOE ACCREDITATION #:	9/13/2010 1009078 9/9/2010 C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098
CLIENT SAMPLE ID: 9/8/2010 H-PEX-2-6
ALS SAMPLE #: -02

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aliphatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aliphatics	NWEPH	**7.0**	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aliphatics	NWEPH	**80**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aliphatics	NWEPH	**230**	5.0	1	MG/KG	9/10/2010	EBS
>C8-C10 Aromatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aromatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aromatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aromatics	NWEPH	**24**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aromatics	NWEPH	**65**	5.0	1	MG/KG	9/10/2010	EBS
Total Aliphatics	NWEPH	**320**	10	1	MG/KG	9/10/2010	EBS
Total Aromatics	NWEPH	**97**	10	1	MG/KG	9/10/2010	EBS

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		ALS JOB#:	1009078
		DATE RECEIVED:	9/9/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098
CLIENT SAMPLE ID: 9/8/2010 H-PEX-3-4
ALS SAMPLE #: -03

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	**84**	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aliphatics	NWEPH	**66**	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aliphatics	NWEPH	**45**	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aliphatics	NWEPH	**120**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aliphatics	NWEPH	**1,400**	5.0	1	MG/KG	9/10/2010	EBS
>C8-C10 Aromatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aromatics	NWEPH	**7.0**	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aromatics	NWEPH	**18**	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aromatics	NWEPH	**48**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aromatics	NWEPH	**250**	5.0	1	MG/KG	9/10/2010	EBS
Total Aliphatics	NWEPH	**1,700**	10	1	MG/KG	9/10/2010	EBS
Total Aromatics	NWEPH	**330**	10	1	MG/KG	9/10/2010	EBS

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

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ALS Laboratory Group A Campbell Brothers Limited Company

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	9/13/2010
		ALS JOB#:	1009078
		DATE RECEIVED:	9/9/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

ALS SAMPLE ID	METHOD	SUR ID	% RECV
1009078-01	NWEPH	C25	100%
1009078-01	NWEPH	p-Terphenyl	82%
1009078-02	NWEPH	C25	101%
1009078-02	NWEPH	p-Terphenyl	84%
1009078-03	NWEPH	C25	104%
1009078-03	NWEPH	p-Terphenyl	85%

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CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	9/13/2010
		ALS JOB#:	1009078
		DATE RECEIVED:	9/9/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098

QUALITY CONTROL RESULTS

BLANK RESULTS

QC SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS
MBLK-9102010	Soil	NWEPH	>C8-C10 Aliphatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C10-C12 Aliphatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C12-C16 Aliphatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C16-C21 Aliphatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C21-C34 Aliphatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C8-C10 Aromatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C10-C12 Aromatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C12-C16 Aromatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C16-C21 Aromatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C21-C34 Aromatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	Total Aliphatics	ND(<10)	MG/KG
MBLK-9102010	Soil	NWEPH	Total Aromatics	ND(<10)	MG/KG

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CERTIFICATE OF ANALYSIS

CLIENT: OnSite Environmental Inc.
14648 NE 95th Street
Redmond, WA 98052

DATE: 9/13/2010
ALS JOB#: 1009078
DATE RECEIVED: 9/9/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098

QUALITY CONTROL RESULTS

BLANK SPIKE/BLANK SPIKE DUPLICATE RESULTS

QC BATCH ID	MATRIX	METHOD	ANALYTE	SPIKE AMOUNT	BLANK SPIKE RECOVERY	BLANK SPIKE DUPLICATE RECOVERY	RPD
R70469	Soil	NWEPH	>C8-C10 Aliphatics	100	78%	77%	1
R70469	Soil	NWEPH	>C10-C12 Aliphatics	100	83%	81%	2
R70469	Soil	NWEPH	>C12-C16 Aliphatics	100	87%	88%	1
R70469	Soil	NWEPH	>C16-C21 Aliphatics	100	93%	92%	1
R70469	Soil	NWEPH	>C21-C34 Aliphatics	100	82%	80%	2
R70469	Soil	NWEPH	>C8-C10 Aromatics	100	82%	79%	4
R70469	Soil	NWEPH	>C10-C12 Aromatics	100	84%	80%	5
R70469	Soil	NWEPH	>C12-C16 Aromatics	100	86%	83%	4
R70469	Soil	NWEPH	>C16-C21 Aromatics	100	90%	89%	1
R70469	Soil	NWEPH	>C21-C34 Aromatics	100	95%	92%	3

APPROVED BY:

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

1009078

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

[redacted]

Date/Time:

Turnaround Request:
1 Day 2 Day 3 Day
Standard
Other:

Laboratory Reference #: 09-074
Project Manager: David Baumeister
email: dbaumeister@onsite-env.com
Project Number: 2007-098
Project Name:

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analysis
1	H-PEX-1-6	9/8/10		S	1	EPH
2	H-PEX-2-6					
3	H-PEX-3-4					

	Signature	Company	Date	Time
Relinquished by:		OnSite Env.	9/9/10	1310
Received by:	S. UNION	SPEEDY	9/9	130
Relinquished by:				
Received by:	Shawn Rokuua	AS	9/9/10	3:40
Relinquished by:				
Received by:				

Comments/Special Instructions

RUSH 9/15

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

09-074

DATE: 9/8/10

PAGE: 1 of 1

PROJECT NAME: Bothell Crossroads Hertz #: 2007-098
SITE CODE:
SAMPLERS NAME: Pete Pearson PHONE: 206 794-3113
SAMPLERS SIGNATURE:
HWA CONTACT: Vance Atkins PHONE: 425-774-0106

24-hour TAT

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	VPH / EPH	VOCs	SVOCs (PAHs)	~~TPH~~ - G/BTEX	TPH - Dx	RCRA - 8	PCBs		%moisture	REMARKS
H-PEX-1-6	9/8/10	11:00	S	1	4	X	X	X	X	X	X	X		X	
H-PEX-2-6	↓	11:15	↓	2	↓	X	X	X	X	X	X	X		X	
H-PEX-3-4	↓	11:30	↓	3	↓	X	X	X	X	X	X	X		X	

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson	[signature]	HWA	9/8/10	3:45	
Received by:	Van	Speedy Van	Speedy	9/8/10	3:45	
Relinquished by:						
Received by:	[illegible]	Blair Goodrow	OnSite Env	9/8/10	1608	

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

September 10, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-088

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 9, 2010.

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: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

Case Narrative

Samples were collected on September 9, 2010 and received by the laboratory on September 9, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The MTCA Method A clean-up level for Benzene in sample H-PEX-5-8 is not achievable due to the high moisture content of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-6-4**					
Laboratory ID:	09-088-01					
Benzene	**ND**	0.020	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.062	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.062	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**ND**	0.062	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.062	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	6.2	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-PEX-5-8**					
Laboratory ID:	09-088-02					
Benzene	**ND**	0.063	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.31	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.31	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**ND**	0.31	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.31	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	31	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*55-127*				
Client ID:	**PEX-4-8**					
Laboratory ID:	09-088-03					
Benzene	**ND**	0.020	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.084	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.084	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**ND**	0.084	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.084	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	8.4	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*105*	*55-127*				

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-7-5**					
Laboratory ID:	09-088-04					
Benzene	**ND**	0.020	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.079	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.079	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**ND**	0.079	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.079	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	7.9	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-PEX-8-6**					
Laboratory ID:	09-088-05					
Benzene	**ND**	0.021	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.10	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.10	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**0.11**	0.10	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.10	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	10	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0909S1					
Benzene	**ND**	0.020	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.050	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.050	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-088-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*100*	*97*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0909S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.927**	**0.987**	1.00	1.00		**93**	**99**	75-113	6	9	
Toluene	**0.926**	**0.985**	1.00	1.00		**93**	**99**	75-116	6	10	
Ethyl Benzene	**0.951**	**1.01**	1.00	1.00		**95**	**101**	82-117	6	10	
m,p-Xylene	**0.966**	**1.03**	1.00	1.00		**97**	**103**	81-122	6	10	
o-Xylene	**0.968**	**1.02**	1.00	1.00		**97**	**102**	83-118	5	10	
Surrogate:											
Fluorobenzene						*92*	*95*	*55-127*			

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-6-4**					
Laboratory ID:	09-088-01					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				
Client ID:	**H-PEX-5-8**					
Laboratory ID:	09-088-02					
Diesel Range Organics	**ND**	87	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**210**	170	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*110*	*50-150*				
Client ID:	**H-PEX-4-8**					
Laboratory ID:	09-088-03					
Diesel Range Organics	**ND**	34	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**ND**	68	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				
Client ID:	**H-PEX-7-5**					
Laboratory ID:	09-088-04					
Diesel Range Organics	**ND**	33	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**ND**	66	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				
Client ID:	**H-PEX-8-6**					
Laboratory ID:	09-088-05					
Diesel Range Organics	**140**	28	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil	**70**	56	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0909S2					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*120*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-088-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*105*	*97*	*50-150*			

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

TOTAL ARSENIC
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-088-01					
Client ID:	**H-PEX-6-4**					
Arsenic	**ND**	12	6010B	9-9-10	9-10-10	
Lab ID:	09-088-02					
Client ID:	**H-PEX-5-8**					
Arsenic	**ND**	17	6010B	9-9-10	9-10-10	
Lab ID:	09-088-03					
Client ID:	**H-PEX-4-8**					
Arsenic	**ND**	14	6010B	9-9-10	9-10-10	
Lab ID:	09-088-04					
Client ID:	**H-PEX-7-5**					
Arsenic	**ND**	13	6010B	9-9-10	9-10-10	
Lab ID:	09-088-05					
Client ID:	**H-PEX-8-6**					
Arsenic	**ND**	11	6010B	9-9-10	9-10-10	

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

TOTAL ARSENIC
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0909S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	5.0

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

TOTAL ARSENIC
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-074-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

TOTAL ARSENIC
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-074-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**94.2**	94	**95.1**	95	1	

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

% MOISTURE

Date Analyzed: 9-9-10

Client ID	Lab ID	% Moisture
H-PEX-6-4	09-088-01	19
H-PEX-5-8	09-088-02	71
H-PEX-4-8	09-088-03	27
H-PEX-7-5	09-088-04	24
H-PEX-8-6	09-088-05	11

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 9/9/10
PAGE: 1 of

09-088

PROJECT NAME: Bothell Crossroads #: 2007-098
SITE CODE:
SAMPLERS NAME: Pete Pearson PHONE: 206-794-3113
SAMPLERS SIGNATURE:
HWA CONTACT: Vance Atkens PHONE: 425-774-0106

ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-G/BTEX	NWTPH-Dx	ARSENIC	% MOISTURE	REMARKS
H-PEX-6-4	9/9/10	12:00	Soil	1	4	X	X	X	X	24-Hour TAT
H-PEX-5-8	11	10:40	11	2	4	X	X	X	X	11
H-PEX-4-8	11	10:30	11	3	4	X	X	X	X	11
H-PEX-7-5	11	12:10	11	4	4	X	X	X	X	11
H-PEX-8-6	11	12:20	11	5	4	X	X	X	X	11

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson		HWA	9/9/10	12:55	
Received by:		OSE	OSE	9/9/10	1255	
Relinquished by:						
Received by:						

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 13, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-095

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 10, 2010.

Please note that the data for NWTPH-G/BTEX analyses is *preliminary* pending QA/QC data.

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: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

Case Narrative

Samples were collected on September 10, 2010 and received by the laboratory on September 10, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The sample chromatogram for H-TP-22-8 is not similar to a typical gas.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-22-8**					
Laboratory ID:	09-095-01					
Diesel Range Organics	**ND**	63	NWTPH-Dx	9-10-10	9-10-10	U1
Lube Oil	**300**	58	NWTPH-Dx	9-10-10	9-10-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-23-7**					
Laboratory ID:	09-095-02					
Diesel Fuel #2	**5400**	30	NWTPH-Dx	9-10-10	9-10-10	
Lube Oil	**680**	60	NWTPH-Dx	9-10-10	9-10-10	N1
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				

Date of Report: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0910S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-10-10	9-10-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-10-10	9-10-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-078-06							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*94*	*101*	*50-150*			

Date of Report: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-22-8**					
Laboratory ID:	09-095-01					
Benzene	**ND**	0.020	EPA 8021	9-10-10	9-13-10	
Toluene	**ND**	0.064	EPA 8021	9-10-10	9-13-10	
Ethyl Benzene	**0.27**	0.064	EPA 8021	9-10-10	9-13-10	
m,p-Xylene	**1.2**	0.064	EPA 8021	9-10-10	9-13-10	
o-Xylene	**0.19**	0.064	EPA 8021	9-10-10	9-13-10	
Gasoline	**12**	6.4	NWTPH-Gx	9-10-10	9-13-10	T
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-23-7**					
Laboratory ID:	09-095-02					
Benzene	**ND**	0.060	EPA 8021	9-10-10	9-10-10	
Toluene	**ND**	0.30	EPA 8021	9-10-10	9-10-10	
Ethyl Benzene	**0.65**	0.30	EPA 8021	9-10-10	9-10-10	
m,p-Xylene	**0.72**	0.30	EPA 8021	9-10-10	9-10-10	
o-Xylene	**ND**	0.15	EPA 8021	9-10-10	9-10-10	U1
Gasoline	**ND**	30	NWTPH-Gx	9-10-10	9-10-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*107*	*55-127*				

Date of Report: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0910S1					
Benzene	**ND**	0.020	EPA 8021	9-10-10	9-13-10	
Toluene	**ND**	0.050	EPA 8021	9-10-10	9-13-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-10-10	9-13-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-10-10	9-13-10	
o-Xylene	**ND**	0.050	EPA 8021	9-10-10	9-13-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-10-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*55-127*				

Date of Report: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-10-10

Client ID	Lab ID	% Moisture
H-TP-22-8	09-095-01	14
H-TP-23-9	09-095-02	17

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-napthalene) 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 gas.

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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 9/10/10
PAGE: 1 of 2

09-095

24-hour TAT

PROJECT NAME: Bothell Crossroads-Hertz #: 2007-098-921
SITE CODE:
SAMPLERS NAME: Pete Pearson PHONE: 206-794-3113
SAMPLERS SIGNATURE:
HWA CONTACT: Vance Atkins PHONE: 425 774 0106

ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH-G/BTEX											% MOISTURE		REMARKS
H-TP-22-8	9/10/10	10:25	S	1	4	X	X											X		
H-TP-23-7	9/10/10	12:20	S	2	4	X	X											X		

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson		HWA	9/10/10	1310	
Received by:	M. VAUN		OSE	9/10/10	1310	
Relinquished by:						
Received by:						

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 16, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-106

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 13, 2010.

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: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

Case Narrative

Samples were collected on September 13, 2010 and received by the laboratory on September 13, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The MTCA Method A clean-up level for Benzene for sample H-TP-25-8 is not achievable due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Volatiles EPA 8260B Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Some MTCA Method A cleanup levels are non-achievable due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Semivolatiles EPA 8270D/SIM Analysis

Sample MS/MSD pair had several recoveries fall outside of control limits believed to be caused by sample matrix. Due to the dilution of the sample MS/MSD two analytes were lost 1,4-Dichlorobenzene and 1,2,4-Trichlorobenzene. The SB/SBD pair extracted with this batch had all parameters in control, no further action was deemed necessary.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Total Metals EPA 6010B/7471A Analysis

The duplicate RPD for chromium is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-9-5**					
Laboratory ID:	09-106-02					
Diesel Fuel #2	**820**	30	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	110	NWTPH-Dx	9-14-10	9-14-10	U1
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**H-PEX-10-7**					
Laboratory ID:	09-106-03					
Diesel Fuel #2	**600**	29	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil	**86**	58	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**H-PEX-11-6**					
Laboratory ID:	09-106-04					
Diesel Fuel #2	**1900**	29	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil	**2700**	57	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				
Client ID:	**H-SP-1**					
Laboratory ID:	09-106-05					
Diesel Range Organics	**ND**	27	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	55	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*107*	*50-150*				
Client ID:	**H-SP-2**					
Laboratory ID:	09-106-06					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil	**78**	58	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**H-TP-24-3**					
Laboratory ID:	09-106-07					
Diesel Range Organics	**ND**	55	NWTPH-Dx	9-14-10	9-14-10	U1
Lube Oil	**200**	57	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
Client ID:	**H-TP-24-8**					
Laboratory ID:	09-106-08					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	58	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**H-TP-25-2**					
Laboratory ID:	09-106-09					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				
Client ID:	**H-TP-25-8**					
Laboratory ID:	09-106-10					
Diesel Fuel #2	**5400**	33	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil	**1700**	65	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*88*	*50-150*				
Client ID:	**H-DUP-091310**					
Laboratory ID:	09-106-11					
Diesel Fuel #2	**950**	29	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	120	NWTPH-Dx	9-14-10	9-14-10	U1
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0914S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*113*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-106-05							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*107*	*99*	*50-150*			

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-9-5**					
Laboratory ID:	09-106-02					
Benzene	**ND**	0.027	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.14	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.14	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.14	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.14	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	14	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-PEX-10-7**					
Laboratory ID:	09-106-03					
Benzene	**ND**	0.023	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	12	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*105*	*55-127*				
Client ID:	**H-PEX-11-6**					
Laboratory ID:	09-106-04					
Benzene	**ND**	0.027	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.13	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**0.25**	0.13	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**0.38**	0.13	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.65	EPA 8021	9-13-10	9-13-10	U1
Gasoline	**ND**	13	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-1**					
Laboratory ID:	09-106-05					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.065	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.065	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.065	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	6.5	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-SP-2**					
Laboratory ID:	09-106-06					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.061	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.061	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.061	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.061	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	6.1	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-24-3**					
Laboratory ID:	09-106-07					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.064	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.064	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.064	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.064	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	6.4	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-24-8**					
Laboratory ID:	09-106-08					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.051	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.051	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.051	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.051	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	5.1	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-25-2**					
Laboratory ID:	09-106-09					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.063	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.063	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.063	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.063	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	6.3	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*55-127*				
Client ID:	**H-TP-25-8**					
Laboratory ID:	09-106-10					
Benzene	**ND**	0.032	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.16	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**0.31**	0.16	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**0.42**	0.16	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.80	EPA 8021	9-13-10	9-13-10	U1
Gasoline	**ND**	16	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-DUP-091310**					
Laboratory ID:	09-106-11					
Benzene	**ND**	0.025	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	12	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0913S1					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.050	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.050	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-106-07										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*98*	*98*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0913S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.01**	**0.985**	1.00	1.00		**101**	**99**	75-113	3	9	
Toluene	**0.983**	**0.961**	1.00	1.00		**98**	**96**	75-116	2	10	
Ethyl Benzene	**0.978**	**0.954**	1.00	1.00		**98**	**95**	82-117	2	10	
m,p-Xylene	**0.998**	**0.976**	1.00	1.00		**100**	**98**	81-122	2	10	
o-Xylene	**0.988**	**0.962**	1.00	1.00		**99**	**96**	83-118	3	10	
Surrogate:											
Fluorobenzene						*95*	*93*	*55-127*			

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

SEMIVOLATILES by EPA 8270D/SIM
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-11-6**					
Laboratory ID:	09-106-04					
n-Nitrosodimethylamine	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Pyridine	**ND**	1.9	EPA 8270	9-13-10	9-14-10	
Phenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Aniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroethyl)ether	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Chlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,3-Dichlorobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,4-Dichlorobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Benzyl alcohol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,2-Dichlorobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Methylphenol (o-Cresol)	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroisopropyl)ether	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
n-Nitroso-di-n-propylamine	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Hexachloroethane	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Nitrobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Isophorone	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Nitrophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,4-Dimethylphenol	**ND**	4.8	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroethoxy)methane	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,4-Dichlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,2,4-Trichlorobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Naphthalene	**1.4**	0.19	EPA 8270	9-13-10	9-14-10	
4-Chloroaniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Hexachlorobutadiene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
4-Chloro-3-methylphenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Methylnaphthalene	**14**	0.77	EPA 8270	9-13-10	9-14-10	
1-Methylnaphthalene	**8.4**	0.19	EPA 8270	9-13-10	9-14-10	
Hexachlorocyclopentadiene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,4,6-Trichlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,3-Dichloroaniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,4,5-Trichlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Chloronaphthalene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Nitroaniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,4-Dinitrobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Dimethylphthalate	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,3-Dinitrobenzene	**ND**	0.96	EPA 8270	9-13-10	9-14-10	
2,6-Dinitrotoluene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,2-Dinitrobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Acenaphthylene	**0.16**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
3-Nitroaniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

SEMIVOLATILES by EPA 8270D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-11-6**					
Laboratory ID:	09-106-04					
2,4-Dinitrophenol	**ND**	0.96	EPA 8270	9-13-10	9-14-10	
Acenaphthene	**0.43**	0.19	EPA 8270	9-13-10	9-14-10	
4-Nitrophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,4-Dinitrotoluene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Dibenzofuran	**0.44**	0.19	EPA 8270	9-13-10	9-14-10	
2,3,5,6-Tetrachlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,3,4,6-Tetrachlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Diethylphthalate	**ND**	0.96	EPA 8270	9-13-10	9-14-10	
4-Chlorophenyl-phenylether	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
4-Nitroaniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Fluorene	**0.96**	0.19	EPA 8270	9-13-10	9-14-10	
4,6-Dinitro-2-methylphenol	**ND**	0.96	EPA 8270	9-13-10	9-14-10	
n-Nitrosodiphenylamine	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,2-Diphenylhydrazine	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
4-Bromophenyl-phenylether	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Hexachlorobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Pentachlorophenol	**ND**	0.96	EPA 8270	9-13-10	9-14-10	
Phenanthrene	**1.8**	0.19	EPA 8270	9-13-10	9-14-10	
Anthracene	**0.20**	0.19	EPA 8270	9-13-10	9-14-10	
Carbazole	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Di-n-butylphthalate	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Fluoranthene	**0.093**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Benzidine	**ND**	1.9	EPA 8270	9-13-10	9-14-10	
Pyrene	**0.20**	0.19	EPA 8270	9-13-10	9-14-10	
Butylbenzylphthalate	**2.4**	0.19	EPA 8270	9-13-10	9-14-10	
bis-2-Ethylhexyladipate	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
3,3'-Dichlorobenzidine	**ND**	1.9	EPA 8270	9-13-10	9-14-10	
Benzo[a]anthracene	**0.073**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Chrysene	**0.21**	0.19	EPA 8270	9-13-10	9-14-10	
bis(2-Ethylhexyl)phthalate	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Di-n-octylphthalate	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Benzo[b]fluoranthene	**0.055**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[k]fluoranthene	**0.0078**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[a]pyrene	**0.043**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Indeno[1,2,3-cd]pyrene	**0.020**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Dibenz[a,h]anthracene	**ND**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[g,h,i]perylene	**0.039**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*49*	*22 - 107*				
Phenol-d6	*69*	*28 - 116*				
Nitrobenzene-d5	*48*	*25 - 111*				
2-Fluorobiphenyl	*76*	*35 - 108*				
2,4,6-Tribromophenol	*71*	*42 - 118*				
Terphenyl-d14	*74*	*44 - 121*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

SEMIVOLATILES by EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0913S1					
n-Nitrosodimethylamine	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Pyridine	**ND**	0.33	EPA 8270	9-13-10	9-14-10	
Phenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Aniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroethyl)ether	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Chlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,3-Dichlorobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,4-Dichlorobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Benzyl alcohol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,2-Dichlorobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Methylphenol (o-Cresol)	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroisopropyl)ether	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
n-Nitroso-di-n-propylamine	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Hexachloroethane	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Nitrobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Isophorone	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Nitrophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,4-Dimethylphenol	**ND**	0.83	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroethoxy)methane	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,4-Dichlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,2,4-Trichlorobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Naphthalene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
4-Chloroaniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Hexachlorobutadiene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
4-Chloro-3-methylphenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Hexachlorocyclopentadiene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,4,6-Trichlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,3-Dichloroaniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,4,5-Trichlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Chloronaphthalene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Nitroaniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,4-Dinitrobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Dimethylphthalate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,3-Dinitrobenzene	**ND**	0.17	EPA 8270	9-13-10	9-14-10	
2,6-Dinitrotoluene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,2-Dinitrobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Acenaphthylene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
3-Nitroaniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

SEMIVOLATILES by EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0913S1					
2,4-Dinitrophenol	**ND**	0.17	EPA 8270	9-13-10	9-14-10	
Acenaphthene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
4-Nitrophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,4-Dinitrotoluene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Dibenzofuran	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,3,5,6-Tetrachlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,3,4,6-Tetrachlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Diethylphthalate	**ND**	0.17	EPA 8270	9-13-10	9-14-10	
4-Chlorophenyl-phenylether	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
4-Nitroaniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Fluorene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
4,6-Dinitro-2-methylphenol	**ND**	0.17	EPA 8270	9-13-10	9-14-10	
n-Nitrosodiphenylamine	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,2-Diphenylhydrazine	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
4-Bromophenyl-phenylether	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Hexachlorobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Pentachlorophenol	**ND**	0.17	EPA 8270	9-13-10	9-14-10	
Phenanthrene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Anthracene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Carbazole	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Di-n-butylphthalate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Benzidine	**ND**	0.33	EPA 8270	9-13-10	9-14-10	
Pyrene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Butylbenzylphthalate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
bis-2-Ethylhexyladipate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
3,3'-Dichlorobenzidine	**ND**	0.33	EPA 8270	9-13-10	9-14-10	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Chrysene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
bis(2-Ethylhexyl)phthalate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Di-n-octylphthalate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[k]fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Indeno[1,2,3-cd]pyrene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*52*	*22 - 107*				
Phenol-d6	*57*	*28 - 116*				
Nitrobenzene-d5	*51*	*25 - 111*				
2-Fluorobiphenyl	*57*	*35 - 108*				
2,4,6-Tribromophenol	*74*	*42 - 118*				
Terphenyl-d14	*73*	*44 - 121*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

SEMIVOLATILES by EPA 8270D/SIM
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-106-01										
	MS	MSD	MS	MSD		MS	MSD				
Phenol	**1.25**	**0.982**	1.33	1.33	ND	94	74	31 - 111	24	27	
2-Chlorophenol	**1.23**	**0.895**	1.33	1.33	ND	92	67	36 - 106	32	32	
1,4-Dichlorobenzene	**ND**	**ND**	0.667	0.667	ND	0	0	25 - 96	NA	42	I,I,L
n-Nitroso-di-n-propylamine	**0.795**	**0.691**	0.667	0.667	ND	119	104	37 - 107	14	36	I
1,2,4-Trichlorobenzene	**ND**	**ND**	0.667	0.667	ND	0	0	29 - 101	NA	31	I,I,L
4-Chloro-3-methylphenol	**1.36**	**1.27**	1.33	1.33	ND	102	95	47 - 112	7	18	
Acenaphthene	**0.901**	**0.893**	0.667	0.667	ND	135	134	43 - 104	1	19	I,I
4-Nitrophenol	**1.53**	**1.74**	1.33	1.33	ND	115	131	24 - 133	13	18	
2,4-Dinitrotoluene	**1.24**	**0.757**	0.667	0.667	ND	186	113	42 -117	48	19	I,I,L
Pentachlorophenol	**0.860**	**0.865**	1.33	1.33	ND	65	65	25 - 135	0	20	
Pyrene	**0.802**	**0.639**	0.667	0.667	ND	120	96	29 - 129	31	29	L
Surrogate:											
2-Fluorophenol						*78*	*51*	*22 - 107*			
Phenol-d6						*93*	*70*	*28 - 116*			
Nitrobenzene-d5						*80*	*68*	*25 - 111*			
2-Fluorobiphenyl						*91*	*75*	*35 - 108*			
2,4,6-Tribromophenol						*86*	*80*	*42 - 118*			
Terphenyl-d14						*90*	*78*	*44 - 121*			

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

SEMIVOLATILES by EPA 8270D/SIM
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0913S1									
	SB	SBD	SB	SBD	SB	SBD				
Phenol	**1.02**	**0.971**	1.33	1.33	77	73	28 - 112	5	31	
2-Chlorophenol	**1.04**	**1.00**	1.33	1.33	78	75	24 - 115	4	39	
1,4-Dichlorobenzene	**0.425**	**0.451**	0.667	0.667	64	68	16 - 108	6	36	
n-Nitroso-di-n-propylamine	**0.468**	**0.445**	0.667	0.667	70	67	24 - 111	5	31	
1,2,4-Trichlorobenzene	**0.427**	**0.437**	0.667	0.667	64	66	18 - 110	2	34	
4-Chloro-3-methylphenol	**1.10**	**1.10**	1.33	1.33	83	83	51 - 106	0	24	
Acenaphthene	**0.507**	**0.482**	0.667	0.667	76	72	45 - 99	5	24	
4-Nitrophenol	**1.23**	**1.30**	1.33	1.33	92	98	38 - 134	6	25	
2,4-Dinitrotoluene	**0.575**	**0.587**	0.667	0.667	86	88	51 - 114	2	25	
Pentachlorophenol	**1.30**	**1.38**	1.33	1.33	98	104	44 - 130	6	26	
Pyrene	**0.537**	**0.578**	0.667	0.667	81	87	58 - 110	7	22	
Surrogate:										
2-Fluorophenol					*70*	*70*	*22 - 107*			
Phenol-d6					*76*	*72*	*28 - 116*			
Nitrobenzene-d5					*71*	*70*	*25 - 111*			
2-Fluorobiphenyl					*69*	*66*	*35 - 108*			
2,4,6-Tribromophenol					*83*	*85*	*42 - 118*			
Terphenyl-d14					*80*	*85*	*44 - 121*			

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

VOLATILES by EPA 8260B
Page 1 of 2

Date Extracted:	9-13-10
Date Analyzed:	9-13-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	09-106-04
Client ID:	**H-PEX-11-6**

Compound	**Results**	**Flags**	**PQL**
Dichlorodifluoromethane	ND		0.062
Chloromethane	ND		0.31
Vinyl Chloride	ND		0.062
Bromomethane	ND		0.062
Chloroethane	ND		0.31
Trichlorofluoromethane	ND		0.062
1,1-Dichloroethene	ND		0.062
Acetone	ND		0.31
Iodomethane	ND		0.31
Carbon Disulfide	ND		0.062
Methylene Chloride	ND		0.31
(trans) 1,2-Dichloroethene	ND		0.062
Methyl t-Butyl Ether	ND		0.062
1,1-Dichloroethane	ND		0.062
Vinyl Acetate	ND		0.31
2,2-Dichloropropane	ND		0.062
(cis) 1,2-Dichloroethene	ND		0.062
2-Butanone	ND		0.31
Bromochloromethane	ND		0.062
Chloroform	ND		0.062
1,1,1-Trichloroethane	ND		0.062
Carbon Tetrachloride	ND		0.062
1,1-Dichloropropene	ND		0.062
Benzene	ND		0.062
1,2-Dichloroethane	ND		0.062
Trichloroethene	ND		0.062
1,2-Dichloropropane	ND		0.062
Dibromomethane	ND		0.062
Bromodichloromethane	ND		0.062
2-Chloroethyl Vinyl Ether	ND		0.31
(cis) 1,3-Dichloropropene	ND		0.062
Methyl Isobutyl Ketone	ND		0.31
Toluene	ND		0.31
(trans) 1,3-Dichloropropene	ND		0.062

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

VOLATILES by EPA 8260B
Page 2 of 2

Lab ID: 09-106-04
Client ID: H-PEX-11-6

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.062
Tetrachloroethene	ND		0.062
1,3-Dichloropropane	ND		0.062
2-Hexanone	ND		0.31
Dibromochloromethane	ND		0.062
1,2-Dibromoethane	ND		0.062
Chlorobenzene	ND		0.062
1,1,1,2-Tetrachloroethane	ND		0.062
Ethylbenzene	ND		0.062
m,p-Xylene	ND		0.12
o-Xylene	ND		0.062
Styrene	ND		0.062
Bromoform	ND		0.062
Isopropylbenzene	0.19		0.062
Bromobenzene	ND		0.062
1,1,2,2-Tetrachloroethane	ND		0.062
1,2,3-Trichloropropane	ND		0.062
n-Propylbenzene	0.39		0.062
2-Chlorotoluene	ND		0.062
4-Chlorotoluene	ND		0.062
1,3,5-Trimethylbenzene	ND		0.062
tert-Butylbenzene	ND		0.062
1,2,4-Trimethylbenzene	0.37		0.062
sec-Butylbenzene	0.34		0.062
1,3-Dichlorobenzene	ND		0.062
p-Isopropyltoluene	0.095		0.062
1,4-Dichlorobenzene	ND		0.062
1,2-Dichlorobenzene	ND		0.062
n-Butylbenzene	0.55		0.062
1,2-Dibromo-3-chloropropane	ND		0.31
1,2,4-Trichlorobenzene	ND		0.062
Hexachlorobutadiene	ND		0.31
Naphthalene	0.39		0.062
1,2,3-Trichlorobenzene	ND		0.062

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	79	66-128
Toluene-d8	104	68-126
4-Bromofluorobenzene	85	53-134

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
Page 1 of 2

Date Extracted:	9-13-10
Date Analyzed:	9-13-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0913S1

Compound	**Results**	**Flags**	**PQL**
Dichlorodifluoromethane	ND		0.0010
Chloromethane	ND		0.0050
Vinyl Chloride	ND		0.0010
Bromomethane	ND		0.0010
Chloroethane	ND		0.0050
Trichlorofluoromethane	ND		0.0010
1,1-Dichloroethene	ND		0.0010
Acetone	ND		0.0050
Iodomethane	ND		0.0050
Carbon Disulfide	ND		0.0010
Methylene Chloride	ND		0.0050
(trans) 1,2-Dichloroethene	ND		0.0010
Methyl t-Butyl Ether	ND		0.0010
1,1-Dichloroethane	ND		0.0010
Vinyl Acetate	ND		0.0050
2,2-Dichloropropane	ND		0.0010
(cis) 1,2-Dichloroethene	ND		0.0010
2-Butanone	ND		0.0050
Bromochloromethane	ND		0.0010
Chloroform	ND		0.0010
1,1,1-Trichloroethane	ND		0.0010
Carbon Tetrachloride	ND		0.0010
1,1-Dichloropropene	ND		0.0010
Benzene	ND		0.0010
1,2-Dichloroethane	ND		0.0010
Trichloroethene	ND		0.0010
1,2-Dichloropropane	ND		0.0010
Dibromomethane	ND		0.0010
Bromodichloromethane	ND		0.0010
2-Chloroethyl Vinyl Ether	ND		0.0050
(cis) 1,3-Dichloropropene	ND		0.0010
Methyl Isobutyl Ketone	ND		0.0050
Toluene	ND		0.0050
(trans) 1,3-Dichloropropene	ND		0.0010

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
Page 2 of 2

Lab ID: MB0913S1

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0010
Tetrachloroethene	ND		0.0010
1,3-Dichloropropane	ND		0.0010
2-Hexanone	ND		0.0050
Dibromochloromethane	ND		0.0010
1,2-Dibromoethane	ND		0.0010
Chlorobenzene	ND		0.0010
1,1,1,2-Tetrachloroethane	ND		0.0010
Ethylbenzene	ND		0.0010
m,p-Xylene	ND		0.0020
o-Xylene	ND		0.0010
Styrene	ND		0.0010
Bromoform	ND		0.0010
Isopropylbenzene	ND		0.0010
Bromobenzene	ND		0.0010
1,1,2,2-Tetrachloroethane	ND		0.0010
1,2,3-Trichloropropane	ND		0.0010
n-Propylbenzene	ND		0.0010
2-Chlorotoluene	ND		0.0010
4-Chlorotoluene	ND		0.0010
1,3,5-Trimethylbenzene	ND		0.0010
tert-Butylbenzene	ND		0.0010
1,2,4-Trimethylbenzene	ND		0.0010
sec-Butylbenzene	ND		0.0010
1,3-Dichlorobenzene	ND		0.0010
p-Isopropyltoluene	ND		0.0010
1,4-Dichlorobenzene	ND		0.0010
1,2-Dichlorobenzene	ND		0.0010
n-Butylbenzene	ND		0.0010
1,2-Dibromo-3-chloropropane	ND		0.0050
1,2,4-Trichlorobenzene	ND		0.0010
Hexachlorobutadiene	ND		0.0050
Naphthalene	ND		0.0010
1,2,3-Trichlorobenzene	ND		0.0010

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	87	66-128
Toluene-d8	101	68-126
4-Bromofluorobenzene	88	53-134

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

VOLATILES by EPA 8260B
MS/MSD QUALITY CONTROL

Date Extracted: 9-13-10
Date Analyzed: 9-13-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-106-04

Compound	Sample Amount	Spike Amount	MS	Percent Recovery	MSD	Percent Recovery	Recovery Limits	Flags
1,1-Dichloroethene	ND	1.02/0.969	1.01	99	0.920	95	70-130	
Benzene	ND	1.02/0.969	0.941	92	0.870	90	70-130	
Trichloroethene	ND	1.02/0.969	1.04	102	0.975	101	70-130	
Toluene	ND	1.02/0.969	1.01	99	0.946	98	70-126	
Chlorobenzene	ND	1.02/0.969	1.01	99	0.982	101	70-130	

	RPD	RPD Limit	Flags
1,1-Dichloroethene	4	14	
Benzene	2	14	
Trichloroethene	1	18	
Toluene	1	20	
Chlorobenzene	2	15	

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	**Result**	**PQL**	**EPA Method**	**Date Prepared**	**Date Analyzed**	**Flags**
Lab ID:	09-106-04					
Client ID:	**H-PEX-11-6**					
Arsenic	**ND**	11	6010B	9-13-10	9-13-10	
Barium	**50**	2.9	6010B	9-13-10	9-13-10	
Cadmium	**ND**	0.57	6010B	9-13-10	9-13-10	
Chromium	**23**	0.57	6010B	9-13-10	9-13-10	
Lead	**37**	5.7	6010B	9-13-10	9-13-10	
Mercury	**ND**	0.29	7471A	9-13-10	9-13-10	
Selenium	**ND**	11	6010B	9-13-10	9-13-10	
Silver	**ND**	0.57	6010B	9-13-10	9-13-10	

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-13-10
Date Analyzed:	9-13-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0913S1&MB0913S3

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-13-10
Date Analyzed: 9-13-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-091-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**13.9**	**16.7**	18	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**6.40**	**7.95**	22	0.50	K
Lead	**18.8**	**22.2**	17	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-13-10
Date Analyzed: 9-13-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-091-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**97.9**	98	**97.4**	97	0	
Barium	100	**108**	94	**110**	96	2	
Cadmium	50	**42.6**	85	**43.0**	86	1	
Chromium	100	**95.1**	89	**97.5**	91	3	
Lead	250	**235**	86	**241**	89	3	
Mercury	0.50	**0.508**	102	**0.509**	102	0	
Selenium	100	**92.7**	93	**91.7**	92	1	
Silver	25	**22.2**	89	**22.3**	89	0	

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

PCBs by EPA 8082

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-11-6**					
Laboratory ID:	09-106-04					
Aroclor 1016	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1221	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1232	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1242	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1248	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1254	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1260	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*88*	*46-122*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

PCBs by EPA 8082
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0914S1					
Aroclor 1016	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1221	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1232	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1242	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1248	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1254	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1260	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*102*	*46-122*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-106-04										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	**0.474**	**0.523**	0.500	0.500	ND	**95**	**105**	36-121	10	15	
Surrogate:											
DCB						*86*	*92*	*46-122*			

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-13-10

Client ID	Lab ID	% Moisture
H-PEX-9-5	09-106-02	17
H-PEX-10-7	09-106-03	13
H-PEX-11-6	09-106-04	13
H-SP-1	09-106-05	9
H-SP-2	09-106-06	13
H-TP-24-3	09-106-07	12
H-TP-24-8	09-106-08	14
H-TP-25-2	09-106-09	11
H-TP-25-8	09-106-10	23
H-DUP-091310	09-106-11	15

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT: OnSite Environmental Inc.
14648 NE 95th Street
Redmond, WA 98052

DATE: 9/16/2010
ALS JOB#: 1009094
DATE RECEIVED: 9/14/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-106 / Proj #2007-098-921
CLIENT SAMPLE ID: 9/13/2010 H-PEX-11-6
ALS SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
C5-C6 Aliphatics	NWVPH	ND	5.0	1	MG/KG	9/15/2010	DLC
>C6-C8 Aliphatics	NWVPH	**9.3**	5.0	1	MG/KG	9/15/2010	DLC
>C8-C10 Aliphatics	NWVPH	**17**	5.0	1	MG/KG	9/15/2010	DLC
>C8-C10 Aromatics	NWVPH	**66**	5.0	1	MG/KG	9/15/2010	DLC
Total Aliphatics	NWVPH	**29**	5.0	1	MG/KG	9/15/2010	DLC
Total Aromatics	NWVPH	**66**	5.0	1	MG/KG	9/15/2010	DLC
Hexane	NWVPH	ND	0.20	1	MG/KG	9/15/2010	DLC
>C10-C12 Aliphatics	NWEPH	**290**	5.0	1	MG/KG	9/15/2010	GAP
>C12-C16 Aliphatics	NWEPH	**1,100**	5.0	1	MG/KG	9/15/2010	GAP
>C16-C21 Aliphatics	NWEPH	**870**	5.0	1	MG/KG	9/15/2010	GAP
>C21-C34 Aliphatics	NWEPH	**1,200**	5.0	1	MG/KG	9/15/2010	GAP
>C10-C12 Aromatics	NWEPH	**61**	5.0	1	MG/KG	9/15/2010	GAP
>C12-C16 Aromatics	NWEPH	**780**	5.0	1	MG/KG	9/15/2010	GAP
>C16-C21 Aromatics	NWEPH	**800**	5.0	1	MG/KG	9/15/2010	GAP
>C21-C34 Aromatics	NWEPH	**810**	5.0	1	MG/KG	9/15/2010	GAP
Total Aliphatics	NWEPH	**3,500**	10	1	MG/KG	9/15/2010	GAP
Total Aromatics	NWEPH	**2,500**	10	1	MG/KG	9/15/2010	GAP

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc.	DATE:	9/16/2010
	14648 NE 95th Street	ALS JOB#:	1009094
	Redmond, WA 98052	DATE RECEIVED:	9/14/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-106 / Proj #2007-098-921

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

ALS SAMPLE ID	METHOD	SUR ID	% RECV
1009094-01	NWVPH	TFT - Aliphatic	75%
1009094-01	NWVPH	TFT - Aromatic	76%
1009094-01	NWVPH	TFT - Hexane	84%
1009094-01	NWEPH	C25	71%
1009094-01	NWEPH	p-Terphenyl	78%

APPROVED BY:

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CLIENT: OnSite Environmental Inc.
14648 NE 95th Street
Redmond, WA 98052

DATE: 9/16/2010
ALS JOB#: 1009094
DATE RECEIVED: 9/14/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-106 / Proj #2007-098-921

QUALITY CONTROL RESULTS

BLANK RESULTS

QC SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS
MBLK-9152010	Soil	NWVPH	C5-C6 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	>C6-C8 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	>C8-C10 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	>C8-C10 Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	Total Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	Total Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	Hexane	ND(<0.20)	MG/KG
MBLK-9152010	Soil	NWEPH	>C10-C12 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C12-C16 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C16-C21 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C21-C34 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C10-C12 Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C12-C16 Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C16-C21 Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C21-C34 Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	Total Aliphatics	ND(<10)	MG/KG
MBLK-9152010	Soil	NWEPH	Total Aromatics	ND(<10)	MG/KG

APPROVED BY:

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ALS Laboratory Group A Campbell Brothers Limited Company

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	9/16/2010
		ALS JOB#:	1009094
		DATE RECEIVED:	9/14/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-106 / Proj #2007-098-921

QUALITY CONTROL RESULTS

BLANK SPIKE/BLANK SPIKE DUPLICATE RESULTS

QC BATCH ID	MATRIX	METHOD	ANALYTE	SPIKE AMOUNT	BLANK SPIKE RECOVERY	BLANK SPIKE DUPLICATE RECOVERY	RPD
R70527	Soil	NWVPH	C5-C6 Aliphatics	100	88%	93%	6
R70527	Soil	NWVPH	>C6-C8 Aliphatics	100	101%	107%	6
R70527	Soil	NWVPH	>C8-C10 Aliphatics	100	100%	107%	7
R70527	Soil	NWVPH	>C8-C10 Aromatics	100	97%	106%	9
R70527	Soil	NWVPH	Hexane	100	89%	95%	7
R70528	Soil	NWEPH	>C10-C12 Aliphatics	100	83%	81%	2
R70528	Soil	NWEPH	>C12-C16 Aliphatics	100	87%	88%	1
R70528	Soil	NWEPH	>C16-C21 Aliphatics	100	93%	92%	1
R70528	Soil	NWEPH	>C21-C34 Aliphatics	100	82%	80%	2
R70528	Soil	NWEPH	>C10-C12 Aromatics	100	84%	80%	5
R70528	Soil	NWEPH	>C12-C16 Aromatics	100	86%	83%	4
R70528	Soil	NWEPH	>C16-C21 Aromatics	100	90%	89%	1
R70528	Soil	NWEPH	>C21-C34 Aromatics	100	95%	92%	3

APPROVED BY:

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

1009094

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

Page 1 of 1

Subcontract Laboratory: ALS
Contact Person:
Address:
Phone Number:
Date/Time:

Turnaround Request: ~~1 Day~~ 2 Day 3 Day Standard
Other:

Laboratory Reference #: 09-106
Project Manager: David Baumeister
email: dbaumeister@onsite-env.com
Project Number: 2007-098-921
Project Name:

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analysis
1	H-PEX-11-6	9/13/10	1120	S	2	VPH/EPH

CLIENT QA/QC

Signature	Company	Date	Time
Relinquished by:	OSE	9/14/10	1015
Received by:	Speedy	9/14/10	1015
Relinquished by:	Speedy	9/14/10	1111
Received by:	ALS	9/14/10	11:15am
Relinquished by:			
Received by:			

Comments/Special Instructions

EIM

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 9/13/10
PAGE: 1 of 1

09-106
24-hour TAT ASAP
DB

PROJECT NAME: Bothell Crossroads Mets #: 2007-098-921
SITE CODE:
SAMPLERS NAME: P. Pearson PHONE: 206 794-3113
SAMPLERS SIGNATURE:
HWA CONTACT: V. Allen PHONE: 425 774 0106

ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH G/BTEX	VPH/EPH	SVOCs	VOCs	RCRA-8	PCBs		HOLD						%MOISTURE	REMARKS
WCB-water-1	9/13/10	11:25	W	1	3	X	X		X	X	X	X		X							
H-PEX-9-5		9:30	S	2	4	X	X													X	
H-PEX-10-7		11:00		3	4	X	X														
H-PEX-11-6		11:20		4	8	X	X	X	X	X	X	X									
H-SP-1		11:30		5	4	X	X														
H-SP-2		11:40		6	4	X	X														
H-TP-24-3		11:45		7	4	X	X														
H-TP-24-8		11:50		8	4	X	X														
H-TP-25-2		12:20		9	4	X	X														
H-TP-25-8		12:25		10	4	X	X														
H-DUP-091310		—		11	4	X	X														

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Derek Pearson		HWA	9/13/10	13:22	
Received by:	Van	~~Speedy~~ Van	Speedy	9/13/10	13:22	
Relinquished by:	Van	Van	Speedy	9/13/10	13:45	
Received by:	M. VOUN		OSE	9/13/10	1345	

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 16, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-119

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 14, 2010.

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: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

Case Narrative

Samples were collected on September 14, 2010 and received by the laboratory on September 14, 2010. They were maintained at the laboratory at a temperature of $2^{o}C$ to $6^{o}C$.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between $-7^{o}C$ and $-20^{o}C$ until extraction or analysis.

The MTCA Method A clean-up level for Benzene is not achievable for sample H-TP-26-9 due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
Client ID:	**H-TP-26-4**					
Laboratory ID:	09-119-01					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-15-10	9-15-10	
Lube Oil	**150**	56	NWTPH-Dx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*115*	*50-150*				
Client ID:	**H-TP-26-9**					
Laboratory ID:	09-119-02					
Diesel Fuel #2	**3600**	29	NWTPH-Dx	9-15-10	9-15-10	
Lube Oil	**1800**	58	NWTPH-Dx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*106*	*50-150*				
Client ID:	**H-TP-27-5**					
Laboratory ID:	09-119-03					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-15-10	9-15-10	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*110*	*50-150*				
Client ID:	**H-TP-27-9**					
Laboratory ID:	09-119-04					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-15-10	9-15-10	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*103*	*50-150*				

Date of Report: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0915S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-15-10	9-15-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*117*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-119-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil	**134**	**80.9**				49	NA	
Surrogate:								
o-Terphenyl			*115*	*98*	*50-150*			

Date of Report: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-26-4**					
Laboratory ID:	09-119-01					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.060	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.060	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.060	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.060	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	6.0	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-26-9**					
Laboratory ID:	09-119-02					
Benzene	**ND**	0.056	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.28	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**0.53**	0.28	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**0.72**	0.28	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.28	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	28	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-27-5**					
Laboratory ID:	09-119-03					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	5.7	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-27-9**					
Laboratory ID:	09-119-04					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.068	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.068	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.068	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.068	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	6.8	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0915S1					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*84*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-119-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*97*	*94*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0915S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.974**	**0.994**	1.00	1.00		**97**	**99**	75-113	2	9	
Toluene	**0.961**	**0.981**	1.00	1.00		**96**	**98**	75-116	2	10	
Ethyl Benzene	**0.976**	**1.00**	1.00	1.00		**98**	**100**	82-117	2	10	
m,p-Xylene	**0.990**	**1.01**	1.00	1.00		**99**	**101**	81-122	2	10	
o-Xylene	**0.989**	**1.01**	1.00	1.00		**99**	**101**	83-118	2	10	
Surrogate:											
Fluorobenzene						*95*	*96*	*55-127*			

Date of Report: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-14-10

Client ID	Lab ID	% Moisture
H-TP-26-4	09-119-01	11
H-TP-26-9	09-119-02	14
H-TP-27-5	09-119-03	15
H-TP-27-9	09-119-04	20

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 9/14/10
PAGE: 1 of 1

PROJECT NAME: Bothell Crossroads #: 2007-098-921
SITE CODE:
SAMPLERS NAME: P. Pearson PHONE: 206-794-3113
SAMPLERS SIGNATURE:
HWA CONTACT: Vance Atkins PHONE: 425 774 0106

09-119
24HR TAT

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH-Gx/BTEX	% MOISTURE	REMARKS
H-TP-26-4	9/14/10	1400	S	1	4	X	X	X	
H-TP-26-9	"	1405	"	2	"	X	X		
H-TP-27-5	"	1430	"	3	"	X	X		
H-TP-27-9	"	1440	"	4	"	X	X		

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson		HWA	9/14/10	1520	
Received by:	M. Voun		OSE	9/14/10	1520	
Relinquished by:						
Received by:						

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 16, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-140

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 15, 2010.

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: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

Case Narrative

Samples were collected on September 15, 2010 and received by the laboratory on September 15, 2010. They were maintained at the laboratory at a temperature of 2^{o}C to 6^{o}C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^{o}C and -20^{o}C until extraction or analysis.

The MTCA Method A clean-up level for Benzene is not achievable for samples H-PEX-14-14 and H-PEX-16-14 due to the high moisture content of these samples.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-12-12**					
Laboratory ID:	09-140-01					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	5.7	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-PEX-13-14**					
Laboratory ID:	09-140-02					
Benzene	**ND**	0.029	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.15	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.15	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.15	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.15	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	15	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*117*	*55-127*				
Client ID:	**H-PEX-14-14**					
Laboratory ID:	09-140-03					
Benzene	**ND**	0.064	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.32	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.32	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.32	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.32	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	32	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*107*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-15-10**					
Laboratory ID:	09-140-04					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	7.2	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				
Client ID:	**H-PEX-16-14**					
Laboratory ID:	09-140-05					
Benzene	**ND**	0.053	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.27	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.27	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**0.94**	0.27	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.27	EPA 8021	9-15-10	9-15-10	
Gasoline	**30**	27	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*107*	*55-127*				
Client ID:	**H-DUP-091510**					
Laboratory ID:	09-140-06					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	5.7	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-17-7**					
Laboratory ID:	09-140-07					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	7.2	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0915S2					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-140-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*98*	*99*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0915S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.974**	**0.994**	1.00	1.00		**97**	**99**	75-113	2	9	
Toluene	**0.961**	**0.981**	1.00	1.00		**96**	**98**	75-116	2	10	
Ethyl Benzene	**0.976**	**1.00**	1.00	1.00		**98**	**100**	82-117	2	10	
m,p-Xylene	**0.990**	**1.01**	1.00	1.00		**99**	**101**	81-122	2	10	
o-Xylene	**0.989**	**1.01**	1.00	1.00		**99**	**101**	83-118	2	10	
Surrogate:											
Fluorobenzene						*95*	*96*	*55-127*			

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-12-12**					
Laboratory ID:	09-140-01					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*81*	*50-150*				
Client ID:	**H-PEX-13-14**					
Laboratory ID:	09-140-02					
Diesel Range Organics	**ND**	120	NWTPH-Dx	9-16-10	9-16-10	U1
Lube Oil	**700**	100	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**H-PEX-14-14**					
Laboratory ID:	09-140-03					
Diesel Range Organics	**ND**	91	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil	**390**	180	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**H-PEX-15-10**					
Laboratory ID:	09-140-04					
Diesel Range Organics	**ND**	33	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	65	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				
Client ID:	**H-PEX-16-14**					
Laboratory ID:	09-140-05					
Diesel Range Organics	**ND**	130	NWTPH-Dx	9-16-10	9-16-10	U1
Lube Oil	**980**	150	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*89*	*50-150*				

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-DUP-091510**					
Laboratory ID:	09-140-06					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-17-7**					
Laboratory ID:	09-140-07					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0916S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-140-07							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*97*	*99*	*50-150*			

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-15-10

Client ID	Lab ID	% Moisture
H-PEX-12-12	09-140-01	18
H-PEX-13-14	09-140-02	50
H-PEX-14-14	09-140-03	72
H-PEX-15-10	09-140-04	23
H-PEX-16-14	09-140-05	67
DUP-091510	09-140-06	11
H-PEX-17-7	09-140-07	18

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

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

Chain of Custody

Page ____ of ____

Laboratory Number: 09-140

Company: HWA
Project Number: 2007-098-921
Project Name: Bothell - Hertz
Project Manager: Atkins
Sampled by: Atkins

Turnaround Request (in working days)
(Check One)
- [ ] Same Day
- [x] 1 Day
- [ ] 2 Day
- [ ] 3 Day
- [ ] Standard (7 working days) (TPH analysis 5 working days)
- [ ] ________ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	% Moisture
1	H-Pex-12-12	9/15/10	1145		2		\	\											X
2	H-Pex-13-14		1150				\	\											X
3	H-Pex-14-14		1155				\	\											X
4	H-Pex-15-10		1200				\	\											X
5	H-Pex-16-14		1300				\	\											X
6	H-DUP-091510		1205				\	\											X
7	H-Pex-17-7		1330				\	\											X

	Signature	Company	Date	Time
Relinquished by		HWA	9/15/10	1420
Received by		OnSite Env	9/15/10	1420
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Client Copy

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Environmental Inc.
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September 17, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-154

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 16, 2010.

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: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

Case Narrative

Samples were received by the laboratory on September 16, 2010. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-18-11**					
Laboratory ID:	09-154-01					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-17-10	
Toluene	**ND**	0.069	EPA 8021	9-16-10	9-17-10	
Ethyl Benzene	**ND**	0.069	EPA 8021	9-16-10	9-17-10	
m,p-Xylene	**ND**	0.069	EPA 8021	9-16-10	9-17-10	
o-Xylene	**ND**	0.069	EPA 8021	9-16-10	9-17-10	
Gasoline	**ND**	6.9	NWTPH-Gx	9-16-10	9-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*55-127*				
Client ID:	**H-PEX-19-6**					
Laboratory ID:	09-154-02					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-17-10	
Toluene	**ND**	0.070	EPA 8021	9-16-10	9-17-10	
Ethyl Benzene	**ND**	0.070	EPA 8021	9-16-10	9-17-10	
m,p-Xylene	**ND**	0.070	EPA 8021	9-16-10	9-17-10	
o-Xylene	**ND**	0.070	EPA 8021	9-16-10	9-17-10	
Gasoline	**ND**	7.0	NWTPH-Gx	9-16-10	9-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*55-127*				
Client ID:	**H-PEX-20-6**					
Laboratory ID:	09-154-03					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-16-10	
Toluene	**ND**	0.073	EPA 8021	9-16-10	9-16-10	
Ethyl Benzene	**ND**	0.073	EPA 8021	9-16-10	9-16-10	
m,p-Xylene	**ND**	0.073	EPA 8021	9-16-10	9-16-10	
o-Xylene	**ND**	0.073	EPA 8021	9-16-10	9-16-10	
Gasoline	**ND**	7.3	NWTPH-Gx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*108*	*55-127*				

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-28-9**					
Laboratory ID:	09-154-04					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-16-10	
Toluene	**ND**	0.051	EPA 8021	9-16-10	9-16-10	
Ethyl Benzene	**ND**	0.051	EPA 8021	9-16-10	9-16-10	
m,p-Xylene	**ND**	0.051	EPA 8021	9-16-10	9-16-10	
o-Xylene	**ND**	0.051	EPA 8021	9-16-10	9-16-10	
Gasoline	**ND**	5.1	NWTPH-Gx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-29-6**					
Laboratory ID:	09-154-05					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-16-10	
Toluene	**ND**	0.046	EPA 8021	9-16-10	9-16-10	
Ethyl Benzene	**ND**	0.046	EPA 8021	9-16-10	9-16-10	
m,p-Xylene	**ND**	0.046	EPA 8021	9-16-10	9-16-10	
o-Xylene	**ND**	0.046	EPA 8021	9-16-10	9-16-10	
Gasoline	**ND**	4.6	NWTPH-Gx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*111*	*55-127*				
Client ID:	**H-Dup-091610**					
Laboratory ID:	09-154-06					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-16-10	
Toluene	**ND**	0.049	EPA 8021	9-16-10	9-16-10	
Ethyl Benzene	**ND**	0.049	EPA 8021	9-16-10	9-16-10	
m,p-Xylene	**ND**	0.049	EPA 8021	9-16-10	9-16-10	
o-Xylene	**ND**	0.049	EPA 8021	9-16-10	9-16-10	
Gasoline	**ND**	4.9	NWTPH-Gx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0916S2					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-16-10	
Toluene	**ND**	0.050	EPA 8021	9-16-10	9-16-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-16-10	9-16-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-16-10	9-16-10	
o-Xylene	**ND**	0.050	EPA 8021	9-16-10	9-16-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-154-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*107*	*107*	*55-127*			
MATRIX SPIKES											
Laboratory ID:	09-094-42										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**0.973**	**0.993**	1.00	1.00	ND	**97**	**99**	80-120	2	10	
Toluene	**0.982**	**1.00**	1.00	1.00	ND	**98**	**100**	82-120	2	11	
Ethyl Benzene	**1.02**	**1.04**	1.00	1.00	ND	**102**	**104**	83-120	2	10	
m,p-Xylene	**1.03**	**1.05**	1.00	1.00	ND	**103**	**105**	82-120	2	10	
o-Xylene	**1.02**	**1.05**	1.00	1.00	ND	**102**	**105**	80-120	3	10	
Surrogate:											
Fluorobenzene						*97*	*98*	*55-127*			

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-18-11**					
Laboratory ID:	09-154-01					
Diesel Fuel #2	**300**	31	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil	**320**	62	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				
Client ID:	**H-PEX-19-6**					
Laboratory ID:	09-154-02					
Diesel Fuel #2	**320**	29	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil	**740**	59	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				
Client ID:	**H-PEX-20-6**					
Laboratory ID:	09-154-03					
Diesel Range Organics	**ND**	32	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	64	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**H-TP-28-9**					
Laboratory ID:	09-154-04					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*89*	*50-150*				
Client ID:	**H-TP-29-6**					
Laboratory ID:	09-154-05					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				
Client ID:	**H-Dup-091610**					
Laboratory ID:	09-154-06					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0916S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-146-03							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*84*	*86*	*50-150*			

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-16-10

Client ID	Lab ID	% Moisture
H-PEX-18-11	09-154-01	20
H-PEX-19-6	09-154-02	15
H-PEX-20-6	09-154-03	21
H-TP-28-9	09-154-04	15
H-TP-29-6	09-154-05	19
H-Dup-091610	09-154-06	16

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

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Chain of Custody

Laboratory Number: 09-154

Company: Hwa
Project Number: 2007-098-921
Project Name: Bothell-Hertz
Project Manager: Atkins
Sampled by: Atkins

Turnaround Request (in working days) (Check One)

- ☐ Same Day
- ☒ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☐ Standard (7 working days) (TPH analysis 5 working days)
- ☐ ______ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664								% Moisture
1	H-PEA-18-11		1140				/	/																		X
2	H-PEA-19-6		1148				/	/																		X
3	H-PEA-20-6		1248				/	/																		X
4	H-JR-28-9		1730				/	/																		X
5	H-JR-29-6		1400				/	/																		X
6	H-Dup-091610		1500				/	/																		X

	Signature	Company	Date	Time
Relinquished by	[signature]	Hwa	9/16/10	1530
Received by	[signature]	OnSite Env	9/16/10	1530
Relinquished by				
Received by				
Relinquished by				
Received by				

Reviewed by/Date

Reviewed by/Date

Comments/Special Instructions:

Chromatograms with final report ☐

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September 21, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-821
Laboratory Reference No. 1009-169

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 17, 2010.

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: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

Case Narrative

Samples were collected on September 17, 2010 and received by the laboratory on September 17, 2010. They were maintained at the laboratory at a temperature of 2^{o}C to 6^{o}C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^{o}C and -20^{o}C until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-21-16**					
Laboratory ID:	09-169-01					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.068	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.068	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.068	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.068	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	6.8	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				
Client ID:	**H-PEX-22-12**					
Laboratory ID:	09-169-02					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.063	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.063	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.063	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.063	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	6.3	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-PEX-23-9**					
Laboratory ID:	09-169-03					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.061	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.061	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.061	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.061	EPA 8021	9-20-10	9-20-10	
Gasoline	**12**	6.1	NWTPH-Gx	9-20-10	9-20-10	O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				

Date of Report: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0920S1					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-169-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**10.1**	**9.26**	NA	NA		NA		NA	9	30	
Surrogate:											
Fluorobenzene						*103*	*99*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0920S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.936**	**0.958**	1.00	1.00		**94**	**96**	75-113	2	9	
Toluene	**0.973**	**0.993**	1.00	1.00		**97**	**99**	75-116	2	10	
Ethyl Benzene	**1.01**	**1.03**	1.00	1.00		**101**	**103**	82-117	2	10	
m,p-Xylene	**1.03**	**1.05**	1.00	1.00		**103**	**105**	81-122	2	10	
o-Xylene	**1.02**	**1.04**	1.00	1.00		**102**	**104**	83-118	2	10	
Surrogate:											
Fluorobenzene						*96*	*98*	*55-127*			

Date of Report: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-21-16**					
Laboratory ID:	09-169-01					
Diesel Range Organics	**ND**	33	NWTPH-Dx	9-18-10	9-19-10	
Lube Oil Range Organics	**ND**	65	NWTPH-Dx	9-18-10	9-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				
Client ID:	**H-PEX-22-12**					
Laboratory ID:	09-169-02					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-18-10	9-19-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	9-18-10	9-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				
Client ID:	**H-PEX-23-9**					
Laboratory ID:	09-169-03					
Diesel Range Organics	**ND**	310	NWTPH-Dx	9-18-10	9-19-10	U1
Lube Oil	**1600**	59	NWTPH-Dx	9-18-10	9-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				

Date of Report: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0918S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-18-10	9-19-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-18-10	9-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-169-02							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*108*	*111*	*50-150*			

Date of Report: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

% MOISTURE

Date Analyzed: 9-18-10

Client ID	Lab ID	% Moisture
H-PEX-21-16	09-169-01	24
H-PEX-22-12	09-169-02	16
H-PEX-23-9	09-169-03	15

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

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Chain of Custody

Laboratory Number: 09-169

Company: HWA
Project Number: 2007-098-921
Project Name: Bothell Hunt
Project Manager: Atkins
Sampled by: Atkins

Turnaround Request (in working days)
(Check One)
- ☐ Same Day
- ☒ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☐ Standard (7 working days) (TPH analysis 5 working days)
- ☐ ________ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664								% Moisture
1	H-PEX21-16	9/17/10	930	Soil	2		✓	✓																		X
2	H-PEX22-12	↓	1830	↓	2		✓	✓																		↓
3	H-PEX23-9	↓	1240	↓	2		✓	✓																		✓

	Signature	Company	Date	Time
Relinquished by	[signature]	HWA	9/17/10	1650
Received by	[signature]	OSE	9/17/10	1830
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

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September 22, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-192

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 20, 2010.

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: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

Case Narrative

Samples were collected on September 20, 2010 and received by the laboratory on September 20, 2010. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-24-6**					
Laboratory ID:	09-192-01					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.057	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.057	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.057	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.057	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	5.7	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*55-127*				
Client ID:	**H-PEX-25-6**					
Laboratory ID:	09-192-02					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.065	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.065	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.065	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	6.5	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-DUP-0920**					
Laboratory ID:	09-192-03					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.066	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.066	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.066	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.066	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	6.6	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0920S1					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-169-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**10.1**	**9.26**	NA	NA		NA		NA	9	30	
Surrogate:											
Fluorobenzene						*103*	*99*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0920S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.936**	**0.958**	1.00	1.00		**94**	**96**	75-113	2	9	
Toluene	**0.973**	**0.993**	1.00	1.00		**97**	**99**	75-116	2	10	
Ethyl Benzene	**1.01**	**1.03**	1.00	1.00		**101**	**103**	82-117	2	10	
m,p-Xylene	**1.03**	**1.05**	1.00	1.00		**103**	**105**	81-122	2	10	
o-Xylene	**1.02**	**1.04**	1.00	1.00		**102**	**104**	83-118	2	10	
Surrogate:											
Fluorobenzene						*96*	*98*	*55-127*			

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-24-6**					
Laboratory ID:	09-192-01					
Diesel Range Organics	**ND**	27	NWTPH-Dx	9-21-10	9-21-10	
Lube Oil	**58**	55	NWTPH-Dx	9-21-10	9-21-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*90*	*50-150*				
Client ID:	**H-PEX-25-6**					
Laboratory ID:	09-192-02					
Diesel Range Organics	**41**	28	NWTPH-Dx	9-21-10	9-21-10	
Lube Oil	**220**	56	NWTPH-Dx	9-21-10	9-21-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**H-DUP-0920**					
Laboratory ID:	09-192-03					
Diesel Range Organics	**ND**	34	NWTPH-Dx	9-21-10	9-21-10	U1
Lube Oil	**270**	57	NWTPH-Dx	9-21-10	9-21-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0921S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-21-10	9-21-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-21-10	9-21-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*122*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-192-03							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	U1
Lube Oil	**240**	**225**				6	NA	
Surrogate:								
o-Terphenyl			*97*	*102*	*50-150*			

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-192-01					
Client ID:	**H-PEX-24-6**					
Arsenic	**ND**	11	6010B	9-21-10	9-21-10	
Barium	**49**	2.7	6010B	9-21-10	9-21-10	
Cadmium	**ND**	0.55	6010B	9-21-10	9-21-10	
Chromium	**25**	0.55	6010B	9-21-10	9-21-10	
Lead	**28**	5.5	6010B	9-21-10	9-21-10	
Mercury	**ND**	0.27	7471A	9-21-10	9-21-10	
Selenium	**ND**	11	6010B	9-21-10	9-21-10	
Silver	**ND**	0.55	6010B	9-21-10	9-21-10	
Lab ID:	09-192-02					
Client ID:	**H-PEX-25-6**					
Arsenic	**ND**	11	6010B	9-21-10	9-21-10	
Barium	**49**	2.8	6010B	9-21-10	9-21-10	
Cadmium	**ND**	0.56	6010B	9-21-10	9-21-10	
Chromium	**23**	0.56	6010B	9-21-10	9-21-10	
Lead	**22**	5.6	6010B	9-21-10	9-21-10	
Mercury	**ND**	0.28	7471A	9-21-10	9-21-10	
Selenium	**ND**	11	6010B	9-21-10	9-21-10	
Silver	**ND**	0.56	6010B	9-21-10	9-21-10	

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-192-03					
Client ID:	**H-DUP-0920**					
Arsenic	**ND**	11	6010B	9-21-10	9-21-10	
Barium	**51**	2.8	6010B	9-21-10	9-21-10	
Cadmium	**ND**	0.57	6010B	9-21-10	9-21-10	
Chromium	**29**	0.57	6010B	9-21-10	9-21-10	
Lead	**21**	5.7	6010B	9-21-10	9-21-10	
Mercury	**ND**	0.28	7471A	9-21-10	9-21-10	
Selenium	**ND**	11	6010B	9-21-10	9-21-10	
Silver	**ND**	0.57	6010B	9-21-10	9-21-10	

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 9-21-10
Date Analyzed: 9-21-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0921S1&MB0921S4

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-21-10
Date Analyzed: 9-21-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-192-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**45.1**	**43.3**	4	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**26.0**	**21.5**	19	0.50	
Lead	**18.3**	**17.0**	7	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-21-10
Date Analyzed: 9-21-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-192-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**96.6**	97	**98.9**	99	2	
Barium	100	**142**	97	**148**	103	4	
Cadmium	50	**46.1**	92	**47.9**	96	4	
Chromium	100	**114**	88	**117**	91	3	
Lead	250	**255**	95	**259**	96	2	
Mercury	0.50	**0.379**	76	**0.416**	83	9	
Selenium	100	**97.7**	98	**99.4**	99	2	
Silver	25	**22.6**	90	**23.3**	93	3	

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-20-10

Client ID	Lab ID	% Moisture
H-PEX-24-6	09-192-01	9
H-PEX-25-6	09-192-02	10
H-DUP-0920	09-192-03	12

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

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

Chain of Custody

Laboratory Number: 09-192

Company: HWA
Project Number: 2007-098-921
Project Name: Bothell Crossroads
Project Manager: Vance Atkins
Sampled by: Pete Pearson

Turnaround Request (in working days)
(Check One)
- [ ] Same Day
- [x] 1 Day
- [ ] 2 Days
- [ ] 3 Days
- [ ] Standard (7 Days) (TPH analysis 5 Days)
- [ ] ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	% Moisture
1	H-PEX-24-6	9/20/10	13:30	S			X		X									X			X
2	H-PEX-25-6	↓	14:00	↓			X		X									X			X
3	H-DUP-0920	↓	–	↓			X		X									X			X

	Signature	Company	Date	Time
Relinquished	[signature]	HWA	9/20/10	1330
Received	[signature]	OnSite Env	9/20/10	1530
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

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

September 23, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-226

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 22, 2010.

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: September 23, 2010
Samples Submitted: September 22, 2010
Laboratory Reference: 1009-226
Project: 2007-098

Case Narrative

Samples were collected on September 22, 2010 and received by the laboratory on September 22, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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: September 23, 2010
Samples Submitted: September 22, 2010
Laboratory Reference: 1009-226
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-26-8**					
Laboratory ID:	09-226-01					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-23-10	9-23-10	
Lube Oil	**81**	60	NWTPH-Dx	9-23-10	9-23-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				

Date of Report: September 23, 2010
Samples Submitted: September 22, 2010
Laboratory Reference: 1009-226
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0923S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-23-10	9-23-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-23-10	9-23-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*121*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-226-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil	**67.9**	**64.2**				6	NA	
Surrogate:								
o-Terphenyl			*109*	*101*	*50-150*			

Date of Report: September 23, 2010
Samples Submitted: September 22, 2010
Laboratory Reference: 1009-226
Project: 2007-098

% MOISTURE

Date Analyzed: 9-22-10

Client ID	Lab ID	% Moisture
H-PEX-26-8	09-226-01	16

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

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

October 7, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1010-034

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on October 5, 2010.

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, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

Case Narrative

Samples were collected on October 5, 2010 and received by the laboratory on October 5, 2010. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-1**					
Laboratory ID:	10-034-01					
Diesel Range Organics	**ND**	28	NWTPH-Dx	10-6-10	10-6-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				
Client ID:	**H-SP-2**					
Laboratory ID:	10-034-02					
Diesel Range Organics	**55**	31	NWTPH-Dx	10-6-10	10-6-10	
Lube Oil	**250**	61	NWTPH-Dx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*107*	*50-150*				
Client ID:	**H-SP-3**					
Laboratory ID:	10-034-03					
Diesel Range Organics	**ND**	28	NWTPH-Dx	10-6-10	10-6-10	
Lube Oil	**250**	56	NWTPH-Dx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*107*	*50-150*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
METHOD BLANK						
Laboratory ID:	MB1006S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	10-6-10	10-6-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				

Analyte	**Result**		**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
DUPLICATE								
Laboratory ID:	10-033-03							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*93*	*106*	*50-150*			

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-1**					
Laboratory ID:	10-034-01					
Benzene	**ND**	0.020	EPA 8021	10-6-10	10-6-10	
Toluene	**ND**	0.055	EPA 8021	10-6-10	10-6-10	
Ethyl Benzene	**ND**	0.055	EPA 8021	10-6-10	10-6-10	
m,p-Xylene	**ND**	0.055	EPA 8021	10-6-10	10-6-10	
o-Xylene	**ND**	0.055	EPA 8021	10-6-10	10-6-10	
Gasoline	**ND**	5.5	NWTPH-Gx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				
Client ID:	**H-SP-2**					
Laboratory ID:	10-034-02					
Benzene	**ND**	0.020	EPA 8021	10-6-10	10-6-10	
Toluene	**ND**	0.072	EPA 8021	10-6-10	10-6-10	
Ethyl Benzene	**ND**	0.072	EPA 8021	10-6-10	10-6-10	
m,p-Xylene	**ND**	0.072	EPA 8021	10-6-10	10-6-10	
o-Xylene	**ND**	0.072	EPA 8021	10-6-10	10-6-10	
Gasoline	**ND**	7.2	NWTPH-Gx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*55-127*				
Client ID:	**H-SP-3**					
Laboratory ID:	10-034-03					
Benzene	**ND**	0.020	EPA 8021	10-6-10	10-6-10	
Toluene	**ND**	0.051	EPA 8021	10-6-10	10-6-10	
Ethyl Benzene	**ND**	0.051	EPA 8021	10-6-10	10-6-10	
m,p-Xylene	**ND**	0.051	EPA 8021	10-6-10	10-6-10	
o-Xylene	**ND**	0.051	EPA 8021	10-6-10	10-6-10	
Gasoline	**ND**	5.1	NWTPH-Gx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*55-127*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1006S1					
Benzene	**ND**	0.020	EPA 8021	10-6-10	10-6-10	
Toluene	**ND**	0.050	EPA 8021	10-6-10	10-6-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	10-6-10	10-6-10	
m,p-Xylene	**ND**	0.050	EPA 8021	10-6-10	10-6-10	
o-Xylene	**ND**	0.050	EPA 8021	10-6-10	10-6-10	
Gasoline	**ND**	5.0	NWTPH-Gx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-033-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*88*	*91*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB1006S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.945**	**0.969**	1.00	1.00		**95**	**97**	75-113	3	9	
Toluene	**0.932**	**0.971**	1.00	1.00		**93**	**97**	75-116	4	10	
Ethyl Benzene	**0.946**	**0.972**	1.00	1.00		**95**	**97**	82-117	3	10	
m,p-Xylene	**0.953**	**0.979**	1.00	1.00		**95**	**98**	81-122	3	10	
o-Xylene	**0.955**	**0.973**	1.00	1.00		**96**	**97**	83-118	2	10	
Surrogate:											
Fluorobenzene						*91*	*92*	*55-127*			

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-1**					
Laboratory ID:	10-034-01					
Naphthalene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
2-Methylnaphthalene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
1-Methylnaphthalene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthylene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthene	**0.045**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Fluorene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Phenanthrene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Anthracene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Fluoranthene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Pyrene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]anthracene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Chrysene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[b]fluoranthene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[k]fluoranthene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]pyrene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Dibenz[a,h]anthracene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[g,h,i]perylene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*92*	*45 - 101*				
Pyrene-d10	*101*	*52 - 118*				
Terphenyl-d14	*97*	*41 - 106*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-2**					
Laboratory ID:	10-034-02					
Naphthalene	**0.33**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
2-Methylnaphthalene	**0.13**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
1-Methylnaphthalene	**0.25**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthylene	**0.010**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthene	**0.75**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Fluorene	**0.66**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Phenanthrene	**1.5**	0.041	EPA 8270/SIM	10-5-10	10-6-10	
Anthracene	**0.22**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Fluoranthene	**0.95**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Pyrene	**0.56**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]anthracene	**0.16**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Chrysene	**0.16**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[b]fluoranthene	**0.052**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[k]fluoranthene	**0.043**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]pyrene	**0.051**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Indeno(1,2,3-c,d)pyrene	**0.020**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Dibenz[a,h]anthracene	**0.0083**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[g,h,i]perylene	**0.023**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*90*	*45 - 101*				
Pyrene-d10	*95*	*52 - 118*				
Terphenyl-d14	*95*	*41 - 106*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-3**					
Laboratory ID:	10-034-03					
Naphthalene	**0.0081**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
2-Methylnaphthalene	**ND**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
1-Methylnaphthalene	**0.029**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthylene	**ND**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthene	**0.29**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Fluorene	**0.17**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Phenanthrene	**0.18**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Anthracene	**0.015**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Fluoranthene	**0.094**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Pyrene	**0.057**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]anthracene	**0.020**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Chrysene	**0.029**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[b]fluoranthene	**0.014**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[k]fluoranthene	**0.0091**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]pyrene	**0.014**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Indeno(1,2,3-c,d)pyrene	**0.011**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Dibenz[a,h]anthracene	**ND**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[g,h,i]perylene	**0.018**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*90*	*45 - 101*				
Pyrene-d10	*95*	*52 - 118*				
Terphenyl-d14	*100*	*41 - 106*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
Laboratory ID:	MB1005S1					
Naphthalene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthylene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Fluorene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Phenanthrene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Anthracene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Fluoranthene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Pyrene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Chrysene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[k]fluoranthene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*81*	*45 - 101*				
Pyrene-d10	*91*	*52 - 118*				
Terphenyl-d14	*100*	*41 - 106*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	10-023-05										
	MS	MSD	MS	MSD		MS	MSD				
Naphthalene	**0.0572**	**0.0627**	0.0833	0.0833	ND	69	75	31 - 115	9	19	
Acenaphthylene	**0.0665**	**0.0743**	0.0833	0.0833	ND	80	89	40 - 134	11	22	
Acenaphthene	**0.0680**	**0.0737**	0.0833	0.0833	ND	82	88	48 - 118	8	17	
Fluorene	**0.0690**	**0.0751**	0.0833	0.0833	ND	83	90	54 - 122	8	16	
Phenanthrene	**0.0685**	**0.0727**	0.0833	0.0833	ND	82	87	46 - 123	6	19	
Anthracene	**0.0674**	**0.0733**	0.0833	0.0833	ND	81	88	53 - 123	8	27	
Fluoranthene	**0.0708**	**0.0789**	0.0833	0.0833	ND	85	95	47 - 132	11	26	
Pyrene	**0.0710**	**0.0773**	0.0833	0.0833	ND	85	93	41 - 137	8	25	
Benzo[a]anthracene	**0.0775**	**0.0819**	0.0833	0.0833	ND	93	98	43 - 132	6	26	
Chrysene	**0.0733**	**0.0772**	0.0833	0.0833	ND	88	93	46 - 126	5	24	
Benzo[b]fluoranthene	**0.0649**	**0.0695**	0.0833	0.0833	ND	78	83	44 - 134	7	24	
Benzo[k]fluoranthene	**0.0646**	**0.0713**	0.0833	0.0833	ND	78	86	45 - 132	10	20	
Benzo[a]pyrene	**0.0702**	**0.0765**	0.0833	0.0833	ND	84	92	36 - 136	9	23	
Indeno(1,2,3-c,d)pyrene	**0.0866**	**0.0880**	0.0833	0.0833	ND	104	106	40 - 136	2	16	
Dibenz[a,h]anthracene	**0.0866**	**0.0875**	0.0833	0.0833	ND	104	105	40 - 142	1	13	
Benzo[g,h,i]perylene	**0.0773**	**0.0782**	0.0833	0.0833	ND	93	94	37 - 137	1	18	
Surrogate:											
2-Fluorobiphenyl						*76*	*82*	*45 - 101*			
Pyrene-d10						*86*	*94*	*52 - 118*			
Terphenyl-d14						*87*	*89*	*41 - 106*			

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-034-01					
Client ID:	**H-SP-1**					
Arsenic	**ND**	11	6010B	10-5-10	10-5-10	
Barium	**37**	2.8	6010B	10-5-10	10-5-10	
Cadmium	**ND**	0.56	6010B	10-5-10	10-5-10	
Chromium	**21**	0.56	6010B	10-5-10	10-5-10	
Lead	**8.2**	5.6	6010B	10-5-10	10-5-10	
Mercury	**ND**	0.28	7471A	10-6-10	10-6-10	
Selenium	**ND**	11	6010B	10-5-10	10-5-10	
Silver	**ND**	0.56	6010B	10-5-10	10-5-10	
Lab ID:	10-034-02					
Client ID:	**H-SP-2**					
Arsenic	**ND**	12	6010B	10-5-10	10-5-10	
Barium	**48**	3.1	6010B	10-5-10	10-5-10	
Cadmium	**ND**	0.61	6010B	10-5-10	10-5-10	
Chromium	**25**	0.61	6010B	10-5-10	10-5-10	
Lead	**31**	6.1	6010B	10-5-10	10-5-10	
Mercury	**ND**	0.31	7471A	10-6-10	10-6-10	
Selenium	**ND**	12	6010B	10-5-10	10-5-10	
Silver	**ND**	0.61	6010B	10-5-10	10-5-10	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-034-03					
Client ID:	**H-SP-3**					
Arsenic	**ND**	11	6010B	10-5-10	10-5-10	
Barium	**34**	2.8	6010B	10-5-10	10-5-10	
Cadmium	**ND**	0.56	6010B	10-5-10	10-5-10	
Chromium	**17**	0.56	6010B	10-5-10	10-5-10	
Lead	**19**	5.6	6010B	10-5-10	10-5-10	
Mercury	**ND**	0.28	7471A	10-6-10	10-6-10	
Selenium	**ND**	11	6010B	10-5-10	10-5-10	
Silver	**ND**	0.56	6010B	10-5-10	10-5-10	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-5-10
Date Analyzed:	10-5-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1005S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-6-10
Date Analyzed:	10-6-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1006S1

Analyte	Method	Result	PQL
Mercury	7471A	**ND**	0.25

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 10-5-10
Date Analyzed: 10-5-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-013-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**28.5**	**26.6**	7	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**26.4**	**25.8**	2	0.50	
Lead	**ND**	**ND**	NA	5.0	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 10-6-10
Date Analyzed: 10-6-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-013-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 10-5-10
Date Analyzed: 10-5-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-013-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**95.3**	95	**99.1**	99	4	
Barium	100	**114**	86	**124**	95	8	
Cadmium	50	**43.3**	87	**45.4**	91	5	
Chromium	100	**118**	91	**124**	98	5	
Lead	250	**213**	85	**225**	90	5	
Selenium	100	**91.0**	91	**96.5**	96	6	
Silver	25	**21.4**	85	**22.3**	89	4	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 7471A
MS/MSD QUALITY CONTROL

Date Extracted: 10-6-10
Date Analyzed: 10-6-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-013-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	0.50	**0.511**	102	**0.504**	101	1	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

% MOISTURE

Date Analyzed: 10-5-10

Client ID	Lab ID	% Moisture
H-SP-1	10-034-01	11
H-SP-2	10-034-02	18
H-SP-3	10-034-03	10

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

10-034

DATE: 10/5/10
PAGE: ___ of ___

PROJECT NAME: Bothell #: 2003-098-921
SITE CODE: Hertz
SAMPLERS NAME: Atkins PHONE:
SAMPLERS SIGNATURE: Oa Ok
HWA CONTACT: Atkins PHONE:

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH-G/BTEX	PAHs -	METALS-RCRA		% Moisture	REMARKS
H-SP-1	10/5/10	1100	Soil	1	3	/	/	/	/		X	
H-SP-2	↓	1105	↓	2	3	/	/	/	/		X	
H-SP-3	↓	1110	↓	3	3	/	/	/	/		X	

24-Hour
TAT

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Nate Larson	[signature]	HWA	10/5/10	15:30	
Received by:	Blair Goodrow	[signature]	OnSite Env	10/5/10	1530	
Relinquished by:						
Received by:						

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

October 12, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1010-095

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on October 11, 2010.

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 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

Case Narrative

Samples were collected on October 11, 2010 and received by the laboratory on October 11, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZ-SP-101110-1**					
Laboratory ID:	10-095-01					
Diesel Range Organics	**ND**	29	NWTPH-Dx	10-11-10	10-11-10	
Lube Oil Range Organics	**ND**	57	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				
Client ID:	**HZ-SP-101110-2**					
Laboratory ID:	10-095-02					
Diesel Range Organics	**ND**	29	NWTPH-Dx	10-11-10	10-11-10	
Lube Oil	**100**	59	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*106*	*50-150*				
Client ID:	**HZ-SP-101110-3**					
Laboratory ID:	10-095-03					
Diesel Range Organics	**ND**	33	NWTPH-Dx	10-11-10	10-11-10	U1
Lube Oil	**230**	58	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*116*	*50-150*				
Client ID:	**HZ-SP-101110-4**					
Laboratory ID:	10-095-04					
Diesel Range Organics	**ND**	52	NWTPH-Dx	10-11-10	10-11-10	U1
Lube Oil	**320**	62	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				
Client ID:	**HZ-SP-101110-5**					
Laboratory ID:	10-095-05					
Diesel Range Organics	**ND**	31	NWTPH-Dx	10-11-10	10-11-10	
Lube Oil	**220**	62	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*118*	*50-150*				

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
METHOD BLANK						
Laboratory ID:	MB1011S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	10-11-10	10-11-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*128*	*50-150*				

Analyte	**Result**		**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
DUPLICATE								
Laboratory ID:	10-095-02							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil	**85.2**	**68.6**				22	NA	
Surrogate:								
o-Terphenyl			*106*	*106*	*50-150*			

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-095-01					
Client ID:	**HZ-SP-101110-1**					
Arsenic	**ND**	11	6010B	10-11-10	10-11-10	
Cadmium	**ND**	0.57	6010B	10-11-10	10-11-10	
Chromium	**31**	0.57	6010B	10-11-10	10-11-10	
Lead	**ND**	5.7	6010B	10-11-10	10-11-10	
Mercury	**ND**	0.29	7471A	10-11-10	10-11-10	
Lab ID:	10-095-02					
Client ID:	**HZ-SP-101110-2**					
Arsenic	**ND**	12	6010B	10-11-10	10-11-10	
Cadmium	**ND**	0.59	6010B	10-11-10	10-11-10	
Chromium	**30**	0.59	6010B	10-11-10	10-11-10	
Lead	**13**	5.9	6010B	10-11-10	10-11-10	
Mercury	**ND**	0.29	7471A	10-11-10	10-11-10	
Lab ID:	10-095-03					
Client ID:	**HZ-SP-101110-3**					
Arsenic	**ND**	12	6010B	10-11-10	10-11-10	
Cadmium	**ND**	0.58	6010B	10-11-10	10-11-10	
Chromium	**24**	0.58	6010B	10-11-10	10-11-10	
Lead	**14**	5.8	6010B	10-11-10	10-11-10	
Mercury	**ND**	0.29	7471A	10-11-10	10-11-10	

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-095-04					
Client ID:	**HZ-SP-101110-4**					
Arsenic	**ND**	12	6010B	10-11-10	10-11-10	
Cadmium	**ND**	0.62	6010B	10-11-10	10-11-10	
Chromium	**30**	0.62	6010B	10-11-10	10-11-10	
Lead	**91**	6.2	6010B	10-11-10	10-11-10	
Mercury	**ND**	0.31	7471A	10-11-10	10-11-10	

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-095-05					
Client ID:	**HZ-SP-101110-5**					
Arsenic	**ND**	12	6010B	10-11-10	10-11-10	
Cadmium	**ND**	0.62	6010B	10-11-10	10-11-10	
Chromium	**30**	0.62	6010B	10-11-10	10-11-10	
Lead	**28**	6.2	6010B	10-11-10	10-11-10	
Mercury	**ND**	0.31	7471A	10-11-10	10-11-10	

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-11-10
Date Analyzed:	10-11-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1011S1&MB1011S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 10-11-10
Date Analyzed: 10-11-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-077-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**9.15**	**9.05**	1	0.50	
Lead	**9.45**	**8.45**	11	5.0	
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 10-11-10
Date Analyzed: 10-11-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-077-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**97.8**	98	**99.6**	100	2	
Cadmium	50	**45.2**	90	**45.7**	91	1	
Chromium	100	**108**	99	**108**	99	0	
Lead	250	**228**	87	**230**	88	1	
Mercury	0.50	**0.522**	104	**0.506**	101	3	

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

% MOISTURE

Date Analyzed: 10-11-10

Client ID	Lab ID	% Moisture
HZ-SP-101110-1	10-095-01	13
HZ-SP-101110-2	10-095-02	15
HZ-SP-101110-3	10-095-03	13
HZ-SP-101110-4	10-095-04	19
HZ-SP-101110-5	10-095-05	19

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

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

Chain of Custody

Page ______ of ______

Laboratory Number: 10-095

Company: HWA

Project Number: 2007-098-~~920~~ 03 921

Project Name: Bothell - Hertz

Project Manager: Atkins

Sampled by: Atkins

Turnaround Request (in working days)

(Check One)

- [ ] Same Day
- [ ] 1 Day
- [x] 2 Day
- [ ] 3 Day
- [ ] Standard (7 working days) (TPH analysis 5 working days)
- [ ] ______ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total ~~RCRA~~ Metals ~~(8)~~ MTCA	TCLP Metals	HEM by 1664							% Moisture
1	HZ-SP-101110-1	10/11/10	1250	S	2			\								\									X
2	HZ-SP-101110-2		1255					\								\									
3	HZ-SP-101110-3		1300					\								\									
4	HZ-SP-101110-4		1305					\								\									
5	HZ-SP-101110-5		1310					\								\									

	Signature	Company	Date	Time
Relinquished by	[signature]	HWA	10/11/10	1350
Received by	[signature]	OSE	10/11/10	1350
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

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APPENDIX C

DATA QUALITY ASSESSMENT

INTRODUCTION

This appendix presents a data quality assessment for the Bothell Former Hertz Facility site independent action soil cleanup. Quality is the degree to which a set of inherent characteristics fulfills project requirements. Quality assurance (QA) is the processes of auditing the project's quality requirements and the results from quality control measurements to ensure appropriate quality standards are used. Quality control (QC) is the process of monitoring and recording results of executing the project quality activities to assess performance and to recommend necessary changes (PMI, 2008).

The principal ingredients that make up suitable data quality or "good data" are (Flory, 2000):

1. **Clearly stated measurement purposes:** Must include the chemical compounds to be analyzed; the sample matrices to be submitted; the intended use of the data, and the associated detection limits, accuracy, and precision required.
2. **Data management:** Refers to sample tracking (chain-of-custody) and associated activities that guarantee the laboratory results are associated with the correct sample.
3. **Sampling:** Includes a technically valid sampling plan that is correctly implemented to properly collect, identify, preserve, store and prepare samples for analysis.
4. **Analytical method:** Must have sufficient selectivity, detection limits, accuracy and precision to be technically valid.
5. **Quality control samples:** Must include sufficient quality control samples to support the necessary statements of accuracy, precision, and detection limits. These include blanks (field, trip, laboratory, reagent), duplicate measurements, matrix spikes, laboratory control samples, and performance evaluation samples.
6. **Quality control limits:** Includes clearly stated acceptable limits for quality control samples such as allowable blank contamination; precision of duplicate samples; and accuracy of matrix spikes, performance evaluation samples and laboratory control samples. Calibration frequency and linearity may also be included.
7. **Documentation:** Must be comprehensive enough to allow a third party evaluator to independently verify the suitability of the sample data.

The process of verifying the suitability of the data is termed data quality assessment. Data quality assessment is a determination of the suitability of the data for the intended use. It includes the four major tasks of (a) data management, (b) data validation, (c) data qualification/review (flagging), and (d) the determination of suitability. Data management includes determining the completeness of the data documentation. Environmental data validation primarily entails checking to see if the quality control requirements of the method have been met. Data qualification is the application of flags to the data that reflect the failures found during validation. The final determination of suitability must consider the technical validity of the data as well as the data qualifiers and be consistent with the intended use of the analytical data (Flory, 2000).

There were two components to the data quality program for the Bothell Former Hertz Facility site cleanup: field and laboratory. Both components followed Washington Department of Ecology guidance (Ecology, 2004). Also, the *Interim Action Work Plan* (HWA, 2010) specified the sample collection procedures and analysis, and defined the data quality objectives (DQOs) and criteria for the independent action cleanup.

FIELD QC METHODS

Assessment of field QC methods and data revealed no deviations from the *Interim Action Work Plan* (HWA, 2010). Field QC included proper documentation of field activities in a field log book and daily field reports that provided a daily record of significant events, observations, deviations from the sampling plan and measurements collected during the field activities. Field personnel followed standard QC procedures to collect and transport samples including collection of duplicate samples, decontamination of reusable sampling equipment between samples, labeling samples, and following chain of custody procedures to transport samples to the laboratory. Field personnel photographically documented significant events and observations during the independent action cleanup.

LABORATORY QC METHODS

OnSite Environmental Inc. of Redmond, Washington performed nearly all sample analyses. OnSite Environmental is accredited by the Washington Department of Ecology (Accreditation #C591-10) for all analyses performed for the independent action cleanup except for NWEPH analysis. Therefore, OnSite Environmental subcontracted NWEPH and some NWVPH analyses to ALS Environmental in Everett, Washington. ALS Environmental is accredited by the Department of Ecology for NWEPH and NWVPH analyses (Ecology Accreditation # C1336).

Specific laboratory QC consisted of the following (OnSite Environmental, 2008; Ecology, 2004):

- **Sample Batching.** A batch consisted of up to twenty samples in addition to any quality control samples that were required. Samples in a batch may have been collected at different sites by different clients of OnSite Environmental. The samples were extracted, digested, and prepared for analysis within a twelve-hour window. If more than twenty samples were to be extracted, a second batch of quality control samples was generated.

- **Method Blanks.** Method blanks were used to ensure that the extraction and analysis procedures did not contribute contamination to the analysis. Method blanks were prepared and analyzed in the laboratory to document the response of the measurement system to a sample containing effectively none of the analyte of interest. A positive blank response can be due to a variety of factors related to the procedure, equipment, or reagents. Unusually high blank responses indicate laboratory contamination. The method blank response becomes very important when the analyte concentration is near the detection limit.
- **Spike Blanks.** A spike blank is a laboratory QC sample prepared by adding a known amount of the target analyte(s) to a laboratory blank sample. This is a measure of the accuracy of the test procedure. If an analyte for any spike blank was outside of quality control criteria, then that particular analyte was evaluated and actions were taken to bring the analysis into control.
- **Duplicate Samples.** Duplicate samples were used to ensure that sample results could be reproduced in a precise manner.
- **Surrogates.** Surrogate compounds are compounds similar to the analytes of interest that were added to the sample at a known concentration in order to track the accuracy of the sample extraction and analysis. Some methods for organics analyses specify that all samples, including QC samples, be spiked with surrogate compounds at the start of the procedure. Because surrogate compounds are not expected to be present in the samples, they give analytical responses that can be distinguished from those of the analytes of interest. Surrogate percent recoveries (defined below) provided an estimate of accuracy for the entire analytical procedure. The standard deviations of surrogate results provided an estimate of analytical precision, while the mean percent recoveries indicated whether or not the sample results were biased.
- **Spiked Blank Duplicates.** These were a second laboratory spiked blank laboratory QC sample. The difference in the laboratory's recovery of the spiked blank and spiked blank duplicate was a measure of analytical precision, and was reported as relative percent difference (RPD) as defined below.
- **Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples.** Matrix spike samples were used to ensure the analytes of interest could be accurately recovered from the sample matrix. The matrix spike duplicate was also used to ensure the analytes could be repeatedly recovered in an accurate and precise manner.

Analytical Accuracy and Precision

Routine laboratory QC analyses provided information about accuracy and precision. The types of quality control samples differed depending on the method specifications. Analytical accuracy was assessed through the surrogate, spike blank, and matrix spike analysis as specified by the analytical method. Accuracy was expressed as percent recovery:

$$\text{Percent Recovery (\%R)} = 100*(X_s/C_t)$$

Where X_s was the observed concentration of the analyte, and C_t was the true concentration of the analyte. The acceptable range for accuracy was determined by the method or by control charting of actual laboratory samples. A control chart is a graphical representation of the precision of QC results showing whether the measurement system is in statistical control. The laboratory analyst was responsible for verifying that the surrogate, spike blank and MS/MSD percent recoveries meet the quality control limits.

Analytical precision was assessed through analysis of the sample duplicates or matrix spike duplicates as specified by the analytical method. Precision was expressed as relative percent difference:

$$\text{Relative Percent Difference (RPD)} = 100*(X_1-X_2)/((X_1+X_2)/2)$$

Where: X_1 was the concentration in the first duplicate sample and X_2 was the concentration in the second duplicate sample. The acceptable range for precision was determined by the method or by control charting of actual laboratory samples. The analyst was responsible for verifying that the duplicate or MS/MSD recoveries meet the quality control limits.

Practical Quantitation Limits and Method Detection Limits

OnSite Environmental reported all analytical results for the independent action cleanup as practical quantitation limits (PQLs). PQLs are the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. OnSite Environmental's routine PQLs for all independent action analyses were lower than regulatory cleanup levels thus ensuring confirmation of successful cleanup. OnSite Environmental conducts studies annually for all accredited test methods to determine its PQLs.

Method detection limits (MDLs) are the lowest concentration that can be detected by an instrument with correction for the effects of sample matrix and method-specific parameters such as sample preparation. OnSite Environmental conducts studies annually for all accredited test methods to determine its method detection limits. MDLs are defined at 40 CFR Part 136 as three times the standard deviation of replicate spiked analyses. An analytical PQL is generally 5-10 times the MDL. MDLs are only a measure of the ability of the test procedure to generate a positive response and have nothing to do with the accuracy of that response (Quality Assurance Associates, 2010).

DATA VERIFICATION

Ninety four soil samples were analyzed for this independent action cleanup. The analyses performed included:

- NWTPH-Gx - Gasoline range petroleum hydrocarbons using Ecology Method NWTPH-Gx
- NWTPH-Dx - Diesel and oil range petroleum hydrocarbons using Ecology Method NWTPH-Dx
- BTEX - Benzene, toluene, ethylbenzene, and xylenes using EPA Method 8021
- RCRA 8 Metals - Arsenic, barium, cadmium, chromium, lead, selenium, silver using EPA Method 6010B and 6020; and mercury using EPA Method 7471A
- PAHs - Polynuclear aromatic hydrocarbons by EPA Method 8270D/SIM
- VPH/EPH - Ecology methods VPH and EPH for volatile and extractable petroleum hydrocarbon fractions
- PCBs - Polychlorinated biphenyls by EPA Method 8082

Analytical data are summarized in Table 2 of the cleanup report. Verification of the data included checking holding times, checking that the laboratory performed the analyses requested on the chain of custody form, and that the laboratory's QC results were within established control limits. Table C-1 below summarizes the data verification results. Holding times, surrogate percent recoveries, method blank analytical results, lab duplicate RPDs, matrix spike/matrix spike duplicate percent recoveries and RPDs, and spiked blank/spiked blank duplicate percent recoveries and RPDs were all within control limits with the following exceptions:

- Twenty nine soil sample analyses had elevated PQLs due to interferences present in the sample matrix, high moisture content, or necessary dilution of the sample. Of these 29 soil samples, 17 soil samples had PQLs that were less than their respective Method A soil cleanup levels. Twelve samples had a PQL for benzene greater than the MTCA Method A soil cleanup level of 0.03 mg/kg. The PQLs for compounds other than benzene in these 12 samples were less than their respective Method A cleanup level. Nine of the 12 samples with a benzene PQL greater than 0.03 mg/kg represented soils that were subsequently excavated and removed from the site during the cleanup. Three of the 12 samples with an elevated benzene PQL were independent action cleanup confirmation samples in which a high moisture content in the sample caused the elevated PQL:

H-PEX-5-8	benzene <0.31 mg/kg
H-PEX-14-4	benzene <0.32 mg/kg
H-PEX-16-14	benzene <0.053 mg/kg

It is HWA's opinion that the slightly elevated benzene PQLs for these three confirmation samples does not compromise the conclusion that the site was successfully cleaned up because benzene was not detected at concentrations greater than 0.03 mg/kg in any soil samples collected during the pre-cleanup site investigations or in any of the other 36 confirmation soil samples collected during the independent action cleanup; i.e., benzene is not a chemical of potential concern at the site.

- **Samples H-PEX-1-6, H-PEX-2-6, and H-PEX-3-4.** For the Method 6010B analysis (metals) the lab's duplicate QC sample RPD for lead was outside control limits (a 'C' Flag) due to high result variability when the analyte concentrations were less than five times the PQL. The duplicate QC sample for this batch had a very low lead concentration. Poor duplicate RPDs for any analytes at low concentrations (i.e., near the PQL) are not uncommon, and are not considered a major QC issue. The areas represented by these 3 samples were subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Sample H-PEX-11-6.** The spiked compound recovery was outside of the control limits for several PAHs in the 8270D MS/MSD QC analysis (an 'I' Flag). This QC issue arose because the QC sample for the batch had elevated concentrations of these PAHs; the QC sample was from the site of another client of OnSite Environmental. For all other PAHs the MS/MSD percent recoveries were within control limits for these samples, as were the method blank and spike blank/spike blank duplicate QC checks. The area represented by this sample was subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Sample H-PEX-11-6.** The lab's duplicate QC sample RPD for chromium was outside control limits due to sample inhomogeneity (a 'K' Flag); the sample was re-extracted and re-analyzed with similar results. The duplicate QC sample for this batch was from the site of another client of OnSite Environmental and had a fairly low chromium concentration. Poor duplicate RPDs for any analytes at low concentrations (i.e., near the PQL) are not uncommon, and are not considered a major QC issue. The area represented by this sample was subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Samples H-PEX-1-6, H-PEX-2-6, H-PEX-3-4, and H-PEX-11-6.** The RPD for the 8270D MS/MSD QC analysis was outside of the control limits for several PAHs (an 'L' Flag). This QC issue arose because the QC sample for the batch had elevated concentrations of these PAHs; the QC sample was from the site of another client of OnSite Environmental. For all other PAHs the MS/MSD percent recoveries were within control limits for these samples, as were the method blank and spike blank/spike blank duplicate QC checks. The areas represented by these 4 samples were subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Samples H-PEX-1-6 and H-PEX-3-4.** Hydrocarbons in the gasoline range impacted the diesel range result (an 'M' Flag). This QC issue arose due to gasoline and diesel's overlapping hydrocarbon ranges, and resulted in the reported concentration of the less dominant product (diesel) being slightly higher than may actually be the case. The areas represented by these 2 samples were subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Samples H-TP-6-3, H-TP-6-6, H-TP-6-7, H-PEX-1-6, and H-PEX-3-4.** Hydrocarbons in the lube oil range impacted the diesel range result (an 'N' Flag). This QC issue arose due to diesel and lube oil's overlapping hydrocarbon ranges, and resulted in the reported concentration of the less dominant product (diesel) being slightly higher than may actually be the case. The areas represented by these 5 samples were subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Sample H-TP-23-7.** Hydrocarbons in the diesel range impacted the lube oil range result (an 'N1' Flag). This QC issue arose due to diesel and lube oil's overlapping hydrocarbon ranges, and resulted in the reported concentration of the less dominant product (lube oil) being slightly higher than may actually be the case. The area represented by sample H-TP-23-7 was subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Samples H-TP-6-3, H-TP-6-6, H-TP-13-8, H-TP-20-6, H-TP-21-2, H-PEX-1-6, H-PEX-2-6, H-PEX-3-4, and H-PEX-23-9.** Hydrocarbons indicative of heavier fuels were present in the sample and impacted the gasoline result (an 'O' Flag). This QC issue arose due to gasoline and diesel's overlapping hydrocarbon ranges, and resulted in the reported concentration of the less dominant product (gasoline) being slightly higher than may actually be the case. The areas represented by these 9 samples were subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Sample H-TP-1-8**. Surrogate recovery data for the QC check of the analysis was not available due to the necessary dilution of the sample (an 'S' Flag). The area represented by this sample was subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Sample H-TP-22-8.** The sample chromatogram for the NWTPH-Gx analysis was not similar to a typical gas (a 'T' Flag). The flag for this confirmation sample was advisory and not an indication of a QC issue that may have compromised the conclusion that the site was successfully cleaned up.

- **Samples H-TP-6-3, H-TP-6-6, H-TP-13-3, H-TP-13-8, H-TP-14-8, H-TP-15-3, H-TP-15-8, H-TP-16-3, H-TP-16-7, H-TP-18-7, H-TP-21-2, and H-PEX-2-6.** The chromatogram for the NWTPH-Gx analysis was similar to mineral spirits (a 'Z' Flag). The flag for these samples was advisory and not an indication of a QC issue that may have compromised the conclusion that the site was successfully cleaned up.

EVALUATION OF FIELD DUPLICATE SAMPLE RESULTS

Field duplicate samples were collected at an approximate frequency of one duplicate per 17.8 soil samples – a frequency slightly more than the ratio of one duplicate per 20 samples specified in the *Interim Action Work Plan* (HWA, 2010). The *Interim Action Work Plan* did not specify quality criteria for field duplicate samples; HWA thus used the following U.S. Army Corps of Engineers criteria (Grant, Jenkins, and Mudambi, 1996) to evaluate the field duplicate analytical results:

Analytical Result	Criteria	Conclusion
Both results less than PQL	PQLs differ by more than ±25%	Disagreement
One result greater than PQL and one result less than PQL	>5x difference >10x difference	Disagreement Major disagreement
Both results greater than PQL	RPD >30% RPD >65%	Disagreement Major disagreement

Table C-2 summarizes the analytical results of the field duplicate samples. As can be seen, field duplicate sample analytical results were all within the quality criteria listed above.

PROJECT DOCUMENTATION AND DATA MANAGEMENT

Field personnel used bound waterproof field notebooks to record significant events and observations during the independent action cleanup. Entries were made in waterproof ink or pencil, signed, and dated. Field personnel also completed daily field reports and forwarded copies of the field report to City of Bothell representatives. All field logs, figures, and records are retained in project files at HWA's office.

Digital photographs taken of field activities and significant events are stored on HWA's computer system with the following information noted:

• Date, time, and location of photograph taken
• Description of photograph taken
• Reasons photograph was taken
• Viewing direction

Original laboratory certificates containing analytical results and laboratory QC data are documented in Appendix B of this report. An electronic copy of each laboratory certificate is stored on HWA's computer network server as PDF files in the project folder. In addition, OnSite Environmental's Electronic Data Deliverables (EDD) packages for all analytical results are stored on HWA's computer network server as Microsoft Excel spreadsheets in the project folder. HWA routinely backs up its network servers.

SUMMARY

- Field QC procedures were followed.
- The voluminous field and laboratory data generated during the independent action cleanup are technically complete, accessible, and efficiently handled.
- All samples collected during the independent action cleanup were analyzed within holding times. Appropriate standard analytical methods were used. The few quality control issues noted above did not compromise the analytical accuracy or precision of the data.
- All reported data should be considered valid as qualified and acceptable for further use.

REFERENCES

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Table C-1
Analytical Quality Control Summary

Sample ID	Matrix	OnSite Environmental Lab ID	Sample Date	On COC Form?	Requested Analyses[1]	Lab Prepared Sample Within Holding Time	Surrogate Recovery Within Control Limits	Method Blank Within Control Limits	Lab Duplicate Within Control Limits	Matrix Spike / Matrix Spike Duplicate Within Control Limits	Spiked Blank / Spiked Blank Duplicate Within Control Limits	Notes
H-TP-1-3	Soil	1008-237-01	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-1-8	Soil	1008-237-02	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	See Notes	√	√	√	√	BTEX PQLs raised due to necessary dilution of sample S Flag - Surrogate recovery data not available due to the necessary dilution of the sample
H-TP-2-6	Soil	1008-237-03	8/30/10	√								Sample put on hold at HWA GeoSciences' request
H-TP-2-10	Soil	1008-237-04	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-2-4	Soil	1008-237-05	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-3-3	Soil	1008-237-06	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-3-8	Soil	1008-237-07	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-4-3	Soil	1008-237-08	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-4-7	Soil	1008-237-09	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-5-4	Soil	1008-237-10	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-5-7	Soil	1008-237-11	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-6-3	Soil	1008-237-12	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	N Flag for NWTPH-Dx analysis - Hydrocarbons in the lube oil range are impacting the diesel range result O Flag for NWTPH-Gx analysis - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result U1 Flag for diesel and o-xylene analyses - The PQL is elevated due to interferences present in the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-6-6	Soil	1008-237-13	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	N Flag for NWTPH-Dx analysis - Hydrocarbons in the lube oil range are impacting the diesel range result O Flag for NWTPH-Gx analysis - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result U1 Flag for diesel and o-xylene analyses - The PQL is elevated due to interferences present in the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-6-7	Soil	1008-237-14	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	N Flag for NWTPH-Dx analysis - Hydrocarbons in the lube oil range are impacting the diesel range result
H-TP-7-5	Soil	1008-237-15	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-7-7	Soil	1008-237-16	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-8-5	Soil	1008-237-17	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-8-7	Soil	1008-237-18	8/30/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-9-4	Soil	1009-011-01	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
H-TP-9-7	Soil	1009-011-02	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
H-TP-10-3	Soil	1009-011-03	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
H-TP-10-7	Soil	1009-011-04	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
H-TP-11-4	Soil	1009-011-05	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
H-TP-11-7	Soil	1009-011-06	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
H-TP-12-3	Soil	1009-011-07	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	

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Sample ID	Matrix	OnSite Environmental Lab ID	Sample Date	On COC Form?	Requested Analyses[1]	Lab Prepared Sample Within Holding Time	Surrogate Recovery Within Control Limits	Method Blank Within Control Limits	Lab Duplicate Within Control Limits	Matrix Spike / Matrix Spike Duplicate Within Control Limits	Spiked Blank / Spiked Blank Duplicate Within Control Limits	Notes
H-TP-12-7	Soil	1009-011-08	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
H-DUP-090110	Soil	1009-011-09	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	Duplicate of sample H-TP-12-3
H-TP-13-3	Soil	1009-017-01	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	U1 Flag for NWTPH-Dx and o-xylene analyses - The PQL is elevated due to interferences present i the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-13-8	Soil	1009-017-02	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	O Flag for NWTPH-Gx analysis - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result U1 Flag for NWTPH-Dx and o-xylene analyses - The PQL is elevated due to interferences present i the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-14-3	Soil	1009-017-03	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
H-TP-14-8	Soil	1009-017-04	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	U1 Flag for diesel and o-xylene analyses - The PQL is elevated due to interferences present in the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-15-3	Soil	1009-017-05	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	U1 Flag for diesel and o-xylene analyses - The PQL is elevated due to interferences present in the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-15-8	Soil	1009-017-06	9/1/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	See Notes	√	√	U1 Flag for diesel (including QC duplicate) and o-xylene analyses - The PQL is elevated due to interferences present in the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-16-3	Soil	1009-023-01	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-16-7	Soil	1009-023-02	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-17-3	Soil	1009-023-03	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-17-6	Soil	1009-023-04	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-18-3	Soil	1009-023-05	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-18-7	Soil	1009-023-06	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	U1 Flag for diesel and o-xylene analyses - The PQL is elevated due to interferences present in the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-19-4	Soil	1009-023-07	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample
H-TP-19-6	Soil	1009-023-08	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample
H-TP-20-3	Soil	1009-023-09	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-20-6	Soil	1009-023-10	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	O Flag for NWTPH-Gx analysis - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample
H-TP-21-2	Soil	1009-023-11	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	O Flag for NWTPH-Gx analysis - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits
H-TP-21-7	Soil	1009-023-12	9/2/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	

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H-PEX-1-6	Soil	1009-074-01	9/8/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals PAHs NWVPH/NWEPH PCBs	√	√	√	See Notes	See Notes	√	C Flag for 6010B analysis (metals) - The lab duplicate RPD for lead was outside control limits due to high result variability when analyte concentrations are within five times the quantitation limits L Flag for several PAHs in 8270D MS/MSD QC analysis - The RPD was outside of the control limits M Flag for diesel analysis - Hydrocarbons in the gasoline range impacted the diesel range result N Flag for diesel analysis - Hydrocarbons in the lube oil range impacted the diesel range result O Flag for NWTPH-Gx analysis - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result U1 Flag for lab duplicate diesel QC analysis - The PQL is elevated due to interferences present in the sample NWEPH analyses were performed by ALS Environmental labs on sample split prepared by OnSite Environmental Inc.
H-PEX-2-6	Soil	1009-074-02	9/8/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals PAHs NWVPH/NWEPH PCBs	√	√	√	See Notes	See Notes	√	C Flag for 6010B analysis (metals) - The lab duplicate RPD for lead was outside control limits due to high result variability when analyte concentrations are within five times the quantitation limits L Flag for several PAHs in 8270D MS/MSD QC analysis - The RPD was outside of the control limits O Flag for NWTPH-Gx analysis - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result U1 Flag for diesel (including lab duplicate QC) analysis - The PQL is elevated due to interferences present in the sample Z Flag for NWTPH-Gx analysis - Chromatogram is similar to mineral spirits with diesel fuel NWEPH analyses were performed by ALS Environmental labs on sample split prepared by OnSite Environmental Inc.
H-PEX-3-4	Soil	1009-074-03	9/8/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals PAHs NWVPH/NWEPH PCBs	√	√	√	See Notes	See Notes	√	C Flag for 6010B analysis (metals) - The lab duplicate RPD for lead was outside control limits due to high result variability when analyte concentrations are within five times the quantitation limits L Flag for several PAHs in 8270D MS/MSD QC analysis - The RPD was outside of the control limits M Flag for diesel analysis - Hydrocarbons in the gasoline range impacted the diesel range result N Flag for diesel analysis - Hydrocarbons in the lube oil range impacted the diesel range result O Flag for NWTPH-Gx analysis - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result U1 Flag for lab duplicate diesel QC analysis - The PQL is elevated due to interferences present in the sample NWEPH analyses were performed by ALS Environmental labs on sample split prepared by OnSite Environmental Inc.
H-PEX-6-4	Soil	1009-088-01	9/9/10	√	NWTPH-Gx/BTEX NWTPH-Dx Arsenic	√	√	√	√	√	√	
H-PEX-5-8	Soil	1009-088-02	9/9/10	√	NWTPH-Gx/BTEX NWTPH-Dx Arsenic	√	√	√	√	√	√	
H-PEX-4-8	Soil	1009-088-03	9/9/10	√	NWTPH-Gx/BTEX NWTPH-Dx Arsenic	√	√	√	√	√	√	
H-PEX-7-5	Soil	1009-088-04	9/9/10	√	NWTPH-Gx/BTEX NWTPH-Dx Arsenic	√	√	√	√	√	√	
H-PEX-8-6	Soil	1009-088-05	9/9/10	√	NWTPH-Gx/BTEX NWTPH-Dx Arsenic	√	√	√	√	√	√	

Table C-1
Analytical Quality Control Summary

Sample ID	Matrix	OnSite Environmental Lab ID	Sample Date	On COC Form?	Requested Analyses[1]	Lab Prepared Sample Within Holding Time	Surrogate Recovery Within Control Limits	Method Blank Within Control Limits	Lab Duplicate Within Control Limits	Matrix Spike / Matrix Spike Duplicate Within Control Limits	Spiked Blank / Spiked Blank Duplicate Within Control Limits	Notes
H-TP-22-8	Soil	1009-095-01	9/10/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	T Flag for NWTPH-Gx analysis - The sample chromatogram is not similar to a typical gas U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample
H-TP-23-7	Soil	1009-095-02	9/10/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	N1 Flag for NWTPH-Dx and o-xylene analyses - Hydrocarbons in the diesel range are impacting the lube oil range result U1 Flag for o-xylene analysis - The PQL is elevated due to interferences present in the sample
WCB-Water-1	Water	1009-106-01	9/13/10	√								Sample put on hold at HWA GeoSciences' request
H-PEX-9-5	Soil	1009-106-02	9/13/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	U1 Flag for lube oil analysis - The PQL is elevated due to interferences present in the sample
H-PEX-10-7	Soil	1009-106-03	9/13/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-PEX-11-6	Soil	1009-106-04	9/13/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals PAHs NWVPH/NWEPH PCBs	√	√	√	√	See Notes	√	I Flag for several PAHs in 8270D MS/MSD QC analysis - Compound recovery was outside of the control limits L Flag for several PAHs in 8270D MS/MSD QC analysis - The RPD was outside of the control limits K Flag for chromium in duplicate QC analysis - Sample duplicate RPD was outside control limits due to sample inhomogeneity; the sample was re-extracted and re-analyzed with similar results U1 Flag for o-xylene analysis - The PQL is elevated due to interferences present in the sample NWVPH/NWEPH analyses were performed by ALS Environmental labs on sample split prepared by OnSite Environmental Inc.
H-TP-24-3	Soil	1009-106-07	9/13/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample
H-TP-24-8	Soil	1009-106-08	9/13/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-25-2	Soil	1009-106-09	9/13/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-25-8	Soil	1009-106-10	9/13/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	U1 Flag for o-xylene analysis - The PQL is elevated due to interferences present in the sample
H-DUP-091310	Soil	1009-106-11	9/13/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	Duplicate of sample H-PEX-9-5 U1 Flag for lube oil analysis - The PQL is elevated due to interferences present in the sample
H-TP-26-4	Soil	1009-119-01	9/14/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-26-9	Soil	1009-119-02	9/14/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-27-5	Soil	1009-119-03	9/14/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-27-9	Soil	1009-119-04	9/14/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-PEX-12-12	Soil	1009-140-01	9/15/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-PEX-13-14	Soil	1009-140-02	9/15/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample
H-PEX-14-14	Soil	1009-140-03	9/15/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-PEX-15-10	Soil	1009-140-04	9/15/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-PEX-16-14	Soil	1009-140-05	9/15/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample
H-DUP-091510	Soil	1009-140-06	9/15/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	Duplicate of sample H-PEX-12-12
H-PEX-17-7	Soil	1009-140-07	9/15/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-PEX-18-11	Soil	1009-154-01	9/16/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-PEX-19-6	Soil	1009-154-02	9/16/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-PEX-20-6	Soil	1009-154-03	9/16/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-28-9	Soil	1009-154-04	9/16/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-TP-29-6	Soil	1009-154-05	9/16/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-DUP-091610	Soil	1009-154-06	9/16/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	Duplicate of sample H-TP-28-9

Table C-1
Analytical Quality Control Summary

Sample ID	Matrix	OnSite Environmental Lab ID	Sample Date	On COC Form?	Requested Analyses[1]	Lab Prepared Sample Within Holding Time	Surrogate Recovery Within Control Limits	Method Blank Within Control Limits	Lab Duplicate Within Control Limits	Matrix Spike / Matrix Spike Duplicate Within Control Limits	Spiked Blank / Spiked Blank Duplicate Within Control Limits	Notes
H-PEX-21-16	Soil	1009-169-01	9/17/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-PEX-22-12	Soil	1009-169-01	9/17/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	
H-PEX-23-9	Soil	1009-169-01	9/17/10	√	NWTPH-Gx/BTEX NWTPH-Dx	√	√	√	√	√	√	O Flag for NWTPH-Gx analysis - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample
H-PEX-24-6	Soil	1009-192-01	9/20/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
H-PEX-25-6	Soil	1009-192-02	9/20/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
H-DUP-0920	Soil	1009-192-03	9/20/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals	√	√	√	√	See Notes	√	Duplicate of sample H-PEX-25-6 U1 Flag for diesel (including duplicate QC) analysis - The PQL is elevated due to interferences present in the sample
H-PEX-26-8	Soil	1009-226-01	9/22/10	√	NWTPH-Dx	√	√	√	√	√	√	
H-SP-1	Soil	1010-034-01	10/5/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals PAHs	√	√	√	√	√	√	
H-SP-2	Soil	1010-034-02	10/5/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals PAHs	√	√	√	√	√	√	
H-SP-3	Soil	1010-034-03	10/5/10	√	NWTPH-Gx/BTEX NWTPH-Dx RCRA 8 Metals PAHs	√	√	√	√	√	√	
HZ-SP-101110-1	Soil	1010-095-01	10/11/10	√	NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
HZ-SP-101110-2	Soil	1010-095-02	10/11/10	√	NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	
HZ-SP-101110-3	Soil	1010-095-03	10/11/10	√	NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample
HZ-SP-101110-4	Soil	1010-095-04	10/11/10	√	NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	U1 Flag for diesel analysis - The PQL is elevated due to interferences present in the sample
HZ-SP-101110-5	Soil	1010-095-05	10/11/10	√	NWTPH-Dx RCRA 8 Metals	√	√	√	√	√	√	

Footnotes:
√ - Indicates that QA/QC criteria were met for all analyses performed on sample
Blank cell (except for notes) indicates that the QC check was not applicable for the specified analyses
1 - Analyses Performed:
NWTPH-Gx - Gasoline range petroleum hydrocarbons using Ecology Method NWTPH-Gx
NWTPH-Dx - Diesel and oil range petroleum hydrocarbons using Ecology Method NWTPH-Dx
BTEX - Benzene, toluene, ethylbenzene, and xylenes using EPA Method 8021
RCRA 8 Metals - Arsenic, barium, cadmium, chromium, lead, selenium, silver using EPA Method 6010B and 6020; and mercury using EPA Method 7471A
PAHs - Polynuclear aromatic hydrocarbons by EPA Method 8270D/SIM
NWVPH/NWEPH - Ecology methods VPH and EPH for volatile and extractable petroleum hydrocarbon fractions
PCBs - Polychlorinated biphenyls by EPA Method 8082

Table C-2
Evaluation of Field Duplicate Sample Results

Sample Location	Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Notes
H-TP-28-9	<29	<59	<5.1	<0.020	<0.051	<0.051	<0.051									
HZ-DUP-091610	<30	<59	<4.9	<0.020	<0.049	<0.049	<0.049									
Ratio of Non-detects[1]	1.0	1.0	1.0	1.0	1.0	1.0	1.0									
RPDs[2] for Detects																
H-PEX-9-5	820	<110	<14	<0.027	<0.14	<0.14	<0.14									
H-DUP-091310	950	<120	<12	<0.025	<0.12	<0.12	<0.12									
Ratio of Non-detects		0.9	1.2	1.1	1.2	1.2	1.2									
RPDs for Detects	-14.7%															
H-PEX-12-12	<31	<61	<5.7	<0.020	<0.057	<0.057	<0.057									
H-DUP-091510	<28	<56	<5.7	<0.020	<0.057	<0.057	<0.057									
Ratio of Non-detects	1.1	1.1	1.0	1.0	1.0	1.0	1.0									
RPDs for Detects																
H-TP-12-3	<28	<57	<5.9	<0.020	<0.059	<0.059	<0.059	<11	70	<0.57	30	<5.7	<0.28	<11	<0.57	
H-DUP-090110	<28	<57	<6.1	<0.020	<0.061	<0.061	<0.061	<11	67	<0.57	26	<5.7	<0.28	<11	<0.57	
Ratio of Non-detects	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0	
RPDs for Detects									4.4%		14.3%					
H-PEX-25-6	41	220	<6.5	<0.020	<0.065	<0.065	<0.065	<11	49	<0.56	23	22	<0.28	<11	<0.56	
H-DUP-0920	<34	270	<6.6	<0.020	<0.066	<0.066	<0.066	<11	51	<0.57	29	21	<0.28	<11	<0.57	
Ratio of Non-detects	1.2		1.0	1.0	1.0	1.0	1.0	1.0		1.0			1.0	1.0	1.0	
RPDs for Detects		-20.4%							-4.0%		-23.1%	4.7%				

Notes:

1 - Ratio of one PQL to another PQL or the ratio of a PQL to a reported analytical concentration

2 - RPD = Relative Percent Difference = $100*(X_1-X_2) / ((X_1+X_2)/2)$

Where: X_1 is the concentration in the first sample and X_2 is the concentration in the duplicate sample.

Indicates disagreement in analytical results for duplicate samples

Indicates major disagreement in analytical results for duplicate samples

APPENDIX D

PHOTOGRAPHS OF SOIL CLEANUP ACTION

Photo 1 – Removing building foundations on September 2, 2010 (looking to west).

Photo 2 – Peat layer and water table exposed in southern extent of excavation (looking to south) on September 17, 2010.

Photo 3 – Peat layer and water table exposed in northern extent of excavation (looking to north) on September 17, 2010.

Photo 4 – Old hydraulic lift exposed on September 7, 2010.

Photo 5 – Removing the hydraulic lift on September 7, 2010 (looking north).

Photo 6 – Old wooden catch basin exposed on September 13, 2010 (looking west).

Photo 7 – Pumping water and oil out of old wooden catch basin on September 14, 2010.

APPENDIX E

CEMEX USA RELEASE OF LIABILITY/

CERTIFICATE OF DISPOSAL

Release of Liability/Certificate of Disposal

Hos Bros Construction Inc. and their client ; are released from liability for all petroleum contaminated soil originating from:

Bothell Crossroads Phase II
Hertz Parcel
Bothell WA. 98011

and transported to:

CEMEX Soil Remediation Facility
6300 Glenwood Ave.
Everett WA 98203

From 09/092010 through 10/11/2010

A total of 11182.41 tons of petroleum-contaminated soil were transported to the above facility. The material was disposed of in the following manner:

Thermal Desorption/Landfill for Reclamation

Disposal of the contaminated soil was performed in accordance with all applicable federal, state, and local laws and regulations.

Signed: Date: November 29th, 2010

Larry W. Baker

Larry W. Baker
CEMEX USA.
Operations Manager
Soil Remediation Division

APPENDIX E

TECHNICAL MEMORANDUM, IMPLEMENTATION OF APPROVED HERTZ RI/FS WORK PLAN REMEDIAL INVESTIGATION REPORT, PHASE 1B, BOTHELL FORMER HERTZ FACILITY

HWA GEOSCIENCES INC.
Geotechnical Engineering · Hydrogeology · Geoenvironmental Services · Inspection and Testing

May 31, 2013
HWA Job No. 2007-098-969

City of Bothell
18305 101st Avenue NE
Bothell WA 98011

TECHNICAL MEMORANDUM

Subject: **IMPLEMENTATION OF APPROVED HERTZ RI/FS WORK PLAN**
REMEDIAL INVESTIGATION REPORT, PHASE 1B
Bothell Former Hertz Facility
Bothell, Washington

This Technical Memorandum documents the results of Phase 1B of HWA GeoSciences' (HWA's) remedial investigation (RI) conducted in February 2013, following Ecology's issuance of Notice to Proceed on implementing the approved Hertz RI/FS work plan & Addendum (Ecology letter, January 11, 2013). This is one of three sub-phases of investigative work that is described under the Phase 1 activities in the Bothell Former Hertz RI/FS Work Plan (HWA, September 10, 2012) and Addendum to the work plan (November 5, 2012). The purpose of this phase of work is to further define the extent of contamination and to characterize the Bothell former Hertz Facility (Site) in Bothell, Washington (the City).

INTRODUCTION

The City owns the approximately 1.92-acre former Hertz property located at 18030 Bothell Way Northeast, Bothell, Washington. Figures 1 through 3 respectively illustrate the Site vicinity, adjacent properties, and site plan. Ecology's Facility Site ID is #11687976; this Site is also listed in Ecology's leaking UST (LUST) database under the name AARENCO, LUST # 5294.

Because it is not possible to a complete the entire RI in one phase due to roadway construction, property access, and property ownership issues, a phased approach to completing the RI work is being utilized, with the goal of populating the final RI with data collected during the RI phases outlined in Section 5.0 of the RI/FS Final Approved Work Plan (HWA, 2012). The exploration program described herein was performed to partly fulfill the actions specified in Agreed Order number DE 8375, dated May 12, 2011, between the City of Bothell and the Washington State Department of Ecology (Ecology).

HWA conducted the RI exploration program described herein in February 2013 per Section 5.2.1 (RI Phase 1 SR522 Construction Activities) of the RI/FS Final Work Plan

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(HWA, 2012), and Addendum #I to the RI/FS Final Work Plan dated December 10, 2012. Appendix A contains relevant excerpts from the RI work plan. The goals of Phase 1B of the RI included:

- Conducting explorations and sampling to ascertain that halogenated volatile organic compounds (HVOCs) from Bothell Service Center have migrated across the roadway, into utility trenches, and/or onto the former Hertz property.

RI Phase 1B sampling activities, conducted along the active SR522 right-of-way between the former Hertz property and the Bothell Service Center property, included:

- Installation and sampling of four ground water monitoring wells (two pairs of adjacent shallow and deep wells)
- Drilling and sampling two direct-push soil probes in utility trenches
- Sampling selected existing monitoring wells in the area.

Figures 3 and 4 shows the borings, wells, and sample locations.

SAMPLE LOCATIONS AND METHODS

Site investigation methodologies were performed in accordance with the Sampling and Analysis Plan contained within the RI/FS Final Work Plan (HWA, 2012).

MONITORING WELL PAIRS

Under subcontract to HWA, on February 21 and 22, 2013, Holocene Drilling of Puyallup, Washington, (Holocene), a Washington licensed drilling contractor, completed monitoring wells HZ-MW14S, HZ-MW14D, HZ-MW15S, and HZ-MW15D at the locations shown on Figures 3 and 4.

For the monitoring well installation, Holocene employed a Mobile B-59 hollow-stem auger rig. Two well pairs were installed at each investigation location, a shallow well intercepting first ground water and a deeper well intercepting ground water in deeper alluvial soils. The wells were installed in separate boreholes approximately four feet apart. Soil samples were collected at 2.5- to 5-foot intervals to 41 feet below ground surface (bgs) during the drilling of the deep wells of each pair. The shallow wells were screened from 5 to 15 feet bgs, across first-encountered ground water. The deep wells HZ-MW14D and HZ-MW15D were screened from 30 to 40 feet bgs, and from 25 to 35 feet bgs, respectively. HZ-MW15D was screened slightly shallower than HZ-MW14D due to the presence of non-water bearing glaciolacustrine silt at a higher elevation.

UTILITY TRENCH SOIL PROBES

On February 28, 2013 Holocene Drilling completed direct-push borings HB-4 and HB-5 each to 12 feet bgs at the locations shown on Figure 4 adjacent to investigation area utilities to assess the potential for preferential pathways in utility backfill. Prior to completing the borings, Holocene utilized a vacuum truck to remove fill soil and expose the utilities to confirm location and depth. Holocene used a mobile AMS PowerProbe Pro direct-push sampling device (Geoprobe) to collect soil and ground water samples. The direct-push sampling device consisted of a hydraulic drive assembly mounted on a pickup truck. Steel pipe (2 inch diameter) was driven into the ground using a hydraulic impact driver. Continuous soil samples were then retrieved through the stainless-steel sampler outfitted with a high-density polyethylene (HDPE) liner.

SOIL SAMPLE COLLECTION

HWA field staff collected soil samples during well and soil boring completion. Soil samples were placed in labeled laboratory-provided sample containers using nitrile gloves and clean stainless steel spoons. Soil samples for volatile organic compound (VOC) analyses were collected in accordance with EPA 5035A methodology. Samples were placed in a cooler with "blue ice" for transport to the laboratory under chain-of-custody protocol.

All samples were field screened using a photo ionization detector (PID). HWA collected four soil samples from each deep monitoring well boring and two soil samples from each direct-push soil boring for analysis. Soil samples selected for analyses were typically collected at the shallow soil-ground water interface and/or to assess shallow fill soils (four to eight feet bgs), and where field screening indicated the potential for contamination (10 to 20 feet bgs). Soil boring logs are included in Appendix B.

GROUND WATER SAMPLE COLLECTION

Ground water was encountered at depths of approximately five to eight feet bgs. HWA collected ground water samples from the four monitoring wells and two soil borings using low-flow sampling methods in accordance with the Sampling and Analysis Plan (HWA, 2012).

Borings HZ-MW14S, HZ-MW14D, HZ-MW15S, and HZ-MW15D were completed as monitoring wells. Wells were completed with two-inch diameter PVC casing and factory-slotted screens. The direct-push borings (HB-4 and HB-5) were sampled from temporary PVC slotted screens and casing emplaced into the borehole. Ground water samples were retrieved using a peristaltic pump and new pump tubing was used at each location. Additionally, HWA collected ground water samples from three existing monitoring wells located along the south side of SR 522 (HZ-MW1, HZ-MW4, and BL-MW8 shown on Figure 4).

Samples were collected after pH, conductivity, temperature, and dissolved oxygen field readings from periodic monitoring had stabilized, or after repeated purges of the well volume in the event of low-permeability soils. Samples were pumped directly into the appropriate containers, as provided by the laboratory. Samples were placed in a cooler with blue ice for transport to the laboratory under chain-of-custody protocol.

FIELD SCREENING INSTRUMENTS

HWA field screened soil from each boring for the presence of volatile organic vapors using a Mini-Rae PGM 75 PID. Visual indications of contamination and odor were also noted. Although the PID is not capable of quantifying or identifying specific organic compounds, this instrument is capable of measuring relative concentrations of a variety of organic vapors with ionization potentials less than the energy of the ultraviolet source (in this case, 10.6 eV). The PID is useful for providing qualitative information with respect to the presence and relative concentration of organic vapors. PID readings are shown on the boring logs.

The PID was calibrated with 100 parts per million isobutylene standard at the beginning of the day. Fifty to 100 milliliters of soil from a discrete depth were placed in a plastic bag, sealed, and permitted to sit at least 10 minutes prior to analyzing the vapor in the sample bag. The bag was then perforated by the PID sample tip to obtain the reading. Samples were screened with the PID when sufficient sample volume was available. Field PID sample screening depths and concentration values were recorded on the boring logs.

DECONTAMINATION METHODS

To prevent potential cross-contamination of samples, Holocene cleaned downhole equipment (augers, drilling rods, etc.) between each boring. All sampling equipment was decontaminated prior to use with detergent solution, potable water, and deionized water.

INVESTIGATION DERIVED WASTE

The soil cuttings and decontamination water from the field investigation were placed in sealed drums at a temporary storage site provided by the City pending analytical results. Disposable personal protective equipment (e.g., nitrile gloves) was discarded off-site as ordinary solid waste.

SAMPLE ANALYSES

OnSite Analytical Laboratories (OnSite) of Redmond, Washington (an Ecology accredited laboratory) analyzed the samples for total petroleum hydrocarbons in the gasoline, diesel and oil range, metals, and VOCs by using the following test methods:

- Washington state total petroleum and aromatic hydrocarbons (TPH) in the gasoline range by method NWTPH-Gx/BETX.
- Washington state total petroleum hydrocarbons in the diesel and heavy oil range by method NWTPH-Dx. Silica gel/acid cleanup was used to prevent roots and

other non-contaminant organic material in the soil samples from affecting analytical results.

- HVOCs using EPA method 5035A/8260.

Appendix C contains the complete laboratory analytical packages, including chain-of custody forms.

QUALITY CONTROL REVIEW

HWA reviewed quality control results of the analytical data. Surrogate recoveries, method blanks, laboratory duplicates, spike blanks, and spike blank duplicates were all within control limits with the following exceptions:

- The gasoline result for soil sample HZ-MW-14D-20 is attributed to a single peak on the chromatogram, interpreted to be PCE. The lower HVOC Method 8260 PCE results for this sample may be due to sample heterogeneity or lab analysis variability.
- Due to potential interference identified in the soil and ground water sample results, non-petroleum HVOC peaks (i.e., PCE, TCE) were subtracted from gasoline results for ground water samples HZ-MW-15D-W- 0213, HZ-MW-15S-W-0213, HZ-MW-14D-W-0213 and HZ-MW-14S-W-0213 and HB-5-W. HVOCs in a sample will elute and be quantified by TPH analytical methods. If the HVOC concentration is known from a separate HVOC analysis (e.g., Method 8260) it can be subtracted from the TPH results.

OnSite did not flag any other results with qualifiers which would indicate that a given result was suspect. Laboratory method blank analyses were all below detection limits. The trip blank did not contain any volatile organic compounds above laboratory detection limits. The analyses of the soil samples and water samples collected between February 21 and February 28, 2013 were determined to be acceptable for their intended use.

RESULTS

SUBSURFACE CONDITIONS

Based on HWA's observations during field explorations, soil at the Site typically consisted of approximately two to seven feet of silty sand fill over alluvial soil consisting of interbedded silt and silty sand. Dense silt, interpreted to be glacial or interglacial in origin, was encountered in borings HZ-MW14D and HZ-MW15D at approximately 40 and 25 feet bgs, respectively. These observations were generally consistent with those made during previous HWA subsurface investigations within and south of the SR522 roadway, as well as available subsurface information from the Bothell Service Center site and former Wexler / Schucks property on the north side of SR522.

The SR-522 roadway has been interpreted as the mapped boundary between alluvial soils to the south, and glacially-derived soils to the north. Some soils on either side of SR522 have similar textural classifications, but differ in origin, with density being the primary differentiator. Glacial soils are generally more dense than alluvial soils. Figures 5 and 6 show geologic cross sections through the study area for this investigation (with lines of section shown on Figure 3).

Direct-push borings HB-4 and HB-5 were completed adjacent to utilities. The top of the 12-inch diameter storm sewer line was encountered at 2.5 feet bgs in boring HB-4. The top of the 12-inch diameter sanitary sewer line was encountered at 4.5 feet bgs in boring HB-5. Ground water was encountered in these direct-push borings at depths of approximately six feet bgs, which is likely within the trench backfill in the sanitary sewer line, but may not be in the storm sewer line. Soil boring logs are included as Appendix B.

Based on water level surveys of area monitoring wells completed in 2012 (HWA 2012), ground water flow at the location is to the east-southeast toward the Sammamish River (Figure 7).

ANALYTICAL RESULTS

Soil analytical results are summarized in Table 1. Ground water analytical results are summarized in Table 2.

TABLE 1
SOIL ANALYTICAL DATA
(all results in milligrams per kilogram (mg/kg) except as noted)

Sample ID	Depth (ft bgs)	Heavy Oil	Diesel	Gasoline	Aromatic Hydrocarbons	(cis) 1,2-Dichloroethelene ((cis) 1,2-DCE)	Trichloroethylene (TCE)	Tetrachloroethylene (PCE)
HZ-MW14D-7.5	7.5-8.5	<31	<62	<6	ND	< 0.00099	< 0.00099	**0.0012**
HZ-MW14D-10	10-11	<31	<61	<6.4	ND	**0.0046**	**0.0094**	**1**
HZ-MW14D-15	15-16	<30	<59	<5.6	ND	**0.062**	**0.15**	**9.3**
HZ-MW14D-20	20-21	<30	<61	**10**	ND	**0.02**	**0.027**	**1.2**
HZ-MW15D-7.5	7.5-8.5	<30	<61	<6.4	ND	<0.0010	<0.0010	**0.0029**
HZ-MW15D-12.5	12.5-13.5	<31	<61	<6.3	ND	<0.0011	<0.0011	**0.0015**
HZ-MW15D-15	15-16	<31	<61	<5.8	ND	**0.0097**	<0.0010	**0.078**
HZ-MW15D-20	20-21	<30	<60	<5.9	ND	**0.009**	**0.085**	**2.2**
HB-4-4	4-5	<32	<64	<5.9	ND	<0.0012	<0.0012	<0.0012
HB-4-6	6-7	<32	<65	<7.0	ND	<0.0012	<0.0012	<0.0012
HB-5-7	7-8	<32	<63	<7.1	ND	<0.0011	<0.0011	**0.0058**
HB-5-10	10-11	<31	<62	<6.7	ND	<0.0011	**0.0012**	**0.13**
MTCA Method A/B		**2000**	**2000**	**100/30***	**varies**	**160 (B)**	**0.03**	**0.05**

Notes:

MTCA A / B – Ecology MTCA Method A / B soil cleanup levels, Chapter 173-340 WAC, shown for reference only. These cleanup levels may not apply at this Site, and are provided as a screening level indication of the environmental quality of the Site only.

< - not detected at listed reporting limit

Bold – Analyte Detected

Bold / highlighted – Analyte exceeds cleanup level

* The Method A Soil cleanup levels for gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylenes are less than 1% of the gasoline mixture are 100 mg/kg/all other mixtures are 30 mg/kg

All diesel range hydrocarbon sample extracts treated with an acid/silica gel cleanup procedure.

No other VOCs were detected above laboratory reporting limits (see Appendix C for complete list of compounds analyzed).

TABLE 2
GROUND WATER ANALYTICAL DATA
(all results in micrograms per liter (µg/l) except as noted)

Sample Location	Depth to water (Ft bgs or toc)	Field Parameters				Petroleum Hydrocarbons				HVOCs*		
		pH	Conductivity (µm/cm)	DO (mg/l)	Temperature (°C)	Heavy Oil	Diesel	Gasoline	Toluene	(cis) 1,2-DCE	TCE	PCE
HZMW-14S	6.02	7.48	742	3.26	11.3	<0.16	<0.26	<100	**2.4**	**29**	**47**	**2400**
HZMW-14D	6.35	6.98	664	2.03	12.7	<0.27	<0.44	<100	**1.8**	**21**	**7.6**	**360**
HZMW-15S	4.95	6.59	617	9.29	9.3	<0.26	<0.42	<100	<1	**3.6**	**2.3**	**86**
HZMW-15D	5.85	6.55	580	8.88	12.5	<0.26	<0.42	<100	**2.9**	**12**	**18**	**330**
HB-4	5.85	6.31	535	10.4	13.5	<0.22	<0.35	<100	<1	**1.2**	**0.23**	**17**
HB-5	5.8	6.4	1183	10.7	12.7	<0.31	<0.49	<100	<1	**2.2**	**4.8**	**340**
HZMW-1	6.7	6.36	669	4.15	10.8	<0.30	<0.48	<100	<1	**0.23**	**0.28**	**28**
HZMW-4	5.35	6.51	372	5.4	9.8	<0.27	<0.44	<100	<1	<0.20	<0.20	<0.20
BLMW-8	7.8	5.71	599	3.2	10.5	<0.28	<0.45	<100	<1	<0.20	<0.20	<0.20
MTCA Method A/B						**0.5**	**0.5**	**1000/800****	**1000**	**16 (B)**	**5**	**5**

Notes:

PCE = tetrachloroethylene

TCE = trichloroethylene

(cis) 1,2-DCE = (cis) 1,2-dichloroethelene

MTCA A / B – Ecology MTCA Method A / B Ground water cleanup levels, Chapter 173-340 WAC, shown for reference only. These cleanup levels may not apply at this Site, and are provided as a screening level indication of the environmental quality of the Site only.

< - not detected at listed reporting limit

Bold – detected

Bold / highlighted – Analyte exceeds cleanup level

* No other HVOCs were detected above laboratory reporting limits (see Appendix A for complete list of compounds analyzed).

** The Method A Ground Water cleanup levels for gasoline mixtures with benzene present is 800 µg/l and without detectable benzene is 1000 µg/l.

DISCUSSION

SOIL

Borings and well pairs HZ-MW14S/HZ-MW14D and HZ-MW15S/HZ-MW15D were completed to assess potential upgradient petroleum and HVOC impacts to the former Hertz property, and evaluate HVOC concentration gradients with respect to depth. Soil samples for textural classification were collected in the two deep borings, with shallow well borings and installations based on the observations from the adjacent deep borings.

A soil sample was collected at the soil-ground water interface (approximately 7.5 feet bgs) in borings HZ-MW14D and HZ-MW15D). Selected deeper samples were collected for analysis based on field screening results. The samples were analyzed for petroleum hydrocarbons and HVOCs.

TPH - Petroleum range hydrocarbons were not detected above laboratory reporting limits, with the exception of one gasoline detection at boring HZ-MW14D (20 feet bgs). The detection was below the MTCA Method A cleanup level, and was attributed to the presence of PCE in the sample by the laboratory (i.e., not petroleum based).

HVOCs - HVOCs were detected in all samples collected in borings HZ-MW14D and HZ-MW15D (Table 1). The detected HVOCs consisted of PCE, as well as the breakdown products TCE and cis1,2-DCE. PCE exceeded cleanup levels in three samples collected from boring HZ-MW14D and in two samples collected from boring HZ-MW15D. In addition, TCE exceeded cleanup levels in two samples collected from boring HZ-MW14D and in one sample collected from boring HZ-MW15D. Detections of (cis)1,2-DCE did not exceed cleanup levels. Soil samples from HZ-MW15D exhibited a general pattern of increasing HVOC concentrations with depth. HZ-MW14D did not exhibit this pattern, with the 15 foot sample showing the highest HVOC concentration, and lower concentrations in the 10 and 20 foot depth samples.

Utilities - Direct-push borings HB-4 and HB-5 were completed adjacent to storm water and sanitary sewers, respectively. These borings were completed to assess the potential for contaminant migration along utility trench backfill. Two soil samples were collected from each boring, one adjacent to the utility, and the second below the utility. Petroleum range hydrocarbons were not detected in these soil samples. PCE and TCE were detected in soil samples collected from boring HB-5; PCE exceeded the MTCA cleanup level in the sample collected at 10 feet bgs (below the sanitary sewer line) (Table 1).

The absence of very elevated HVOC concentrations in the utility trench samples suggests the utility trenches are not acting as preferential migration conduits for HVOCs.

GROUND WATER

HWA collected ground water samples from the four new monitoring wells completed within the roadway (HZ-MW14S, HZ-MW14D, HZ-MW15S, and HZ-MW15D), as well as from temporary well screens installed at the utility trench direct-push soil borings (HB-4 and HB-5). Three existing monitoring wells on the south side of SR522 (HZ-MW1, HZ-MW4, and BL-MW8 shown on Figure 4) were also sampled to assess potential downgradient migration.

Ground water was encountered in the borings at depths of approximately five to eight feet bgs. Based on water level surveys of area monitoring wells completed in 2012 (HWA, 2012), ground water flow at the location is to the east-southeast toward the Sammamish River. Figure 7 depicts the hydraulic gradient at the Site and environs.

TPH - Total petroleum hydrocarbons were not detected above laboratory reporting limits in shallow or deep ground water samples. Toluene was detected in three ground water samples (HZ-MW14S, HZ-MW14D and HZ-MW15D) at concentrations far below MTCA Method A cleanup levels (Table 720-1 in WAC 173-340-900). These results, along with the soil data, indicate that petroleum hydrocarbons from the Al's Auto/Wexler site have not migrated off that property and onto Bothell Way.

HVOCs, Shallow wells - With the exception of wells HZ-MW4 and BL-MW8, PCE was detected in all shallow ground water samples at concentrations above MTCA cleanup levels. Ground water concentrations in samples collected from the new shallow wells and boring in SR522 were generally less than most recent reported concentrations on the Bothell Service Center site (Farallon, 2011), with the exception of ground water in well HZ-MW14S, which had a PCE concentration of 2,400 μg/l. The PCE concentration in this well is more comparable to samples collected on the Bothell Service Center site, indicating migration of HVOCs into the roadway. This well is directly downgradient of the source area (Figure 7), and encountered sandier shallow aquifer soils than HZ-MW15S, which may be enhancing ground water flow in this area. The HVOCs TCE and (cis)1,2-DCE were also detected in wells HZ-MW14S, HZ-MW15S, HZ-MW1, and borings HB-4 and HB-5. TCE and (cis)1,2-DCE exceeded cleanup levels at well HZ-MW14S but not in the remaining ground water samples.

HVOCs, Deep wells - Ground water samples were collected from deep wells HZ-MW14D and HZ-MW15D to assess vertical concentration gradients, and compare with deep ground water quality at the upgradient Bothell Service Center and Wexler sites. PCE and TCE were detected in the HZ-MW14D and HZ-MW15D ground water samples above cleanup levels. (cis)1,2-DCE was also detected at well HZ-MW14D above the cleanup level. Well pair HZ-MW14S and D exhibited decreasing ground water PCE concentrations with depth; well pair HZ-MW15S and D exhibited increasing ground water PCE concentrations with depth (similar to the pattern for soils samples). Deep well PCE concentrations were generally higher than some equivalent elevation ground water samples at the upgradient Bothell Service Center and Wexler sites, but consistent with or lower than equivalent elevation ground water samples near the source area at the Bothell Service Center site (Farallon 2011; Floyd | Snider, 2010).

Existing wells - HVOCs have not historically been detected in wells HZ-MW4 or BL-MW8 during previous sampling rounds in 2008 and 2009. PCE was detected in HZ-MW-1 in 2008, but at concentrations below cleanup levels (HWA, 2008). The increase in PCE over time in HZ-MW-1 well may be due to continued migration of HVOCs from the Bothell Service Center site, or possibly related to the soil cleanup conducted at the former Hertz property in 2010. The cleanup included excavation and removal of TPH-impacted soils, which can enhance in situ biodegradation of HVOCs by depressing the subsurface oxygen levels as well as providing cometabolic substrates for HVOC biodegradation. Removal of the TPH-impacted soil and oxygenation of the soils may have caused the increase in HVOC concentrations in this area.

Utilities – Ground water HVOC concentrations in the utility trench borings (HB-4 and HB-5) were generally consistent with equivalent nearby samples in native soils, suggesting that the utility trenches are not acting as preferential migration conduits for HVOCs.

SUMMARY

Figure 4 illustrates the known horizontal extent of HVOCs in ground water in the vicinity of the Site. Figures 5 and 6 illustrate the known vertical extent of PCE in ground water along cross sections drawn between the Bothell Service Center and the Site. Figures 4, 5, and 6 show that HVOC concentrations in ground water are highest at the Bothell Service Center and diminish downgradient to the south and east thus indicating the Bothell Service Center as the contaminant source area for HVOCs in ground water at the adjacent SR522 right of way and a the former Hertz property to the south.

REFERENCES

Farallon, 2011. *Project Status Summary, Bothell Service Center Associates Property, 18107 Bothell Way Northeast, Bothell, Washington*, November 18, 2011.

Floyd | Snider, 2010. *Schuck's Auto Supply, Bothell, Washington, Phase II Environmental Site Assessment*, September 10, 2010.

HWA GeoSciences, 2008. *Phase I Environmental Site Assessment, Hertz Rentals Parcel*, August 11, 2008.

HWA GeoSciences, 2012. *Remedial Investigation Feasibility Study Final Work Plan, Bothell former Hertz Facility, Bothell, Washington*, dated September 10, 2012.

LIMITATIONS

The conclusions expressed by HWA are based solely on material referenced in this report. Observations were made under the conditions stated. Within the limitations of scope, schedule and budget, HWA attempted to execute these services in accordance with generally accepted professional principles and practices in the area at the time the report was prepared. No warranty, expressed or implied, is made. Experience has shown that subsurface soil and ground water conditions can vary significantly over small distances. HWA's findings and conclusions must not be considered as scientific or engineering certainties, but rather as our professional opinion concerning the significance of the limited data gathered and interpreted during the course of the assessment.

This study and report have been prepared on behalf of the City of Bothell, for the specific application to the subject property. This report and the findings contained herein shall not, in whole or part, be disseminated or conveyed to any other party without prior written consent of HWA. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

We appreciate the opportunity to provide our services. Please feel free to call us if you have any questions or need more information.

Sincerely,
HWA GeoSciences Inc.

State of Washington
Hydrogeologist
170
Licensed Geologist
Arnon Sugar
5-31-13

Arnie Sugar, LG, LHG
President

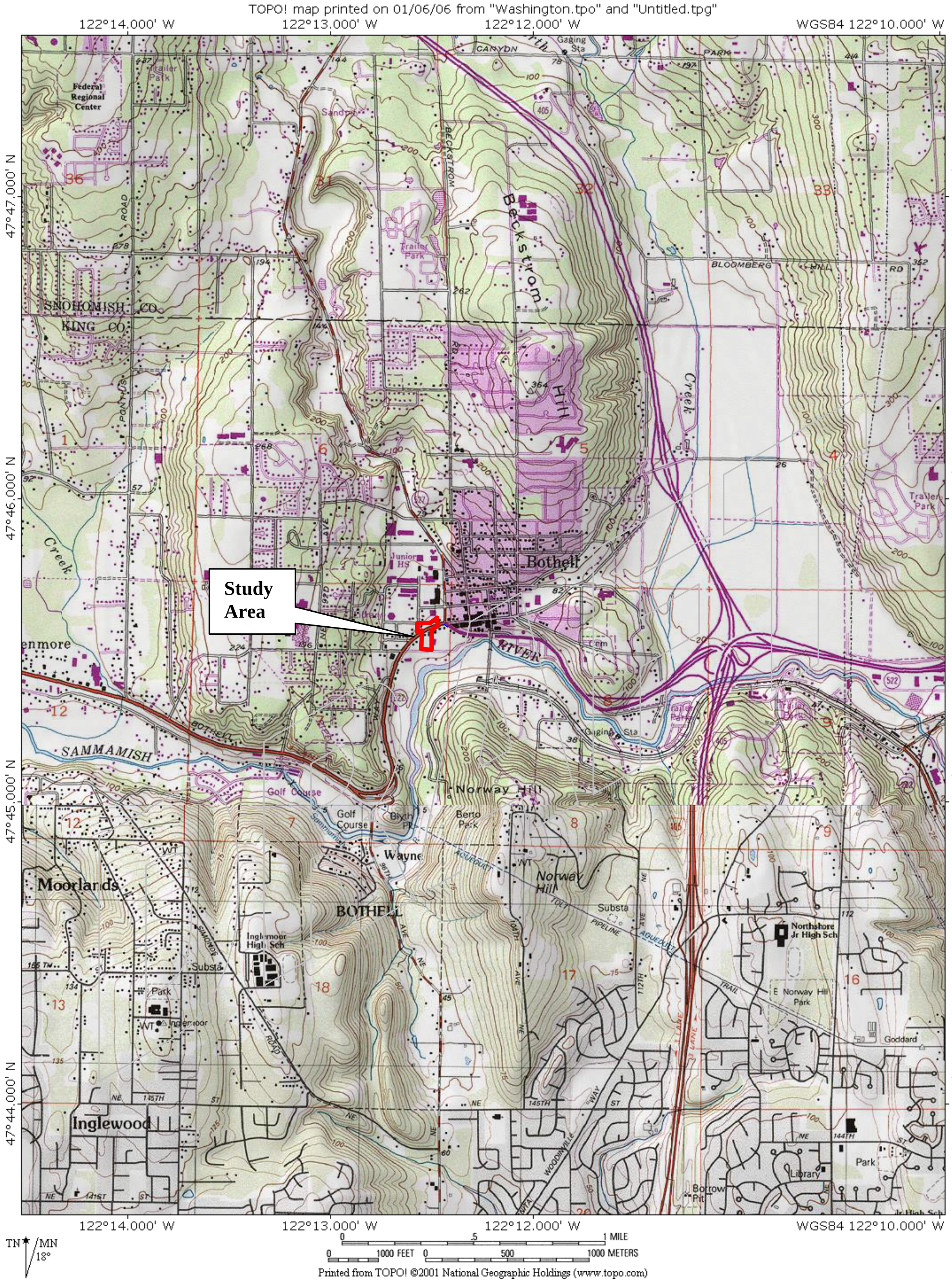
State of Washington
Hydrogeologist
132
Licensed Geologist
VANCE ATKINS
5/31/13

Vance Atkins, LG, LHG
Senior Hydrogeologist

Enclosures:

Figure 1	Site Vicinity
Figure 2	Site & Adjacent Properties

Figure 3	Site Plan
Figure 4	Ground Water Gradient
Figure 5	Cross Section AB
Figure 6	Cross Section AC
Figure 7	Cross Section Locations
Appendix A	Excerpt from Hertz RI/FS work plan, showing Phase 1 RI activities
Appendix B	Boring Logs
Appendix C	Laboratory Reports



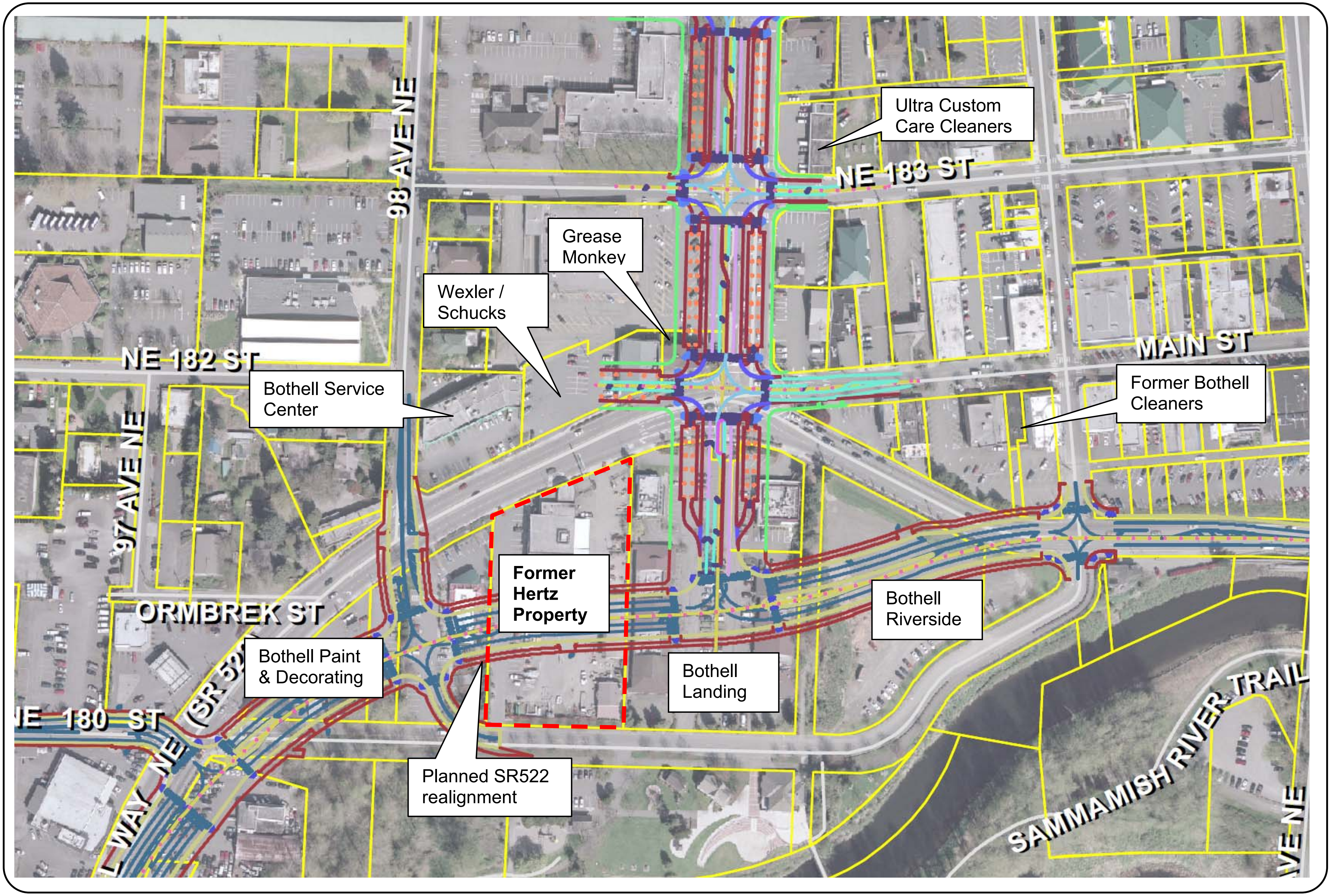
HWA GEOSCIENCES INC.

SITE VICINITY

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION
BOTHELL, WASHINGTON

FIGURE NO.
1

PROJECT NO.
2007-098



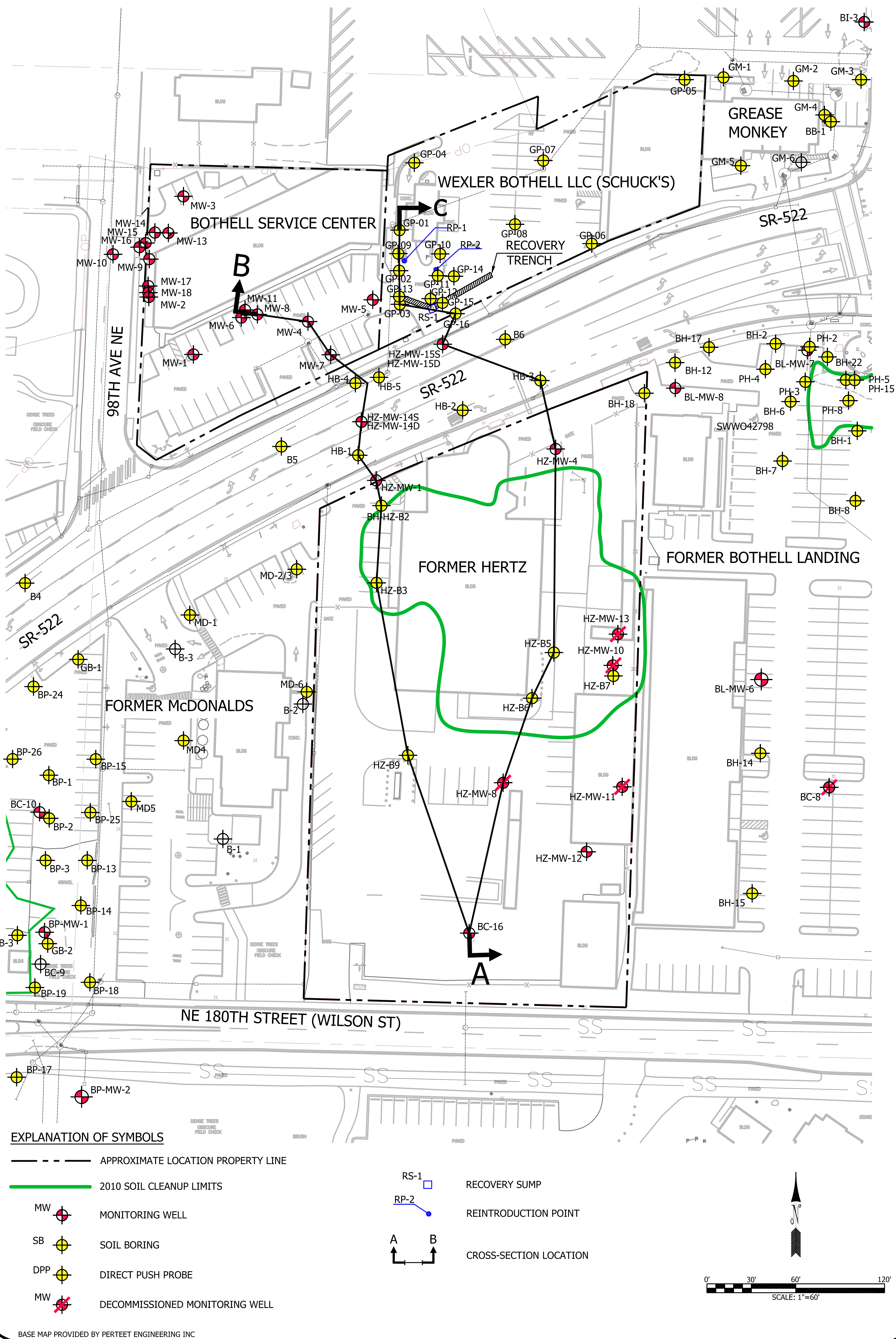
HWA GEOSCIENCES INC.

SITE LOCATION & ADJACENT PROPERTIES

BOTHELL FOMRER HERTZ FACILITY
REMEDIAL INVESTIGATION
BOTHELL, WASHINGTON

FIGURE NO. 2

PROJECT NO. 2007-098-931



HWA GEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION
BOTHELL, WASHINGTON

SITE PLAN & CROSS SECTION LOCATIONS

DRAWN BY EFK
CHECK BY AS
DATE 05.29.13
FIGURE NO. 3
PROJECT NO. 2007-098 T969

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T969B.DWG <FIG 7 T969> Plotted: 5/29/2013 7:25 AM

NOTES:

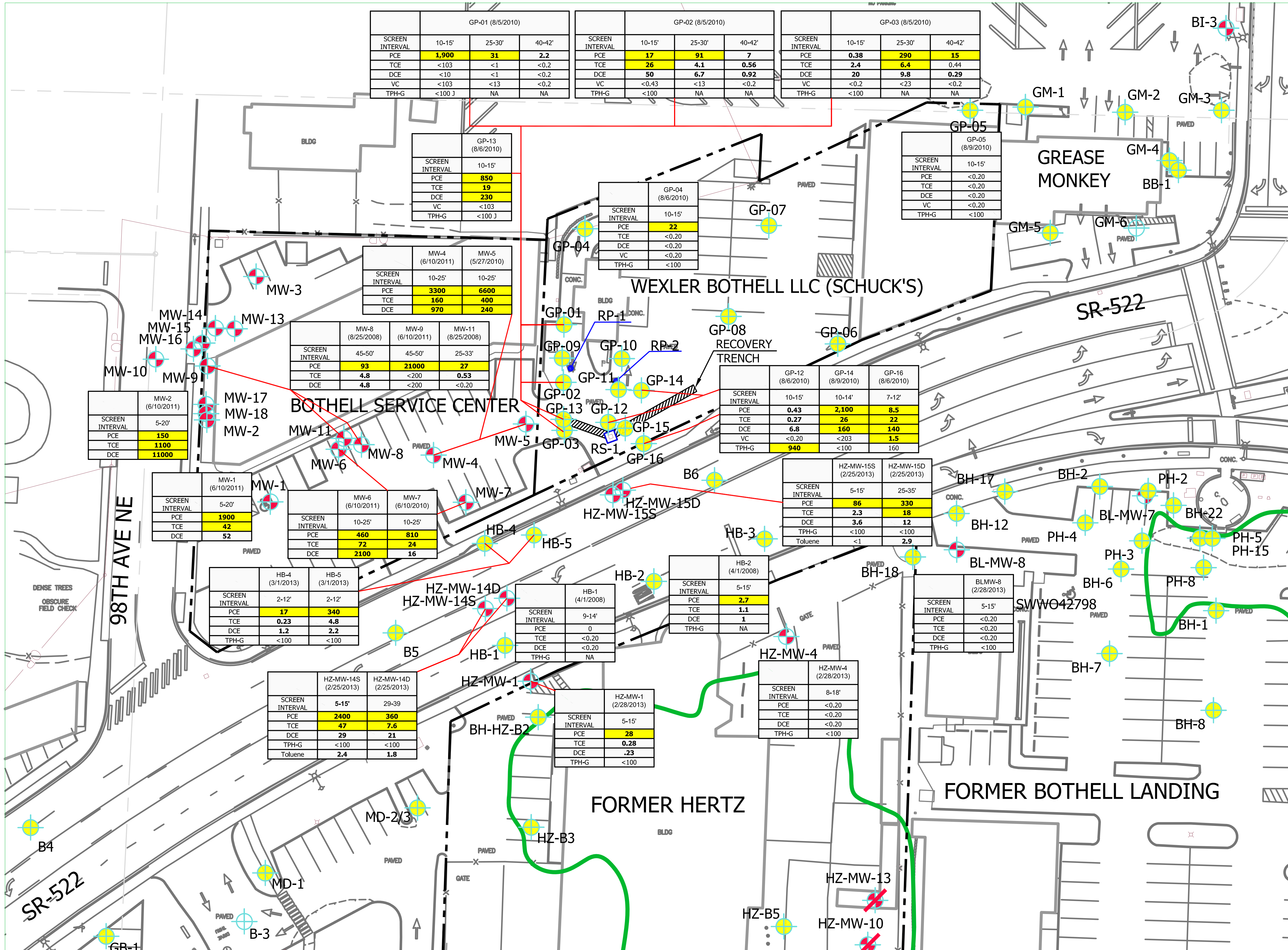
MTCA A Method A Ground water cleanup levels (ug/L)

PCE	5
TCE	5
DCE	N/A
VC	0.20
Gasoline Range TPH	800
Diesel Range TPH	500
Oil Range TPH	500
Toluene	1000

< - not detected at listed reporting limit

Bold – detected

Bold / highlighted – Analyte exceeds cleanup level



SCREEN INTERVAL	GP-01 (8/5/2010) 10-15'	25-30'	40-42'
PCE	1,900	31	2.2
TCE	<103	<1	<0.2
DCE	<10	<1	<0.2
VC	<103	<13	<0.2
TPH-G	<100 J	NA	NA

SCREEN INTERVAL	GP-02 (8/5/2010) 10-15'	25-30'	40-42'
PCE	17	91	7
TCE	26	4.1	0.56
DCE	50	6.7	0.92
VC	<0.43	<13	<0.2
TPH-G	<100	NA	NA

SCREEN INTERVAL	GP-03 (8/5/2010) 10-15'	25-30'	40-42'
PCE	0.38	290	15
TCE	2.4	6.4	0.44
DCE	20	9.8	0.29
VC	<0.2	<23	<0.2
TPH-G	<100	NA	NA

SCREEN INTERVAL	GP-13 (8/6/2010) 10-15'
PCE	850
TCE	19
DCE	230
VC	<103
TPH-G	<100 J

SCREEN INTERVAL	GP-04 (8/6/2010) 10-15'
PCE	22
TCE	<0.20
DCE	<0.20
VC	<0.20
TPH-G	<100

SCREEN INTERVAL	GP-05 (8/9/2010) 10-15'
PCE	<0.20
TCE	<0.20
DCE	<0.20
VC	<0.20
TPH-G	<100

SCREEN INTERVAL	MW-4 (6/10/2011) 10-25'	MW-5 (5/27/2010) 10-25'
PCE	3300	6600
TCE	160	400
DCE	970	240

SCREEN INTERVAL	MW-8 (8/25/2008) 45-50'	MW-9 (6/10/2011) 45-50'	MW-11 (8/25/2008) 25-33'
PCE	93	21000	27
TCE	4.8	<200	0.53
DCE	4.8	<200	<0.20

SCREEN INTERVAL	MW-2 (6/10/2011) 5-20'
PCE	150
TCE	1100
DCE	11000

SCREEN INTERVAL	GP-12 (8/6/2010) 10-15'	GP-14 (8/9/2010) 10-14'	GP-16 (8/6/2010) 7-12'
PCE	0.43	2,100	8.5
TCE	0.27	26	22
DCE	6.8	160	140
VC	<0.20	<203	1.5
TPH-G	940	<100	160

SCREEN INTERVAL	MW-1 (6/10/2011) 5-20'
PCE	1900
TCE	42
DCE	52

SCREEN INTERVAL	MW-6 (6/10/2011) 10-25'	MW-7 (6/10/2010) 10-25'
PCE	460	810
TCE	72	24
DCE	2100	16

SCREEN INTERVAL	HZ-MW-15S (2/25/2013) 5-15'	HZ-MW-15D (2/25/2013) 25-35'
PCE	86	330
TCE	2.3	18
DCE	3.6	12
TPH-G	<100	<100
Toluene	<1	2.9

SCREEN INTERVAL	HB-4 (3/1/2013) 2-12'	HB-5 (3/1/2013) 2-12'
PCE	17	340
TCE	0.23	4.8
DCE	1.2	2.2
TPH-G	<100	<100

SCREEN INTERVAL	HB-1 (4/1/2008) 9-14'
PCE	0
TCE	<0.20
DCE	<0.20
TPH-G	NA

SCREEN INTERVAL	HB-2 (4/1/2008) 5-15'
PCE	2.7
TCE	1.1
DCE	1
TPH-G	NA

SCREEN INTERVAL	BLMW-8 (2/28/2013) 5-15'
PCE	<0.20
TCE	<0.20
DCE	<0.20
TPH-G	<100

SCREEN INTERVAL	HZ-MW-14S (2/25/2013) 5-15'	HZ-MW-14D (2/25/2013) 29-39
PCE	2400	360
TCE	47	7.6
DCE	29	21
TPH-G	<100	<100
Toluene	2.4	1.8

SCREEN INTERVAL	HZ-MW-1 (2/28/2013) 5-15'
PCE	28
TCE	0.28
DCE	.23
TPH-G	<100

SCREEN INTERVAL	HZ-MW-4 (2/28/2013) 8-18'
PCE	<0.20
TCE	<0.20
DCE	<0.20
TPH-G	<100

N
W E
S

0 25 50 75 100

SCALE: 1"=50'

EXPLANATION OF SYMBOLS

APPROXIMATE LOCATION PROPERTY LINE

2010 SOIL CLEANUP LIMITS

MW — MONITORING WELL

SB/DPP — SOIL BORING OR DIRECT PUSH PROBE

MW — DECOMMISSIONED MONITORING WELL

RS-1 — RECOVERY SUMP

RP-2 — REINTRODUCTION POINT

BASE MAP PROVIDED BY:

HWA GEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION
BOTHELL, WASHINGTON

SITE PLAN

DRAWN BY
CHECK BY EFK
CHECK BY
CHECK BY AS
DATE: 05.06.13

FIGURE # 4

PROJECT # 2007-098 TASK 969

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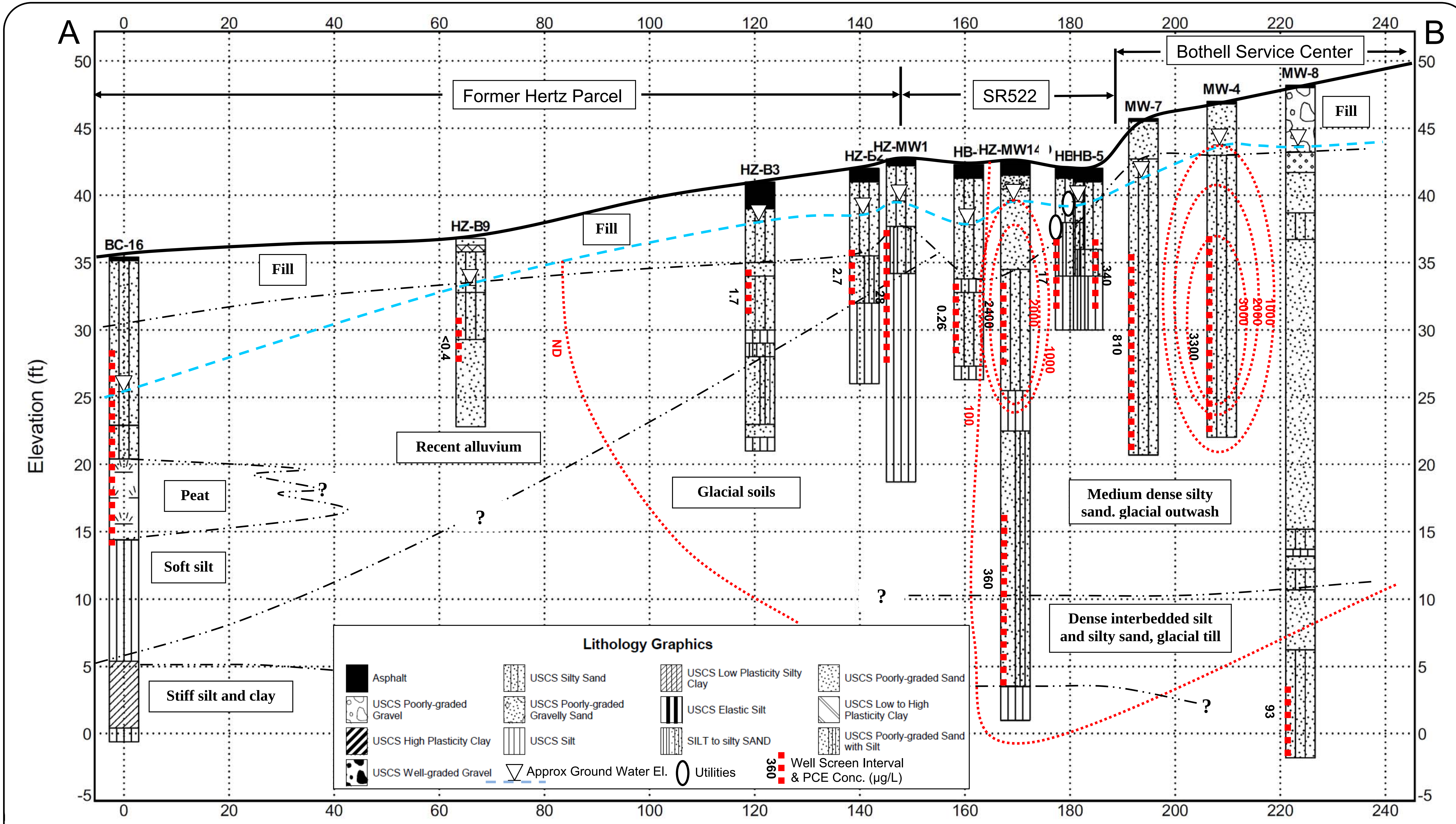


See Figure 7 for lines of section

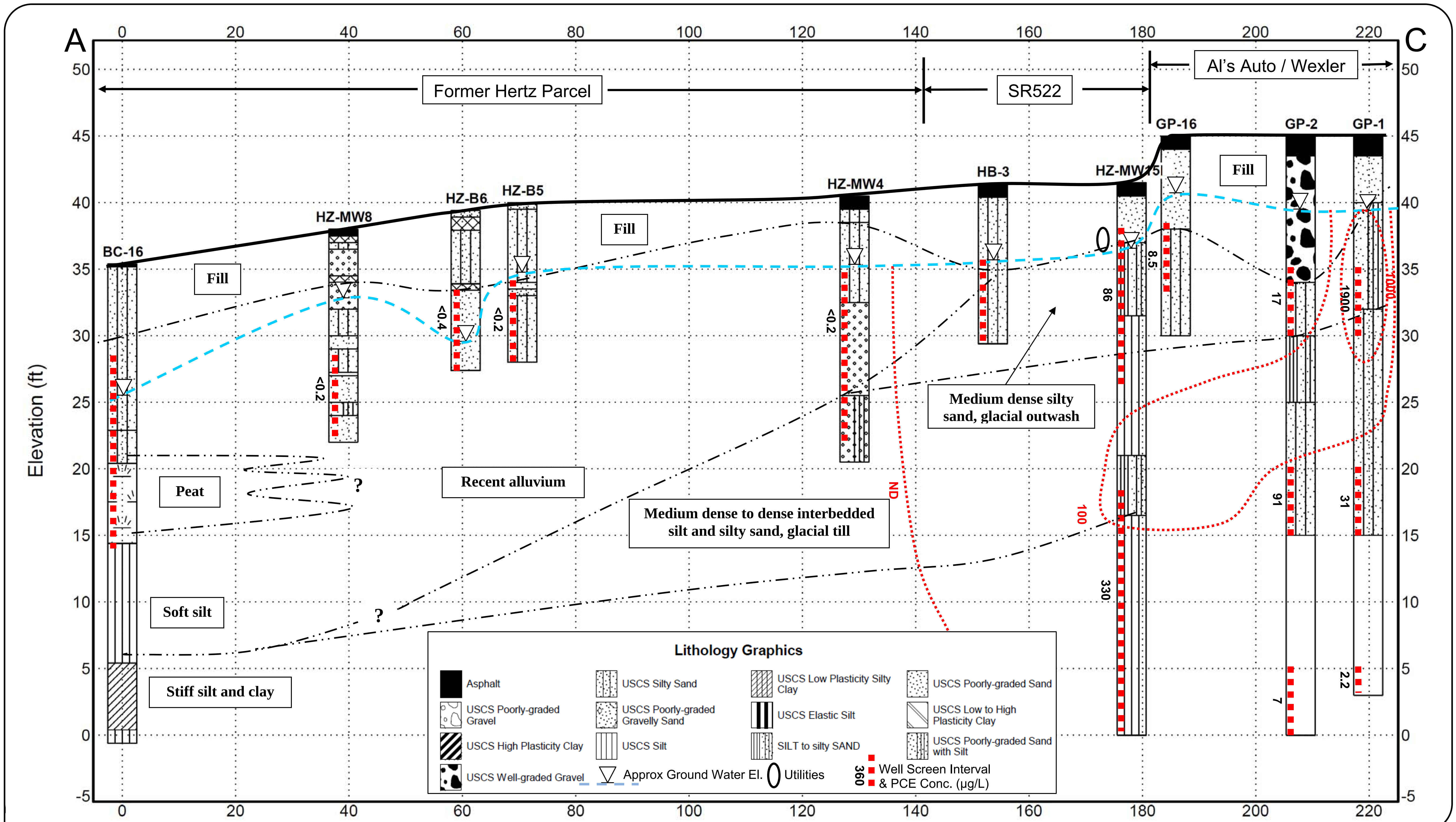
HWA GEOSCIENCES INC.

CROSS SECTION B – A
HERTZ TO BOTHELL SERVICE CENTER

BOTHELL FOMRER HERTZ FACILITY
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

PROJECT NO. 2007-098

FIGURE NO. 5



See Figure 7 for lines of section

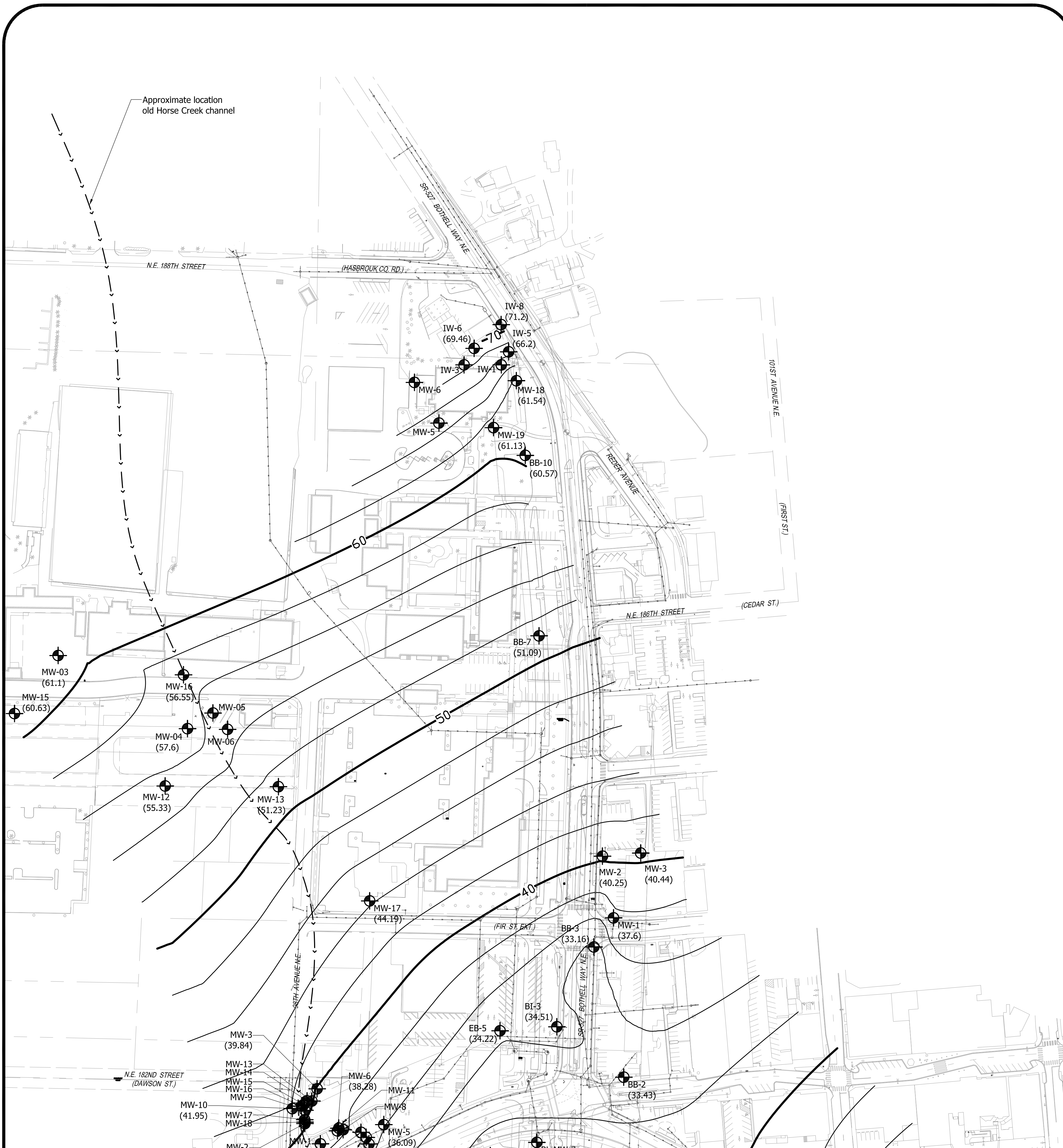
HWA GEOSCIENCES INC.

CROSS SECTION B - C
HERTZ TO AL'S AUTO / WEXLER

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

PROJECT NO. 2007-098

FIGURE NO. 6



BASE MAP PROVIDED BY:

HWA GeoSciences Inc.

Area-Wide Gradient Study
Bothell, Washington

Ground Water Gradient
August 29-31, 2012

DRAWN BY	EFK	FIGURE # 7
CHECK BY	VA	PROJECT # 2012-098 950
DATE:	09.07.12	

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Appendix A
RI Work Plan Excerpts

REMEDIAL INVESTIGATION FEASIBILITY STUDY

FINAL WORK PLAN

BOTHELL FORMER HERTZ FACILITY
BOTHELL, WASHINGTON

Project No. 2007-098-931

Prepared for
City of Bothell

September 10, 2012

HWA GEOSCIENCES INC.

- *Geotechnical Engineering*
- *Hydrogeology*
- *Geoenvironmental Services*
- *Inspection & Testing*

5.0 REMEDIAL INVESTIGATION AND FEASIIBILITY STUDY TASKS

The scope of work for the remedial investigation/feasibility study investigation is described in the Agreed Order. The scope of work includes the following tasks:

1. Develop a RI/FS project plan
2. Conduct a remedial investigation (RI) study
3. Conduct a feasibility study
4. Complete an RI/FS report

Tasks 1 and 2 above will be completed using the approach described in this section. The RI activities specific to this work plan will be performed in phases as follows:

Phase 1 RI activities will commence during and after construction of the new SR522 roadway and abandonment of the existing roadway in 2012-2013. These activities will be broken out as follows:

- Phase 1A - Additional soil sampling for utility trenches during construction of the new SR522 roadway
- Phase 1B - Installation of monitoring wells and direct push probes along the active SR522 right of way in between the former Hertz property and the Bothell Service Center property, to confirm that HVOCs from Bothell Service Center have migrated across the roadway, into utility trenches, and onto the former Hertz property.
- Phase 1C - Installation of monitoring wells on the former Hertz property after abandonment of the existing highway following completion of the new SR522 roadway construction.

Phase 2 RI activities include:

- Review and analysis of ground water sampling data collected under the expanded area-wide Bothell Landing RI
- Hydrogeologic measurements of ground water elevations and aquifer characteristics to determine flow directions and velocities, coincident with the quarterly ground water monitoring (see below)
- Analysis and inclusion of ground water data from the adjacent Bothell Landing RI, as needed
- One year of quarterly ground water monitoring at the former Hertz property and other areas (to be coordinated with the area wide ground water study)
- A data gap analysis to complete the requirements for a RI/FS per WAC 173-340-350

Phase 3 RI activities include:

- Investigations and modeling necessary to evaluate subsurface vapor intrusion of chlorinated VOCs and petroleum hydrocarbons into buildings

Phase 4 RI activities include:

- Chlorinated VOC source delineation at the Bothell Service Center property, and other properties, if found to be part of the former Hertz Site. This will include a review of existing data, and new explorations as needed and as access allows.

Phase 5 RI activities include

- Investigations necessary to evaluate potential source control options and to close any outstanding data gaps, for which additional work plan supplements will be submitted to Ecology
- Preparation of a complete RI report

5.1 Project Planning

The project plan for the RI study consists of this work plan, the SAP (Sampling and Analysis Plan, including the Quality Assurance Project Plan) included in Appendix B, the Health and Safety Plan (HASP) in Appendix C, and a Public Participation Plan. The Public Participation Plan is issued as a separate document, and is included in the Agreed Order. These documents will be revised as needed through the iterative process of regulatory interaction and public participation.

5.2 Field Sampling Plan and RI Activities

The field sampling plan and associated RI activities described below are designed to meet investigation objectives described in the Agreed Order and this work plan. The sampling strategy and rationale are described in this section. Detailed sampling methodology is described in the SAP.

5.2.1 RI Phase 1 SR522 Construction Activities

Phase 1 RI activities include soil and ground water sampling during and after construction of the new SR522 roadway and abandonment of the existing roadway in 2012-2013.

Phase 1A - Although a soil cleanup was conducted at the Hertz property in 2011 which achieved the Site cleanup levels, other portions of the property and adjoining areas will be excavated for utilities during construction of the new SR522 roadway. Areas not formerly cleaned up will be sampled prior to utility excavation using a backhoe or excavator, as part of the construction contract, primarily to characterize the trench spoils for reuse or disposal. Sampling is needed to characterize soils excavated from the utility trenches for reuse or disposal, either as required by the disposal facility, or to ensure compliance with Ecology End Use Criteria for unrestricted or other uses. These values may be below the cleanup levels. This testing includes approximately five locations on the Hertz property and 50 on adjoining properties that are part of the roadway construction project, that are not part of this RI. Figures 10 and 11 show the approximate locations of these samples. Although not anticipated, if any soils are discovered which exceed the previously established Site cleanup levels, those areas will be further investigated via test pit explorations and cleaned up to Site cleanup levels. Soils below cleanup levels may be re-used in the trenches if they are structurally suitable and meet construction specification requirements.

Phase 1B – This phase includes installation of monitoring wells and direct push probes along the active SR522 right of way in between the former Hertz property and the Bothell Service Center property - these wells are identified as O (Os and Od, for shallow and deep wells) and P (Ps and Pd) on the area-wide monitoring well network for Bothell Landing (Figure 12). The purpose of these wells is to ascertain that HVOCs from Bothell Service Center have migrated across the roadway, into utility trenches, and/or onto the former Hertz property. Selected existing monitoring wells in the area will also be sampled. Figure 13 shows the location of new monitoring wells, vactor/direct push borings, and existing wells to be sampled.

Vinyl chloride detected in ground water on the former Hertz Property has been interpreted to have originated from the Bothell Service Center property. However, the cross-gradient location of some of the vinyl chloride detections, as well as the absence of elevated PCE, TCE, or DCE concentrations in ground water at the former Hertz Property leave a data gap as to the relationship between the two properties with respect to HVOCs in ground water. The northern portion of the former Hertz Property, located in between the vinyl chloride detections and the known Bothell Service Center plume and source area, is the same area formerly impacted by petroleum hydrocarbons that underwent a soil cleanup in 2010 (see Figure 4). It is possible that the former presence of petroleum hydrocarbons in soil and ground water this area acted to enhance partial biodegradation of southward-migrating PCE, leaving a residual plume of vinyl chloride on the former Hertz property. Petroleum hydrocarbons could act to stimulate biodegradation of HVOCs by 1) creating an anoxic environment, 2) providing electron donors, and 3) providing cometabolytes (e.g., BTEX compounds), all of which are known to stimulate HVOC biodegradation. Phase 1B RI Activities will investigate this.

Four ground water monitoring wells will be installed in between the Bothell Service Center property and the former Hertz Property (see Figures 12 & 13), in two adjacent pairs of shallow and deep completed wells. The shallow wells will be screened across first-encountered ground water (approximately 8-15 feet bgs, or total well depths of around 20 feet bgs); the deep wells will be screened at around 30-40 feet bgs (total well depths of around 45 feet bgs).

Utilities along SR522 include storm and sanitary sewers, some of which are below ground water level (see Figures 3, 6, 7, and 13). Preferential migration of HVOCs in ground water along the utility trenches (which are typically backfilled with permeable soils) has been suspected, and will be investigated by advancing two direct push / vactor borings into the utility trenches and collecting ground water samples within saturated trench backfill. Vactor borings are used to safely locate the utility pipes and advance a boring adjacent to the pipe, after which direct push borings can be advanced into the trench backfill for one-time collection of soil and ground water samples. Two such borings will be installed and sampled in sanitary and storm sewer line trenches shown HB-4 and HB-5 on Figure 13.

Sampling of existing monitoring wells will also be conducted to see if the petroleum soil cleanup or passage of time has altered the ground water quality in this area. Wells HZ MW-1, HZMW-4, and BLMW-8 will be sampled for HVOCs and TPH compounds.

Phase 1C - After the new roadway is built, and the old roadway vacated, monitoring wells will be installed on the former Hertz property to confirm the 2010 independent remedial action petroleum soil cleanup. These wells, identified as H & I in the Bothell Landing RI, will characterize and delineate the eastern edges of the chlorinated VOC plume from Bothell Service Center and confirm TPH cleanup in soil and ground water at Hertz. The location and measuring point elevation of each monitoring well will be surveyed with respect to a common datum so that the direction of ground water flow can be accurately assessed. After the monitoring well network is in place the wells will be monitored quarterly for one year.

During borehole drilling, soil samples will be collected in selected intervals above and below the water table. These samples will be tested for several physical and chemical parameters necessary to evaluate subsurface vapor intrusion into buildings and the transport and fate of contaminants in ground water. These parameters include:

- Weight Fraction Organic Carbon
- Dry Bulk Density
- Total Porosity
- Air-Filled Porosity
- Volumetric Moisture Content
- Cation Exchange Capacity

Proposed soil and ground water sample locations, depths, rationale, and analytes for the Phase 1 RI activities are described in Table 3. Planned soil and ground water sample locations are shown on Figures 10 through 13. Specific sample collection and chemical analytical methodologies are presented in the SAP.

Appendix B
Boring Logs

DRILLING COMPANY: Holocene Drilling, Inc
DRILLING METHOD: 4-1/4" HSA Truck-mounted Mobile B-61
SAMPLING METHOD: SPT with Autohammer
LOCATION: See Figure 2

SURFACE ELEVATION: 35.40 ± feet
CASING ELEVATION ± feet

DATE STARTED: 5/20/2009
DATE COMPLETED: 5/20/2009
LOGGED BY: HWA - J. Gillie

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	NOTES
0	SM	HMA 1" thick over gravelly, silty SAND 2" thick. **(PAVEMENT SECTION)**				Flush mount monument nad cement surface seal; 2-inch Sch 40 PVC casing
		Loose, dark gray, gravelly, silty fine to medium SAND, moist. **(FILL/ALLUVIUM)**	S-1	1-1-2		10/20 filter sand
5		Organics, similar to peat, noted in sample at 5 feet.	S-2	0-0-2	GS	2-inch Sch 40 PVC 10-slot screen
		Interbedded 1" bands of dark gray silt noted at 7.5 feet.	S-3	4-4-4		
10			S-4	2-2-3		
	SM	Loose, very dark brownish gray, gravelly, silty SAND, wet, wood chips noted throughout sample. **(ALLUVIUM)**	S-5	1-2-2	GS	
15	PT	Soft, very dark brown to red brown, woody PEAT, moist.	S-6	1-1-2		Bentonite backfill
		Long rootlets in matrix of sample at 17.5 feet.	S-7	1-1-1		
20			S-8a	0-1-2		
	ML	Soft, very dark brown, SILT with organics, moist, with peat.	S-8b			
		Fiberous organics noted in sample at 22.5 feet.	S-9	1-1-1		
25			S-10	0-1-1		
30	CL	Medium stiff, olive gray, lean CLAY, wet.	S-11	0-0-4	AL	
		Sample grades to fine gravelly, sandy at 31.5 feet.				
35	ML	Hard, gray, SILT, moist, with subvertical partings with fine sand. **(GLACIAL DRIFT)**	S-12	20-50/6"		

Boring terminated at 36.0 feet below ground surface.
Ground water encountered at 5 feet below ground surface during drilling.

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 Crossroads
Area Wide Gradient
Bothell, WA

MONITORING WELL:
BC-16

PROJECT NO.: 2007-098 Task 950 FIGURE: A-17

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: N. of former kerosene LUST

SURFACE ELEVATION: 42.00 ± feet
CASING ELEVATION ± feet

DATE STARTED:
DATE COMPLETED:
LOGGED BY: HWA - A. Sugar

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)
0			Asphalt and angular gravel base-course								0
		SM	Poor recovery- brown SILTY SAND (FILL)		2			0			
5			Brown SILTY SAND, moist grading wet.								5
		SP SM	Brown SILTY SAND and fine SAND, wet.		6			1		∇	
					8			1			
10		ML	Tan SILT, slightly plastic, wet.								10
			Stiff gray SILT/SILTY FINE SAND, wet.		12			0			
15											15

Boring completed to 16 feet bgs.
Ground water encountered at 6.7 feet bgs.
Collected ground water sample with temporary screen (7-10 feet bgs).

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 Crossroads
Area Wide Gradient
Bothell, WA

MONITORING WELL:
HZ-B2

PAGE: 1 of 1

PROJECT NO.: 2007-098 Task 950 FIGURE: A-3

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: S. of former kerosene LUST

SURFACE ELEVATION: 41.00 ± feet
CASING ELEVATION ± feet

DATE STARTED:
DATE COMPLETED:
LOGGED BY: HWA - A. Sugar

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PID (ppm)	NOTES
0		Asphalt and angular gravel base-course			
	SM	Brown SILTY SAND with angular gravel (FILL)	2	5	
	SP	Clean SAND seam.	6	5	∇
	SM	Dark gray GRAVEL and SAND, wet. Possible staining, no odor.			
10		Dark brown SILTY FINE SAND, wet. Possible staining.	10	6	
	ML	Stiff gray SILT/SANDY SILT, wet.	12	3	
	ML	As above, grading less silt.			
15	SM	Fine SILTY SAND, wet.			
	SP SM		16	5	
	SP	Tan and rust-mottled SILTY SAND, stratified (sand and silty layers), wet.			
20	ML	Gray fine SAND, wet.			
		Stiff gray SILT, wet.			

Boring completed to 20 feet bgs.
Ground water encountered at 7 feet bgs.
Collected ground water sample with temporary screen (7-10 feet bgs).
Very slow ground water recovery.

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 Crossroads
Area Wide Gradient
Bothell, WA

MONITORING WELL:
HZ-B3

PAGE: 1 of 1

PROJECT NO.: 2007-098 Task 950 FIGURE: A-4

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: S. end of former diesel UST

SURFACE ELEVATION: 40.00 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: HWA - J. Speck

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	4 Inches concrete.							
			6 inches of asphalt treated base.							
			Dark brown to black, silty, fine to medium SAND with gravel, wet. Trace hydrocarbon odor. Moisture possible perched ground water. Sample grades less moist below.							∇
		SP								
		SM	Observed hard drilling at approximately 4 feet below ground surface (possible construction debris).	■	HZ-B5-7			356.2		
			Dark brown, silty, fine to medium SAND with gravel, wet.							
			Concrete slough (weathered) - possible construction debris.							
			Dark olive gray to olive brown, silty, fine to medium SAND with gravel, moist to wet (in sample tip). Grades to dark brown. Observe sheen and trace hydrocarbon odor in sample.							

Boring completed to 12 feet bgs.
Ground water encountered at 6 feet bgs.
Collected ground water sample with temporary screen (7-12 feet bgs).
Very slow ground water recovery.

Depth scale (feet): 0, 5, 10, 15, 20, 25, 30, 35, 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 Crossroads
Area Wide Gradient
Bothell, WA

MONITORING WELL:
HZ-B5

PAGE: 1 of 1

PROJECT NO.: 2007-098 Task 950 FIGURE: A-6

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: NE end of former gasoline UST

SURFACE ELEVATION: 39.40 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: HWA - J. Speck

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)
0			6 inches concrete								0
		SM	Gravel fill.	■	HZ-B6-1			62.2			
			Dark brown to olive gray, silty, fine to medium SAND with gravel, moist.								
5		SP	Construction debris. (Decomposing wood, plastic)								5
			Gray, fine to medium SAND, moist to wet. Ground water observed at 7.5 feet below ground surface.						∇		
10			Trace oxidation stains.								10

Boring completed to 12 feet bgs.
Ground water encountered at 7.5 feet bgs.
Collected ground water sample with temporary screen (7-12 feet bgs).
Very slow ground water recovery.

15 20 25 30 35 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 Crossroads
Area Wide Gradient
Bothell, WA

MONITORING WELL:
HZ-B6

PAGE: 1 of 1

PROJECT NO.: 2007-098 Task 950 FIGURE: A-7

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: Downgradient of kerosene UST

SURFACE ELEVATION: 36.80 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: HWA - J. Speck

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)
0			4 inches asphalt.								0
		SM	Asphalt treated base.								
			Dark to olive brown, silty, fine to medium SAND, moist.	■	HZ-B9-3			0			
5		SM	Some gravel. Fine sand lense from 3.5 to 3.75 feet below ground surface.								5
		SP	Dark to olive brown, silty, fine to medium SAND, moist. Some gravel.							∇	
10			Fine sand lense from 6.25 to 6.5 feet below ground surface. Fine sand lense from 7.25 to 7.5 feet below ground surface.								10
			Dark brown, fine to medium SAND with gravel, wet.								
15			Boring completed to 14 feet bgs. Static ground water observed at 7.5 feet below ground surface. Collected ground water sample with temporary screen (7-12 feet bgs).								15
20											20
25											25
30											30
35											35
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 Crossroads
Area Wide Gradient
Bothell, WA

MONITORING WELL:
HZ-B9

PAGE: 1 of 1

PROJECT NO.: 2007-098 Task 950 FIGURE: A-10

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: Northwest property line

SURFACE ELEVATION: 42.70 ± feet
CASING ELEVATION ± feet

DATE STARTED:
DATE COMPLETED:
LOGGED BY: HWA - A. Sugar

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PID (ppm)	NOTES
0		Asphalt and angular gravel base-course	1	6	Flush mount monument and cememt surface seal
	SM	Tan fine SILTY SAND (FILL)			Hydrated bentonite seal 1-inch Sch. 40 PVC casing
5	ML SM	As above, with seams of silt/silty sand, grading wet at 6 feet bgs	6	4	Filter Sand 1-inch Sch. 40 PVC 10-slot screen
	ML	Stiff tan SILT/SILTY FINE SAND, slightly plastic, wet			
10			10	12	
		Stiff gray SILT and SILTY SAND, some rust mottling, slightly plastic, wet.	12	10	
15		Stiff gray SILT and SILTY SAND, wet.	16	6	Slough backfill
					Hydrated bentonite chip backfill
20			20	8	

Boring completed to 24 feet bgs. Ground water encountered at 5 feet bgs.
Boring completed as monitoring well. (DOE Unique Well ID#: APL960)

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 Crossroads
Area Wide Gradient
Bothell, WA

MONITORING WELL:
HZ-MW1

PAGE: 1 of 1

PROJECT NO.: 2007-098 Task 950 FIGURE: A-2

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: Upgradient Bothell Service Center

SURFACE ELEVATION: 40.50 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: HWA - J. Speck

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	NOTES
0		3 inches asphalt						Flush mount monument and cement
	SM	10 inches concrete	■	HZ-B4-1			0	
	SM	Black to light brown, silty, fine to medium SAND with gravel, dry.						Hydrated bentonite seal
5		Yellow brown, silty, fine SAND, moist. Oxidation stains. Decomposing wood.						1 inch Sch. 40 PVC casing; Filter sand
	SW	Brown, silty, fine SAND with gravel, moist to wet.						
10		Grades to dark yellow brown, fine SAND, wet. Trace fines.						1 inch Sch. 40 PVC 10 slot screen
		Grades to olive brown, fine SAND, wet. Some fines.						
15	SW SM	Interbedded Olive brown, fine SAND and siltier SAND, wet. Trace fines.						Slough backfill
20								Hydrated bentonite chip backfill

Boring completed to 20 feet bgs.
Ground water encountered at 8 feet bgs.
Boring completed as monitoring well (DOE Unique Well ID#: APL961)

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 Crossroads
Area Wide Gradient
Bothell, WA

MONITORING WELL:
HZ-MW4

PROJECT NO.: 2007-098 Task 950 FIGURE: A-5

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: HDPE-lined Macrocore Sampler
LOCATION: Downgradient of gas/diesel UST

SURFACE ELEVATION: 38.00 ± feet
CASING ELEVATION ± feet

DATE STARTED: 8/28/2008
DATE COMPLETED: 8/28/2008
LOGGED BY: HWA - J. Speck

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PID (ppm)	NOTES
0		6 inches asphalt.			Flush mount monument and cement
	SM	6 inches asphalt treated base.	HZ-B8-1	0	
	SW	Dark olive brown, silty, fine SAND, moist.	HZ-B8-3.5	16.8	Hydrated bentonite seal
5	SW	Dark olive brown, fine SAND, moist. Some fines. Decomposing wood at 2.5 feet below ground surface. Some hydrocarbon odor.	HZ-B8-5	0	1 inch Sch. 40 PVC casing
	SM	Pink, fine SAND, moist (weathered rock/burn slag).			
10	SP	Dark gray, fine SAND, moist.			Filter sand
	SM	Dark gray, silty, fine to medium SAND with gravel, moist. Observe a sheen and hydrocarbon odor. Grades less silty and more moisture.			1 inch Sch. 40 PVC 10 slot screen
	SP	Trace, fine to medium SAND, with gravel, wet.			
15	SP	Olive gray, silty, fine SAND with gravel, wet. Sheen and hydrocarbon odor. Possible free product.			
	SM	Decomposing wood.			
	SP	Dark olive brown, fine to medium SAND with gravel, wet.			
		Dark olive brown, silty, fine to medium SAND with gravel, wet. Sheen and hydrocarbon odor.			
		Dark olive brown, fine to medium SAND with gravel, wet.			

Boring completed to 16 feet bgs.
Ground water encountered at 9.5 feet bgs.
Boring completed as monitoring well (DOE Unique Well ID#: APL962)

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 Crossroads
Area Wide Gradient
Bothell, WA

MONITORING WELL:
HZ-MW8

PROJECT NO.: 2007-098 Task 950 FIGURE: A-9

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Center turn lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/22/2013
DATE COMPLETED: 2/22/2013
LOGGED BY: V. Atkins

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	NOTES
0		Asphalt					Flush mount monument and concrete surface seal
		Concrete					
	SP	Medium dense reddish brown fine to medium SAND with gravel, moist. **(FILL)**					Hydrated bentonite seal
							2-inch Schedule 40 PVC casing
5			5	5/7/11			
		Grading wet.	7.5	4/7/8		0.1	
	SM	Silt layer at 8 feet.					
		Medium dense brown fine silty SAND to sandy SILT, moist to wet. **(ALLUVIUM)**					
10			10	5/6/9		2.2	
		Medium dense brown to gray-brown fine silty SAND with silt layers, wet.	12.5	5/7/7		1	
15		Medium dense gray-brown fine silty SAND, trace orange mottling, wet.	15	5/9/12		2.3	
	ML	Soft gray-brown SILT with fine sand layer, mottled, moist.	17.5	2/3/4		.5	
20	SP SM	Medium dense brown silty SAND with fine to medium sand layers, wet.	20	8/12/15		3	
25							

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 Crossroads
Hertz Parcel RI
Bothell, WA

MONITORING WELL:
HZ-MW14D

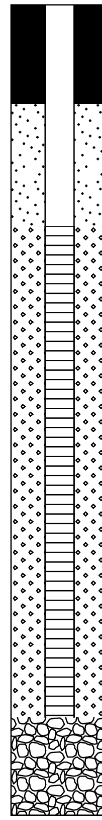
PROJECT NO.: 2007-098-931 FIGURE: B-2

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Center turn lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/22/2013
DATE COMPLETED: 2/22/2013
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	DEPTH (feet)
25			Medium dense brown fine silty SAND, occasional oxidixed sand seams.		25	7/11/13		0			25
										10x20 filter sand	
30			Medium dense red-brown fine SAND with silt, wet.		30	5/6/10		0		2-inch Schedule 40 PVC 10-slot screen	30
35			Medium dense light brown fine SAND with silty sand layers, wet.		35	5/11/14		0			35
		ML	Very stiff to hard gray-brown SILT with fine sand, trace mottling, wet to moist.								
40					40	13/25/30		0			40
			Boring completed to 41.5 feet bgs. Ground water encountered at 7 feet bgs. Boring completed as monitoring well.								
45											45
50											50



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 Crossroads
Hertz Parcel RI
Bothell, WA

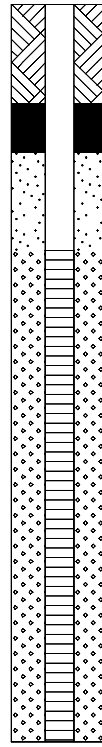
MONITORING WELL:
HZ-MW14D

PROJECT NO.: 2007-098-931 FIGURE: B-2

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Center turn lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/21/2013
DATE COMPLETED: 2/21/2013
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	DEPTH (feet)
0			No soils logged. See boring log HZ-MW-14D for lithology.							Flush mount monument and concrete surface seal Hydrated bentonite seal 2-inch Schedule 40 PVC casing 10x20 filter sand ▼ ▽ 2-inch Schedule 40 PVC 10-slot screen	0
5											5
10											10
15			Boring completed to 15 feet bgs. Ground water encountered at 7 feet bgs. Boring completed as monitoring well.								15
20											20
25											25

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 Crossroads
Hertz Parcel RI
Bothell, WA

MONITORING WELL:
HZ-MW14S

PROJECT NO.: 2007-098-931 FIGURE: B-3

MWELL 2007-098-931.GPJ 5/17/13

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Right-hand westbound lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/22/2013
DATE COMPLETED: 2/22/2013
LOGGED BY: V. Atkins

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	NOTES
0		Asphalt					Flush mount monument and concrete surface seal
	SP	Medium dense reddish brown SAND and GRAVEL, with cobbles, moist. **(FILL)**					Hydrated bentonite seal; 2-inch Schedule 40 PVC casing
4.5	ML SM	Loose light brownish yellow SILT and fine SAND, grading wet. **(ALLUVIUM)**	5	2/5/6		0	
		Medium dense light brown-yellow to gray-brown fine silty SAND with fine sand lenses, wet.	7.5	3/4/8		0.1	
10	ML	Medium stiff light brownish yellow SILT with fine sand, wet	10	3/3/3		0.4	
		Stiff light brown SILT.	12.5	8/8/11		2	
15		Stiff brown SILT, trace fine sand, moist to wet.	15	3/5/6		0.4	
		Stiff brown SILT, moist.	17.5	6/7/9		0.4	
20			20	8/12/14		4	
	ML SM	Medium dense brown fine silty SAND, trace oxidation, wet.					
23							10x20 filter sand
25							

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 Crossroads
Hertz Parcel RI
Bothell, WA

MONITORING WELL:
HZ-MW15D

PROJECT NO.: 2007-098-931 FIGURE: B-4

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Right-hand westbound lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/22/2013
DATE COMPLETED: 2/22/2013
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
25		ML	Very stiff brown SILT, wet.		25	15/19/27		0		2-inch Schedule 40 PVC 10-slot screen
30			Stiff brown SILT, with fine silty sand layers, wet.		30	11/15/16		0		
35			Very stiff brown SILT, trace fine sand, wet.		35	9/14/16		0.2		10x20 filter sand backfill
40			Very stiff brown SILT, wet.		40	10/15/21		0		
45										
50										

Boring completed to 41.5 feet bgs.
Ground water encountered at 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 Crossroads
Hertz Parcel RI
Bothell, WA

MONITORING WELL:
HZ-MW15D

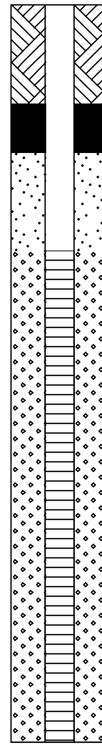
PROJECT NO.: 2007-098-931 FIGURE: B-4

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: Mobile B-59 HSA
SAMPLING METHOD: SPTx140# hammer
LOCATION: Right-hand westbound lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/22/2013
DATE COMPLETED: 2/22/2013
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	DEPTH (feet)
0			No soils logged. See boring log HZ-MW-15D for lithology.							Flush mount monument and concrete surface seal	0
										Hydrated bentonite seal	
										2-inch Schedule 40 PVC casing	
										10x20 filter sand	
5										2-inch Schedule 40 PVC 10-slot screen	5
10											10
15			Boring completed to 15 feet bgs. Ground water encountered at 5 feet bgs. Boring completed as monitoring well.								15
20											20
25											25



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 Crossroads
Hertz Parcel RI
Bothell, WA

MONITORING WELL:
HZ-MW15S

PAGE: 1 of 1

PROJECT NO.: 2007-098-931 FIGURE: B-5

MWELL 2007-098-931.GPJ 5/17/13

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: 48" Macrocore Sampler
LOCATION: City of Bothell right of way adjacent to Hertz Property

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 4/4/2008
DATE COMPLETED: 4/4/2008
LOGGED BY: J. Speck

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			4 inches asphalt. 8 inches asphalt treated gravel.							
		SM	Dark yellow brown, silty, fine to medium SAND, moist. Trace gravel.							Set temporary 1-inch PVC screen from 9-14 feet bgs.
			3 inch inclusion of 2 inch diameter asphalt.							
			Dark yellow brown, silty, fine to medium SAND, wet.							
5					HB-1-5					
			Grades to no gravel.							
		ML	Dark yellow brown, sandy SILT, wet.							
10		SM	Dark yellow brown, silty, fine to medium SAND, wet.							
			Dark yellow brown, silty, fine to medium SAND, wet.							
15		ML	Olive gray, sandy SILT, wet.							
			Boring completed to 16 feet bgs. Boring backfilled with hydrated bentonite							
20										
25										

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 Crossroads
Hertz SR522 ROW Borings

MONITORING WELL:
HB-1

PAGE: 1 of 1

PROJECT NO.: 2007 098-230 FIGURE: A-2

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: 48" Macrocore Sampler
LOCATION: City of Bothell right of way adjacent to Hertz Property

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 4/4/2008
DATE COMPLETED: 4/4/2008
LOGGED BY: J. Speck

DEPTH (feet)	USCS SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	NOTES
0		4 inches asphalt. 8 inches asphalt treated gravel.						
	SM	3 inches dark brown, silty, fine to medium SAND with gravel, moist.						Set temporary 1-inch PVC screen from 5-10 feet bgs.
		Dark yellow brown, silty, fine to medium SAND with gravel, moist.						
		Dark yellow brown, silty, fine to medium SAND, moist. Trace gravel.						
		Dark yellow brown, silty, fine to medium SAND, moist.						
5		Grades less silty.		HB-2-5				
		Grades more moisture.						
10		Olive gray, fine to medium SAND, wet.						
	ML	Olive gray, sandy SILT, wet.						
	SM	Olive gray, silty, fine to medium SAND, wet.						
15								

Boring completed to 16 feet bgs.
Boring backfilled with hydrated bentonite

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 Crossroads
Hertz SR522 ROW Borings

MONITORING WELL:
HB-2

PAGE: 1 of 1

PROJECT NO.: 2007 098-230 FIGURE: A-3

MWELL 2007-098-230.GPJ 5/17/13

DRILLING COMPANY: ESN Northwest
DRILLING METHOD: GeoProbe
SAMPLING METHOD: 48" Macrocore Sampler
LOCATION: City of Bothell right of way adjacent to Hertz Property

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 4/4/2008
DATE COMPLETED: 4/5/2008
LOGGED BY: J. Speck

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)
0			4 inches asphalt. 8 inches asphalt treated gravel.								0
		SM	Dark yellow brown, silty, fine to medium SAND, moist.								
					HB-3-4						
5			Dark yellow brown, silty, fine to medium SAND, wet.								5
			Some siltier lenses (not stratified).								
10											10
			Boring completed to 12 feet bgs. Boring backfilled with hydrated bentonite								
15											15
20											20
25											25

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 Crossroads
Hertz SR522 ROW Borings

MONITORING WELL:
HB-3

PAGE: 1 of 1

PROJECT NO.: 2007 098-230 FIGURE: A-4

MWELL 2007-098-230.GPJ 5/17/13

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: GeoProbe
SAMPLING METHOD: 48" Macrocore Sampler with HDPE Liner
LOCATION: Utility Trench, 2 ft east of catchbasin, right-hand westbound lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/28/2013
DATE COMPLETED: 2/28/2013
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			Asphalt/concrete curb line							
		SM	Medium dense brown silty SAND and GRAVEL, some cobbles, moist. **(UTILITY TRENCH BACKFILL)** Excavate 0-3 feet with vac truck to expose utility. Tree roots. Expose top of 12" storm sewer line							
5		ML SM	Medium dense/stiff brown SILT with silty fine SAND layers, moist. **(ALLUVIUM)** Grading wet.		4 6			0 0		∇
10		ML	Stiff brown grading gray SILT, wet to moist, trace mottling.		10			0		

Boring HB-4 completed to 12' bgs.
Ground water encountered at 5.7 feet bgs.
Collect water sample HB-4-W with temporary screen.
Boring backfilled with hydrated bentonite chips and surface restored with concrete.

15

20

25

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 Crossroads
Hertz Parcel RI
Bothell, WA

MONITORING WELL:
HB-4

PAGE: 1 of 1

PROJECT NO.: 2007-098-931 FIGURE: B-6

DRILLING COMPANY: Holocene Drilling
DRILLING METHOD: GeoProbe
SAMPLING METHOD: 48" Macrocore Sampler with HDPE Liner
LOCATION: Utility Trench, 3 ft west of sanitary sewer manhole, right-hand westbound lane, SR522

SURFACE ELEVATION: ± feet
CASING ELEVATION ± feet

DATE STARTED: 2/28/2013
DATE COMPLETED: 2/28/2013
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	DEPTH (feet)
0			Asphalt								0
		SM	Medium dense brown silty SAND and GRAVEl, some cobbles, moist. **(UTILITY TRENCH BACKFILL)** Excavate 0-5' with vac truck to expose utility. Tree roots. Asphalt debris (up to 6" diameter) Expose top of 12" sanitary sewer line								
5										∇	5
		ML SM	Medium dense brown fine silty SAND to sandy SILT, wet. **(ALLUVIUM)** Limited sample recovery.		7			0			
		ML	Stiff brown SILT with silty fine SAND layers, wet.								
10					10			0			10

Boring HB-5 completed to 12' bgs.
Ground water encountered at 5.8 feet bgs.
Collect water sample HB-5-W with temporary screen.
Boring backfilled with hydrated bentonite chips and surface restored with concrete.

15 — 20 — 25

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 Crossroads
Hertz Parcel RI
Bothell, WA

MONITORING WELL:
HB-5

PAGE: 1 of 1

PROJECT NO.: 2007-098-931 FIGURE: B-7

APPENDIX F

APPROVED FINAL RI/FS WORK PLAN, TECHNICAL MEMORANDUM AMENDMENT 1 TO THE RI/FS WORK PLAN

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

January 11, 2013

Ms. Nduta Mbuthia
Project Engineer
City of Bothell Public Works
9654 NE 182nd Street
Bothell, WA 98011

Re: Final Bothell Former Hertz RI/FS Work Plan and Addendum # 1

Dear Ms. Mbuthia:

Ecology has reviewed the City of Bothell's December 10, 2012 Addendum #1 to the Bothell Former Hertz site Report of Investigation/Feasibility Study (RI/FS) Work Plan revised last September 10, 2012. The addendum addresses comments that Ecology provided to the City last November 5, 2012 on this work plan.

Ecology concurs with the work plan and addendum and is providing this notice to proceed with the scope of work in these documents.

Ecology appreciates your initiative in conducting remedial action under an Agreed Order. If you have any questions you may reach me at 425-648-7094.

Sincerely,

Jerome B. Cruz
Site Manager
NWRO - Toxic Cleanup Program

cc: Robert Warren, TCP-NWRO
Ching-Pi Wang, TCP-NWRO
Steven Morikawa, City of Bothell

REMEDIAL INVESTIGATION FEASIBILITY STUDY

FINAL WORK PLAN

BOTHELL FORMER HERTZ FACILITY
BOTHELL, WASHINGTON

Project No. 2007-098-931

Prepared for
City of Bothell

September 10, 2012

HWA GEOSCIENCES INC.

- *Geotechnical Engineering*
- *Hydrogeology*
- *Geoenvironmental Services*
- *Inspection & Testing*

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1.0 INTRODUCTION

This remedial investigation / feasibility study (RI/FS) work plan describes the collection of data and information necessary to further define the extent of contamination and to characterize the Bothell Former Hertz Facility (Site) in Bothell, Washington (the City). The City owns the approximately 1.92-acre Bothell Former Hertz property located at 18030 Bothell Way Northeast, Bothell, Washington, however final determination of the Site boundaries (i.e., the area where hazardous substances have come to be located) will be established during the RI process. Washington State Department of Ecology's (Ecology's) Facility Site ID is #11687976; this Site is also listed in Ecology's leaking UST (LUST) database under the name AARENCO, LUST # 5294.

HWA prepared this RI/FS work plan as part of the actions specified in Agreed Order number DE 8375, dated May 12, 2011, between the City of Bothell and Ecology. The Agreed Order is included in Appendix A.

Figure 1 is a vicinity map; Figure 2 shows the Bothell Former Hertz property and surrounding properties that may be included in the RI.

1.1 BACKGROUND

The former Hertz property is located at 18030 Bothell Way Northeast, Bothell, Washington, between downtown Bothell and the Sammamish River (Figure 1). This property consists of an approximately rectangular lot located adjacent south of Bothell Way Northeast (SR522). The property was formerly developed with a combined office warehouse and shop building that occupied approximately one quarter of the property, as well as three smaller buildings along the east side of the property, with asphalt-paved parking and storage constituting most of the remainder of the property. All buildings were demolished in May 2010, in advance of contaminated soil cleanup in summer 2010 and new roadway construction to be conducted in 2012. The new roadway will realign SR522, and will roughly bisect the property. Remnant portions of the property north and south of the new roadway may be redeveloped after the roadway is completed.

Impacts to the former Hertz property include 1) petroleum hydrocarbons and associated compounds in soil and ground water associated with former underground storage tanks (USTs) at the property, and 2) volatile organic compounds (VOCs) associated with chlorinated solvents from an upgradient, off-site source, the Bothell Service Center / Simon & Son Fine Drycleaning property.

The soil cleanup performed in September 2010 removed 11,182 tons (approximately 7,000 cubic yards) of petroleum-impacted soil that was a source of the petroleum hydrocarbons occurring in ground water at the former Hertz property. A soil cleanup report (HWA, 2011a) documents the 2010 soil cleanup. Figure 3 shows the former Hertz cleanup area, nearby cleanups, and surrounding previous explorations.

The upgradient chlorinated solvent source that is known to be impacting the former Hertz property is the Bothell Service Center / Simon & Son Fine Drycleaning site, 18107 Bothell Way Northeast. This site is listed as a state cleanup site, Voluntary Cleanup Program, facility identification number 33215922. The site has a documented release of chlorinated solvents to ground water, and contamination has migrated off-site.

A second chlorinated solvent plume is present northeast of the former Hertz property, originating at the Ultra Custom Care Cleaners property, located at 181300 – 18304 Bothell Way NE/SR 527. The Ultra Custom Care Cleaners site is listed as facility number 379891 on Ecology's Confirmed and Suspected Contaminated Sites List (CSCSL) for chlorinated solvent contamination in soil and ground water. This plume does not seem likely to have impacted the former Hertz property, but its exact dimensions have not yet been established.

The chlorinated solvent impacts are not characterized adequately, particularly since the source sites are not owned by the City, and therefore, not accessible for remedial investigations (RIs). Some characterization data for chlorinated solvent impacts have been collected from several surrounding properties; however, these data are currently insufficient to adequately characterize the solvent plumes for RI purposes.

An area-wide approach to the ground water investigation has been initiated under a different Agreed Order (Bothell Landing) with the goal of gaining a more comprehensive understanding of the overall chlorinated solvent impacts to ground water. As such, some initial ground water RI investigations have been initiated under the expanded Bothell Landing RI Work Plan (HWA, 2011b), which will encompass a larger study area that will help in determining whether the solvent plumes from the identified discrete sources are commingled or individually distinct. The results of this initial area-wide work will subsequently help in determining the extent to which the solvent investigations under this Hertz RI work plan will be conducted, with the goal of populating the final RI with data collected from various investigations.

Another listed site near and upgradient to the former Hertz property is Al's Auto Bothell Wexler Property / Schucks, 18129 Bothell Way Northeast. This site is listed in Ecology's LUST database, site # 5294, facility identification number 63618231. Phase II site investigations conducted on this property, in the SR522 right of way, and the data from the Hertz property all indicate on-site sources (former USTs) are not likely to have impacted the former Hertz property. A former gas station potentially upgradient of the Hertz property (former Mobil at 18041 Bothell Way NE) also does not appear to be impacting the Hertz property based on soil and ground water sampling.

The goals of this RI include consolidating the chlorinated solvent data that will be gathered from the Bothell Landing area-wide ground water RI in order to determine the source of chlorinated solvents detected at the former Hertz property, delineating the extents (vertical and horizontal) of the plume(s) impacting the property, and evaluating post-cleanup ground water quality at the property with respect to petroleum hydrocarbons. As relates to the chlorinated solvent investigations, this RI work plan will reference the area-wide ground water investigation work covered under the Bothell Landing RI work plan (HWA, 2011b). Figure 4 illustrates the available data on the nature and extent of chlorinated VOC occurrences in ground water in the vicinity of the former Hertz property. Figure 5 summarizes TPH occurrences in ground water in the vicinity of the former Hertz property.

Because it may not be possible to a complete the RI in one phase due to roadway construction, property access, and property ownership issues, a phased approach to completing the work will be utilized, with the goal of populating the final RI with data collected during the RI phases outlined in Section 5.0.

1.2 Objective

The objective of this RI/FS work plan is to meet the requirements of the Agreed Order in accordance with the Model Toxics Control Act (MTCA) Cleanup Regulation (Washington Administrative Code (WAC) 173-340). The RI work plan is designed to collect additional data on chlorinated VOC and petroleum hydrocarbon impacts in selected areas that are currently accessible, and ultimately characterize site conditions in order to complete a FS and select a cleanup action as described in WAC 173-340-360 through 173-340-390.

1.3 Work Plan Organization

This Work Plan is prepared using the U.S. Environmental Protection Agency's (EPA's) *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (OSWER Directive 9355.3-01) (EPA, 1988) as a reference for work plan organization and content. The scope of work described in the work plan is designed to gather information required for a RI study as described in WAC 173-340-350. The organization of this Work Plan is presented below:

- Section 1: Introduction – background, objective, work plan organization, and regulatory framework

- Section 2: Site Background and Physical Setting – description and history of operations and environmental setting

- Section 3: Initial Evaluation – summary of previous investigations, known and expected contaminants, and the conceptual site model

- Section 4: Work Plan Rationale – data quality objective needs and general approach

- Section 5: Remedial Investigation Tasks – project planning, sample collection and analysis, data validation and evaluation, and assessment of risks

- Section 6: Project Management – schedule and project management staff

1.4 Regulatory Framework

The RI will be conducted under the provisions of the Agreed Order with Ecology. In Washington State, the administrative process and standards for investigating and cleaning up facilities impacted by hazardous substances are regulated under the Model Toxics Control Act (MTCA) regulations at WAC 173- 340 administered by the Department of Ecology. Under MTCA, a site cleanup is typically preceded by a complete remedial investigation (RI) and a feasibility study (FS). The RI/FS focuses on collecting, developing, and evaluating enough information to select a cleanup action under WAC 173-340-360 through 390.

2.0 SITE BACKGROUNDS AND PHYSICAL SETTING

2.1 SITE BACKGROUNDS

In the following sections, properties within the RI study area, as depicted in Figures 2 and 3, are described from north to south beginning with the apparent source area for the chlorinated solvent plume at the Bothell Service Center / Simon & Son Fine Drycleaning property.

2.1.1 Bothell Service Center / Simon & Son Fine Drycleaning

This site is listed in Ecology's database variously as Bothell Service Center and Simon & Son Fine Drycleaning. Bothell Service Center/Simon & Sons Drycleaning (18107 Bothell Way NE) is a listed Confirmed or Suspected Contaminated Sites List (CSCSL) site to the northwest of the former Hertz property. The site has a documented release of chlorinated solvents to soil and ground water, and ground water contamination has migrated off-site.

The Bothell Service Center site included a dry cleaning facility (Simon & Son Fine Drycleaning) from 1989 to 1999. Previous site use included farming until the late 1940s and an auto dealership in the 1960s. In 1988 it was developed commercially as a small retail strip, with the former dry cleaner located at the west end of the building. A release of chlorinated solvents to ground water was detected by ERM in 1999 and 2000 (ERM, 2001). Three soil borings were initially completed through the floor of the building near dry cleaning equipment. Subsequently, additional borings for soil and ground water sampling were completed in the building after removal of the dry cleaning equipment. Three monitoring wells and several soil borings were completed outside of the building in 2001. ERM's measurement of ground water elevations in several on site monitoring wells indicates a ground water gradient to the east. The chlorinated solvents tetrachloroethylene (PCE), trichloroethylene (TCE), and dichloroethylene (DCE) were detected in site soil and ground water, including the easternmost monitoring well (MW-5), less than 20 feet from the property boundary with the adjoining Al's Auto Bothell Wexler Property. PCE ground water concentrations ranging from 1,300 to 2,650 micrograms per liter (µg/L) were detected in MW-5 from 7/13/01 to 2/12/02. PCE concentrations as high as 30,000 µg/L were detected in other wells.

The off-property extent of this plume has not yet been fully delineated, but includes detections of HVOCs including PCE, TCE, DCE and vinyl chloride, on the Hertz property.

Remediation via in situ chemical oxidation by potassium permanganate was attempted in 2001 (ERM, 2002). PCE concentrations initially decreased in monitoring wells adjacent to and downgradient of injection points. However, ground water concentrations increased in three monitoring wells. ERM attributed the increase to seasonal variations in ground water levels mobilizing PCE from source areas, such as contaminated soils or dense non-aqueous phase liquids (DNAPL) and recommended further injection events and ground water monitoring. Anecdotal reports by City staff describe permanganate discharging to the Sammamish River with a resultant fish kill during this event.

A soil vapor extraction (SVE) system has been in operation at the site since September 2004 (Farallon, 2008a). Periodic operations and maintenance monitoring at the SVE system indicated that vapor concentrations decreased significantly between system startup and 2007. Recent vapor monitoring at the system did not detect solvent vapors. Farallon also completed a hydrogen peroxide injection event in May 2005. The injection resulted in the temporary increase in PCE concentrations in ground water at the site; however, subsequent ground water monitoring in 2006 and 2007 indicated that PCE concentrations had decreased to pre-injection levels. Chemical oxidation cells (sodium persulfate) were installed in site monitoring wells in 2006 and 2007 for additional remedial activity. This method was found to have limited effectiveness due to the high ground water velocity, as well as limited access to the release source area.

Farallon also implemented an additional remedial action at the site including slug tests and additional monitoring wells. Enhanced bioremediation though a combination of nutrient and bacterial injection was initiated in February 2008. Farallon reported ground water flow direction to the southeast at the site. As of August, 2008, PCE and TCE concentrations remained in the thousand to low tens of thousands of μg/L throughout the site.

2.1.2 Al's Auto Bothell Wexler Property

This site is listed in Ecology’s LUST database, site # 5294, facility identification number 63618231, and has been referred to as the Schucks property in some reports. Phase II site investigations conducted on this property, in the SR522 right of way, and the data from the Hertz property all indicate on-site sources (former USTs) are not likely to have impacted the former Hertz property. This conclusion is based on numerous soil and ground water sampling locations in between the two sites. Figure 5 shows TPH in ground water at the Hertz and Al’s Auto / Wexler properties. Oil range petroleum hydrocarbons detected in ground water in Hertz well MW-1 are associated with the UST immediately adjacent to that well. MW-1 is located cross gradient to the Al’s Auto / Wexler property, where no oil range TPH was detected in ground water. Hertz well MW-4, which is located more downgradient of the Al’s Auto / Wexler property did not contain any petroleum hydrocarbons above laboratory detection limits. Al’s Auto / Wexler boring GP-16, located on the property boundary and downgradient of the only ground water TPH exceedance measured on the Al’s Auto / Wexler property during the 2010 Phase II investigation, did not contain TPH above cleanup levels, with TPH-G detected at 160 ug/L, just above the laboratory reporting limit ((Floyd | Snider, 2010). This indicates TPH-G has not migrated off the Al’s Auto / Wexler property.

This site was formerly a service station, and included three 2,000 gallon gasoline USTs, which were installed in 1947, and not used after around 1970. The three USTs were removed by Applied Geotechnology, Inc. (AGI) on behalf of Davis Industries in October/November 1989. Approximately 250 cubic yards of petroleum contaminated soil was removed at that time. Exploratory test pits completed as part of the UST and soil removal indicated that leakage also occurred from the dispenser system. AGI also observed a sheen and traces of free product on ground water in the UST excavation. A below-grade in situ remediation system was installed including a recovery trench (with a 24 inch diameter corrugated metal pipe sump/standpipe) and two four-inch diameter PVC reintroduction points or wells, which were installed in backfilled remediation and test pit excavations. Approximately 800 gallons of water were pumped from the trench, filtered through activated carbon, and reinjected into the reintroduction points. Ground water gradient at the site was reported to be south to south-southeast (AGI, 1990).

HWA conducted ground water sampling at the site in 2004 and 2005 (HWA, 2006). HWA collected five rounds of ground water samples from the existing ground water recovery trench and two ground water reintroduction points at the site. The samples were analyzed for gasoline-range petroleum hydrocarbons, aromatic hydrocarbons, and VOCs. Gasoline above MTCA cleanup levels was detected in one reinjection well. This well is installed in the former UST excavation at the site. Concentrations of the chlorinated solvents PCE, TCE, and DCE were detected in site ground water, and interpreted to be from the adjacent Bothell Service Center site to the west. Re-analysis of ground water samples that accounted for the high concentrations of VOCs in ground water indicated that the elevated petroleum concentrations in previous sampling rounds may be attributed to chlorinated solvents migrating on-site from the adjacent Bothell Service Center site.

Floyd | Snider conducted a limited remedial investigation at this property in 2010, which included 16 direct push borings, sampling and analysis of soil and ground water samples. The study confirmed the presence of PCE, TCE, DCE, and vinyl chloride (VC) in ground water at the western portion of the property, originating from the adjacent Bothell Service Center property, as well as localized petroleum hydrocarbon impacts to soil and ground water in the vicinity of the former on-site USTs and cleanup area, in the southwestern portion of the property (Floyd | Snider, 2010).

2.1.3 City Right-of-Ways

City right-of-ways are publicly owned streets, alleyways, and sidewalks within the RI study area. Several explorations have been advanced to date in these right-of-ways to collect soil and ground water samples. Figures 3 and 4 show these locations.

SR522 is located between the former Hertz property and the Bothell Service Center and Al's Auto properties. SR522 is currently an active highway that serves as a crucial east-west transportation corridor.

Past explorations through King County's Brownfields Program were conducted by CDM in the SR522 on right-of-way (CDM, 2009). PCE, TCE, DCE, and VC were detected in soil and ground water in the roadway downgradient of Bothell Service Center, apparently migrating south toward the former Hertz property. TCE ground water concentrations of 6.4 µg/L (exceeding the MTCA Method A cleanup level of 5 µg/L) and VC at 0.89 µg/L (exceeding the MTCA Method A cleanup level of 0.2 µg/L) were detected in the roadway downgradient of the Bothell Service Center property. Other CDM borings and HWA borings (HWA, 2008a) detected PCE, TCE and DCE in the roadway at concentrations below 5 µg/L.

2.1.4 Bothell Former Hertz Property

HWA completed a Phase I and II ESA at this property in 2008 (HWA, 2008b, c). According to historical information and interviews, the former Hertz property had been developed since 1918, and site use included automobile repair and dealerships, fueling, and equipment rental.

Gasoline, diesel, and kerosene USTs were formerly used at the property, and three USTs were removed from the property in 1993. Petroleum-affected soils were encountered during the UST removals, and some affected soils remained after the removals.

Historical information indicates that one building was used as an automobile dealership, and petroleum companies are listed as lessees of the property in the 1930's. A former building at the northeast corner of the property was associated with an automobile dealer, and according to historic sources, included a gasoline dispensing facility. A geophysical survey followed by soil and ground water sampling in this area did not indicate the presence of USTs or petroleum impacts to soil or ground water.

A soil cleanup performed in September 2010 at the Former Hertz parcel (and 10 feet into the adjoining Bothell Landing parcel in one area) removed 11,182 tons (approximately 7,000 cubic yards) of petroleum-impacted soil that was a source of the petroleum hydrocarbons occurring in ground water at the former Hertz property. A soil cleanup report (HWA, 2011a) documents this cleanup. The cleanup was conducted as an independent cleanup action, and achieved site specific soil cleanup levels which were developed based on Ecology-approved Interim Action soil cleanup levels for three adjoining similar sites (Bothell Paint, Bothell Landing, and Bothell Riverside) also undergoing cleanup at that time.

2.2 Physical Setting

The RI study area is within the Horse Creek valley; Horse Creek is a southerly flowing tributary to the Sammamish River. The general topography of the RI study area slopes down from north to south towards the westerly flowing Sammamish River (Figure 1). Elevations in the RI study area range between about 30 to 60 feet above mean sea level.

The RI study area 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 over 150 feet thick (Liesch and others, 1963).

SR522 is located at the mapped contact between alluvial soils associated with the Sammamish River to the south, and glacial soils to the north. Geology of the Hertz and Bothell Service

Center properties is described in the following sections. Figures 6 and 7 present geologic cross sections across SR522 between the two properties. Lines of section are shown on Figure 3.

Ground water flow in this area is to the east-southeast, and southeast. Figure 8 shows the gradient based on ground water levels measured on August 29-31, 2012.

Former Hertz Property

The Hertz property is approximately 1.92 acres in area, and currently vacant, with all buildings and foundations demolished. Figure 3 shows the site plan. The property is generally flat with an elevation of approximately 30 feet above mean sea level. The surrounding land is generally flat or slopes down to the south.

Geologic information for the Hertz property was obtained from a map titled Composite Geologic Map of the Sno-King Area, Central Puget Lowland, Washington (Booth, et al., 2004). According to the map, surficial soils in the vicinity of the property are primarily recent alluvium, most likely deposited by the adjacent Sammamish River.

Based on explorations at the former Hertz property, soil at the property typically consists of approximately two to seven feet of silty sand fill over alluvial soil consisting of interbedded silt and silty sand. Peat or silt beds with high organic content up to two feet thick were present in alluvial soils in boring HZ-B7, between 11 and 14 feet bgs. These organic-rich beds may not represent a contiguous layer. Interbedded alluvial sand and silty sand was typically below 15 feet bgs. Ground water was encountered in the borings at depths of approximately five to eight feet bgs. Based on water level surveys of monitoring wells installed at the property, ground water flow is to the southeast toward the Sammamish River.

Bothell Service Center

The Bothell Service Center site is currently developed with a strip mall with retail businesses and paved parking. The property is generally flat with an elevation of approximately 35 feet above mean sea level. The surrounding land is generally flat or slopes down to the south.

Past subsurface assessment work at this property identified sand and gravel fill with minor silt to a depth of four to ten feet bgs, with native soil consisting of silt and fine sand below the fill. Although these silts and sands are texturally similar to alluvial soils found on the Hertz property to the south, the higher densities suggest these are glacially consolidated deposits. Shallow ground water was encountered between seven to nine feet bgs, with interpreted ground water flow direction towards the southeast.

Al's Auto Bothell Wexler Property

This site is developed with an auto part store, an espresso stand, and asphalt parking. The property is generally flat with an elevation of approximately 35 feet above mean sea level. The surrounding land is generally flat or slopes down to the south.

Based on explorations at this property, soils typically consist of approximately three to five feet of silty sand fill over alluvial soils consisting of interbedded silty sand and silt. Ground water was encountered in at depths of approximately five to ten feet bgs. Based on water level surveys of monitoring wells installed at and near the property, ground water flow is to the southeast toward the Sammamish River.

3.0 INITIAL EVALUATION

3.1 SUMMARY OF PREVIOUS CHLORINATED VOC INVESTIGATIONS

In addition to petroleum hydrocarbon impacts on the former Hertz property, ground water on and off the property has been affected by chlorinated VOCs. The dry-cleaning solvent PCE, as well as its breakdown products, TCE, (cis)-1,2-DCE, and VC have been detected in multiple ground water samples in the vicinity of the property. In the progression of natural biodegradation by reductive dechlorination, PCE (four chlorine atoms), degrades to TCE (three chlorine atoms), to DCE (two chlorine atoms), then to VC (one chlorine atom). Upon complete dechlorination (under ideal conditions), VC can degrade to ethene. The apparent source of these chlorinated VOCs is the Bothell Service Center / Simon & Son Fine Drycleaning site located north of and across the SR522 roadway from the former Hertz property.

Another upgradient source of chlorinated VOCs in the area's ground water is the Ultra Custom Care Cleaners site, located some 500 feet northeast of the former Hertz property, and although less likely to be a source of chlorinated VOCs at Hertz property, the extents, dimensions, and possible interrelationship of the two chlorinated VOC plumes are not fully delineated. An area-wide ground water study will investigate the Ultra Custom Care Cleaners chlorinated VOC plume, which is being addressed in a separate RI, conducted under the Agreed Order for the Bothell Landing site. Findings and data from that RI will be used in this RI as applicable, and vice versa. Tables 1 and 2 summarize historic detections of chlorinated VOCs and other compounds in soil and ground water in the RI study area.

Former Hertz – Chlorinated solvents detected at the former Hertz property include mostly VC, which is the last chlorinated VOC in the progression of natural biodegradation described above. The former presence of petroleum hydrocarbons at the north end of the Hertz property may have induced partial biodegradation of the PCE by 1) by creating an anoxic environment, thus encouraging anaerobic reductive dechlorination processes, or 2) providing organic substrates (petroleum compounds) to certain aerobic or facultative microbes which degrade chlorinated VOCs via co-metabolic processes.

Bothell Service Center – High concentrations of PCE (up to 38,000 µg/L), TCE, and DCE have been detected in ground water at this site. PCE ground water concentrations at the property boundary range up to 21,000 µg/L. PCE ground water concentrations up to 140,000 µg/L, were detected near the source area at depths of 45 to 50 feet, and were interpreted to indicate the presence of DNAPL.

Al's Auto Bothell Wexler Property – PCE, TCE, DCE , and VC have been detected at concentrations of up to 2,100 µg/L at the western end of the property, originating from the adjacent Bothell Service Center site.

SR 522/Bothell Way NE Right of Way – PCE, TCE, DCE, and VC were detected in soil and ground water in the roadway downgradient of Bothell Service Center, at lower concentrations (up to 20 µg/L in ground water).

3.2 Known and Expected Contaminants

Based on background information and analytical data from the previous studies presented in Section 3.1, contaminants of potential concern (COPCs) either known or expected to be found in soils at the Former Hertz Site are:

- Total petroleum hydrocarbons (gasoline-, diesel- and motor oil-range)
- Aromatic hydrocarbons / BTEX (benzene, toluene, ethylbenzene, xylenes)
- Chlorinated VOCs (primarily PCE, TCE, (cis)-1,2-DCE, and VC)

COPCs present in Site ground water are associated with 1) former leaking USTs, 2) chlorinated solvent releases originating at the nearby Bothell Service Center facility, and 3) arsenic either naturally occurring, or mobilized as a result of reducing conditions caused by the presence of organics in the aquifer. COPCs either known or expected to be found in ground water at the former Hertz Site are:

- Chlorinated VOCs
- Total petroleum hydrocarbons (gasoline-, diesel- and motor oil-range)
- BTEX
- Arsenic

PAHs are not considered a COPC for soil or ground water. PAHs were detected once in a ground water sample during the Phase II ESA, at a concentration around half the MTCA cleanup level (HWA, 20008c; Table 2a). During the soil cleanup, seven of the most impacted TPH soil samples representing different TPH sources, (out of 89 samples collected) were tested for PAHs; none of the samples exceeded PAH soil cleanup levels. Based on the site history, there is no known source of PAHs or cPAHs other than those found at low concentration in diesel fuel and other heavy petroleum products. Cleanup levels for TPH in the diesel and oil ranges will conservatively address any PAHs which may be present.

3.3 Conceptual Site Model

The conceptual site model for the chlorinated VOC and hydrocarbon impacts 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.

These data were used to identify the additional data needs described in this Work Plan. The model first identifies the primary contaminant sources and then describes the release mechanism from the sources into environmental media. Then, the migration of potential contaminants through media and the subsequent release mechanisms are summarized. This results in the identification of potentially contaminated media to which receptors are most likely to be exposed (exposure media). Once the exposure media are identified, the specific human and ecological receptors are incorporated into the model, completing the exposure pathway.

Figure 9 shows the conceptual site model for the chlorinated VOC and petroleum hydrocarbon impacts to the Site. Each component of the conceptual site model is described below.

The conceptual site model brings together multiple environmental and anthropogenic variables to formulate an understanding of the potential pathways of contaminant movement that may exist at the Site. The model also brings together the physical descriptions of the environment, the extent of the potential contamination, the fate and transport processes, and the potential routes by which human and ecological receptors are exposed to contaminants. In general, the site model consists of sequential steps that trace potential contaminants from the primary sources to the final receptors (human and ecological).

3.3.1 Primary Contaminant Sources

The primary contaminant source at the former Hertz property is the adjacent former dry cleaner solvent release. The primary contaminant associated with this release is PCE, with associated breakdown products TCE, DCE and VC. These HVOCs are present in ground water on the Hertz property. Other contaminants known or suspected to exist at the former Hertz property and in the study area include petroleum hydrocarbons, volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, and xylenes (BTEX). Soil cleanup conducted in 2010 removed TPH-impacted soils above site-specific cleanup levels (which were lower than MTCA Method A soil cleanup levels), therefore these compounds are likely present only in ground water on the Hertz property. This will be confirmed in one area via a future boring/monitoring well.

Ethylene dichloride (EDC) (a.k.a., 1,2-dichloroethane (DCA)) has also been detected sporadically in ground water at low concentrations (e.g., near the northern boundary between the former Hertz and Bothell Landing parcels). DCA is not a breakdown product of PCE, but may be a breakdown product of 1,1,1-trichloroethane (TCA) or may be associated with gasoline additives.

3.3.2 Primary Release Mechanisms

The primary potential release mechanisms for contaminants in the RI study area include leaks from USTs and related equipment (e.g., pipes and dispensers), or discharges (accidental or intentional) to floor drains, storm drains, or ground (e.g., of solvents).

3.3.3 Transport Mechanisms

Transport mechanisms in the RI study area for chlorinated VOCs and petroleum hydrocarbons include the following:

- Contaminant leaching from soils above and below the water table
- Leaching from separate phase liquids, e.g., a dense non-aqueous phase liquid (DNAPL) mass of PCE within soil pore spaces
- Volatilization from the vadose zone and water table
- Ground water discharges to surface water

The degree of contaminant leaching is controlled by chemical properties of the contaminants, ground water geochemical properties (e.g., oxidation/reduction potential), physical properties of the soil, characteristics of the ground water flow system, and precipitation recharge. Volatilization is controlled by the concentration and chemical properties of the contaminants, physical properties of the soil (e.g., porosity and organic carbon content), and soil gas characteristics. Ground water discharges to surface water are controlled by the physical and geochemical characteristics of both the ground water and surface water flow systems.

3.3.4 Secondary Sources

Chlorinated VOC and petroleum hydrocarbon impacted ground water from upgradient sites (e.g., Bothell Service Center) represents secondary contaminant sources at the Former Hertz Site. This ground water flows from north to south onto the former Hertz property. Ground water migration is controlled by the aquifer’s hydraulic conductivity (i.e., permeability), the hydraulic gradient, and the aquifer porosity. Chlorinated VOC and petroleum hydrocarbon migration is affected by the concentrations present in ground water, and other conditions in the aquifer that impact the fate and transport of contaminants, such as percentage of naturally occurring organic carbon, presence of other contaminants, contaminant-degrading bacteria in the soil, and oxidation conditions. The contaminants can potentially partition from ground water onto soil and organic particles as ground water flows across the RI study area, although soil analytical data from the Hertz property does not indicate this is occurring to an appreciable degree. Contaminants may also partition from ground water into vadose zone soil gas. Investigation findings to date suggest that most chlorinated VOCs and petroleum hydrocarbons in ground water flowing onto the City right-of-ways and other downgradient properties remain in the dissolved phase as contaminated ground water flows across the RI study area.

3.3.5 Potential Pathway and Exposure Routes

Complete exposure pathways have the following components: 1) a chemical source, 2) a transport pathway, 3) an exposure point where contact can occur, and 4) an intake mechanism. If any of these four components is not present, then a potential exposure pathway is considered incomplete and is not evaluated further in a risk assessment. If all four components are present, a pathway is considered complete.

Potential exposure routes for human and ecological receptors include the following (Parametrix, 2009):

Dermal/Direct Contact. Exposure to chemicals in soil may occur through direct contact with soil. Direct contact is a potential exposure route for current and future on-site workers or visitors. Burrowing or ground-dwelling mammals and invertebrates may be exposed directly to the soil contaminants.

Inhalation. Particulates from soil can be transported by air and inhaled by potential on-site and off-site receptors. Emissions of volatile chemicals from soil and ground water may also be transported as vapors by air. Terrestrial biota could also be exposed to chemicals volatilizing to outdoor air, but if this exposure actually occurs the duration of exposure would be expected to be relatively short. Burrowing animals (e.g., voles) may be exposed to volatile air contaminants in underground stagnant air while spending time within the burrow.

Ingestion. Ingestion of chemicals in Site soil is a primary exposure route for human and ecological receptors. Uptake by plants is also a potential exposure route.

The following section describes specific exposure pathways of primary concern.

3.3.6 Exposure Pathways of Concern

Potentially complete exposure pathways in the RI area by which chemicals may reach potential receptors include the following:

- Current/future indoor retail worker:
  – Inhalation of vapors from the subsurface (ground water and soil) in indoor air
  – Direct ingestion of contaminated ground water used as drinking water
- Current/future construction/utility worker:
  – Incidental soil ingestion and dermal contact

– Inhalation of vapors from the subsurface soil in outdoor air
– Inhalation of vapors from or dermal contact with ground water in a trench or excavation

- Current/future site visitor (adult and child):
  – Inhalation of vapors from the subsurface (ground water and soil) in indoor air
- Ecological receptors:
  – Incidental soil ingestion and dermal contact
  – Inhalation of vapors from the subsurface soil in outdoor air or in a burrow
  – Inhalation of vapors from or dermal contact with ground water in a burrow
  – Ground water discharge to surface water

4.0 WORK PLAN RATIONALE

The following section describes the general approach to the RI. A discussion of data quality objectives, a discussion of identified data gaps, and approaches to collect the data necessary to fill those gaps are presented in this section. Each subsequent section provides an overview of data gaps by media type, and the approach to collecting the necessary information in the remedial investigation. Specific sampling locations, analytes, and methods are documented in the Sampling and Analysis Plan (SAP) presented in Appendix B.

4.1 DATA QUALITY OBJECTIVES

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the characteristics of the data necessary to support decisions and the required quality of the data collected (EPA, 2006). Through the development of DQOs, the objectives and methods to be used in the field investigations are defined.

The objective of this RI work plan is to meet the requirements of the Agreed Order (as amended in June 2010) in accordance with the MTCA regulations for RI studies. The RI is designed to characterize site conditions in order to complete a FS and select a cleanup action as described in WAC 173-340-360 through 173-340-390. To meet the RI objective, Site data will be collected that are of known, acceptable, and documented quality. To ensure that Site data meet these criteria the following Quality Assurance objectives are established for the RI work:

- Implement procedures described in this work plan and the SAP for field sampling, sample custody, equipment operation and calibration, laboratory analysis, and data reporting that will facilitate consistency and thoroughness of generated data.
- Achieve the acceptable level of confidence and quality required so that data generated are scientifically valid and of known and documented quality. This will be performed by establishing criteria for precision, accuracy, representativeness, completeness, and comparability, and by testing data against these criteria.

Specific DQOs to evaluate data quality and usability are provided in the sections below.

4.1.1 Detection Limits

Analytical methods have quantitative limitations at a given statistical level of confidence that are often expressed as the method detection limit (MDL). Individual instruments often can detect but not accurately quantify compounds at concentrations lower than the MDL, referred to as the instrument detection limit (IDL). Although results reported near the MDL or IDL provide insight to site conditions, quality assurance dictates that analytical methods achieve a consistently reliable level of detection known as the practical quantitation limit (PQL). The PQL is the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy, and is typically several times the MDL.

4.1.2 Precision

Precision is the measure of mutual agreement among replicate or duplicate measurements of an analyte from the same sample and applies to field duplicate or split samples, laboratory replicate analyses, and duplicate spiked environmental samples (matrix spike duplicates). The closer the measured values are to each other, the more precise the measurement process. Precision error may affect data usefulness. Good precision is indicative of relative consistency and comparability between different samples. Precision will be expressed as the relative percent difference (RPD) for spike sample comparisons of various matrices and field duplicate comparisons for water samples. This value is the difference between two measurements divided by the average, calculated by:

RPD = ((D1-D2) / (D1+D2)/2)*100

Where:
D1 = Concentration of analyte in sample, and
D2 = Concentration of analyte in duplicate sample.

The calculation applies to split samples, replicate analyses, duplicate spiked samples (matrix or blank spike duplicates), and laboratory control duplicates. The RPD will be calculated for samples and compared to the applicable criteria. Precision can also be expressed as the percent difference (%D) between replicate analyses. Acceptable precision values (QC limits) vary according to the analyte, analytical method, and specific laboratory conditions (e.g., calibration results, etc).

4.1.3 Accuracy

Accuracy is a measure of bias in the analytic process. The closer the measurement value is to the true value, the greater the accuracy. This measure is defined as the difference between the reported value versus the actual value and is often measured with the addition of a known compound to a sample. The amount of known compound reported in the sample, or percent recovery, assists in determining the performance of the analytical system in correctly quantifying the compounds of interest. Since most environmental data collected represent one point spatially and temporally rather than an average of values, accuracy plays a greater role than precision in assessing the results. In general, if the percent recovery is low, non-detect results may indicate that compounds of interest are not present when in fact these compounds are present. Detected compounds may be biased low or reported at a value less than actual environmental conditions. The reverse is true when recoveries are high. Non-detect values are considered accurate while detected results may be higher than the true value. Accuracy will be expressed as the percent recovery of a surrogate compound (also know as "system monitoring compound"), a blank or matrix spike result, or from a standard reference material. The recovery percent is the measured amount divided by the known amount, or:

(D1-D2) / D3 x 100

Where

D1 = amount of compound detected in spiked sample
D2 = amount of compound in sample (i.e., detected before spiking)
D3 = amount of spike compound added

Accuracy criteria for surrogate spikes, matrix spikes, and laboratory control spikes are found in the SAP.

4.1.4 Representativeness, Completeness and Comparability

Representativeness expresses the degree to which data accurately and precisely represent the actual site conditions. The determination of the representativeness of the data will be performed by completing the following:

- Comparing actual sampling procedures to those delineated within the SAP and this work plan.
- Comparing analytical results of field duplicates to determine the variations in the analytical results.
- Invalidating non-representative data or identifying data to be classified as questionable or qualitative. Only representative data will be used in subsequent data reduction, validation, and reporting activities.

Completeness establishes whether a sufficient amount of valid measurements were obtained to meet project objectives. The number of samples and results expected establishes the comparative basis for completeness. Completeness goals are 90 percent useable data for samples/analyses planned. If the completeness goal is not achieved an evaluation will be made to determine if the data are adequate to meet study objectives.

Comparability expresses the confidence with which one set of data can be compared to another. Although numeric goals do not exist for comparability, a statement on comparability will be prepared to determine overall usefulness of data sets, following the determination of both precision and accuracy.

4.1.5 Holding Times

Holding times are defined as the time between sample collection and extraction, sample collection and analysis, or sample extraction and analysis. Some analytical methods specify a holding time for analysis only. For many methods, holding times may be extended by sample preservation techniques in the field. If a sample exceeds a holding time, then the results may be biased low. For example, if the extraction holding time for volatile analysis of soil sample is exceeded, then the possibility exists that some of the organic constituents have volatilized from the sample or degraded. Results for that analysis will be qualified as estimated to indicate that the reported results may be lower than actual site conditions. Holding times are presented in the SAP.

4.1.6 Blanks

According to the *National Functional Guidelines for Organic Data Review* (EPA, 1999), "The purpose of laboratory (or field) blank analysis is to determine the existence and magnitude of contamination resulting from laboratory (or field) activities. The criteria for evaluation of blanks apply to any blank associated with the samples (e.g., method blanks, instrument blanks, trip blanks, and equipment blanks)." Trip blanks are placed with samples during shipment; method blanks are created during sample preparation and follow samples throughout the analysis process. Analytical results for blanks will be interpreted in general accordance with *National Functional Guidelines for Organic Data Review* and professional judgment.

4.2 DATA GAP ANALYSIS

Previous site characterization data exist for the Hertz, Al's Auto Bothell Wexler Property, and Bothell Service Center properties, as well as explorations in the SR522 right-of way, and other nearby sites. The scope of previous site characterizations was not designed to create a complete data set for an RI/FS study. This section describes data gaps in the existing data set and the rationale for collecting data necessary to fill those gaps. Previous data will be combined with data collected as part of this RI study. Data from the adjacent Bothell Landing RI may also be included, as needed. A phased approach is required due to exploration access issues, including 1) areas under the existing SR522 roadway which will be accessible for exploration and cleanup only after the new roadway is completed and the old roadway is abandoned, and 2) areas on private property which are not currently accessible for exploration but might be in the future, particularly the source property, Bothell Service Center.

4.2.1 Sources of Existing Data

Most existing site data are described in the following reports:

Hertz

- DLH Environmental Consulting, 1993a, *Underground Storage Tank Removal and Decommissioning*, WDOE Report Number N12100 for AA Rentals, May 14, 1993.
- DLH Environmental Consulting, 1993b, *Underground Storage Tank Removal and Decommissioning,* WDOE Report Number 005294 for AA Rentals, September 10, 1993.
- DLH Environmental Consulting, 1999, *Letter to Mark Jaeger, ARRENCO, RE: Hoist Removal and Soil Sampling*, December 20, 1999.
- DLH Environmental Consulting, 2001, *Letter to Washington Department of Ecology, RE: AA Rental of Bothell,* October 19 2001.
- DLH Environmental Consulting, 2002, *Letter to Washington Department of Ecology, RE: Former AA Rental of Bothell,* October 24, 2002.
- DLH Environmental Consulting, 2007*, Letter to Roger Odegard, RE: 18030 Bothell Way NE*, September 13, 2007.
- HWA, 2008b*, Phase I Environmental Site Assessment, Hertz Rentals Parcel*, August 11, 2008.
- HWA, 2008c, Phase *II Environmental Site Assessment, Hertz Rentals Property*, October 10, 2008.
- Washington Department of Ecology, 1990, *Letter to AA Rentals*, October 22, 1990.
- Washington Department of Ecology, 2001b, *Letter to Landland Realty Services, RE: AA Rental of Bothell*, October 9, 2001.

Al's Auto Bothell Wexler Property

- AGI, 1990, *Tank Removal and Hydrocarbon Contamination Assessment, Al's Auto Supply,* January 25, 1990.
- HWA, 2006, *Ground Water Sampling Report, Former Al's Auto Store and Bothell Service Center*, January 6. 2006.
- Floyd | Snider, 2010, *Schuck's Auto Supply, Bothell, Washington, Phase II Environmental Site Assessment*, September 10, 2010.

Bothell Service Center

- CDM, 2008. *Phase I Environmental Site Assessment, Former Simon & Son Fine Drycleaning Site, Bothell Service Center, 18107 Bothell Way NE, Bothell, Washington,* February 7, 2008.
- ERM, 2001. *Letter to Norman L. Olsen. Interim Site Characterization Summary Report, Bothell Service Center, 18107 Bothell Way Northeast, Bothell, Washington*, October 17, 2001.
- ERM, 2002. *Letter to Norman L. Olsen. Interim Site Remediation Summary Report, Bothell Service Center, 18107 Bothell Way Northeast, Bothell, Washington*, March 25, 2002.
- Farallon Consulting, 2007. *Letter to UIC Coordinator, Water Quality Program, Washington State Department of Ecology. UIC Well Registration, Bothell Service Center, 18107 Bothell Way Northeast, Bothell, Washington, Farallon PN: 801-001,* October 19, 2007.

- Farallon Consulting, 2008a. *Cleanup Action Progress Report, June 2006 Through June 2007, Bothell Service Center, 18107 Bothell Way Northeast, Bothell, Washington, Farallon PN: 801-001,* March 12, 2008.
- Farallon, 2008b. *Interim Action Status Report, November 2007 through August 2008, Bothell Service Center, 18107 Bothell Way Northeast, Bothell, Washington.* November 4, 2008.

SR522 Right-of-way
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4.2.2 Existing Exploration and Sampling Locations

Exploration and sampling locations, as described in the above-listed references, are shown on Figures 3, 4, and 5.

4.2.3 Known or Suspected Impacts to Soil and Ground Water

Based on previous investigation findings, known or suspected impacts include:

Soil:
- Petroleum hydrocarbons in soil at the Hertz property, in the vicinity of former USTs. These impacts were cleaned up in 2010.
- Chlorinated solvents (PCE, TCE, DCE, VC) in soil at the Bothell Service Center site and SR522 roadway, near and downgradient of the original release area.

Ground Water
- Petroleum hydrocarbons in ground water at the Hertz property, in the vicinity of former USTs.
- Chlorinated solvents (PCE, TCE, DCE, VC) throughout the study area, including the Bothell Service Center, Al's Auto Bothell Wexler Property, and Hertz properties, and SR522 right-of way. Other nearby properties have also detected chlorinated VOCs in ground water, although a second (and possibly third) drycleaner site may be the source of some of these. Further RI studies at and around the other dry cleaner sites should eventually help resolve the sources and migration patterns of these solvents.

4.2.4 Data Gaps

Numerous previous environmental and geotechnical investigations and explorations have been conducted on and near the Former Hertz property, including soil borings, monitoring wells, large cleanup excavations with confirmational sampling data, aquifer testing, time series ground water measurements, soil physical property testing, and numerous soil and ground water analytical samples. This robust data set has helped define:

- Site geology, including soil types and physical properties
- Site hydrogeology, including aquifer properties, ground water gradients, and seasonal variations

The following remaining data gaps are identified for the eventual completion of the RI:

1. **Extent and limits of petroleum impacts to soil and ground water on the Hertz property.** Although a soil cleanup was conducted at the former Hertz property in 2010, additional soil samples may be collected during excavations required for roadway and utility construction (planned for 2012-2113), to further verify soil conditions. Ground water monitoring at the former Hertz property after completion of the roadway will address ground water quality, both for petroleum hydrocarbons and chlorinated VOCs, as well as potential impacts to surface water.

2. **Extent and limits of solvent impacts to ground water originating from the Bothell Service Center site.** The extent of the solvent plume has not been completely delineated. The RI will help delineate the extents of the plume, and potential impacts to surface water (river). Areas under the existing SR522 roadway will be accessible for exploration after construction of the new roadway and abandonment of the existing SR 522 roadway (planned to be completed after 2013). Temporal or seasonal changes in ground water quality will also be addressed via time-series (e.g. quarterly) sampling and analysis.

3. **Extent and limits of solvent impacts to soil on the Bothell Service Center site.** Although many data have been collected on this property, not all of the data are publicly available, and the site is currently not owned by or accessible for investigation by the City. Any RI activities on the Bothell Service Center property will require property owner permission and right-of-entry.

4. **Potential vapor intrusion impacts.** Evaluation of subsurface vapor intrusion into buildings and the transport and fate of contaminants in ground water have not yet been conducted.

5. **Collect treatability information**, i.e., chemical and aquifer properties needed to select and design ground water remediation methods.

The field sampling plan presented in the next section describes the type and location of data that will be collected to close these data gaps.

5.0 REMEDIAL INVESTIGATION AND FEASIIBILITY STUDY TASKS

The scope of work for the remedial investigation/feasibility study investigation is described in the Agreed Order. The scope of work includes the following tasks:

1. Develop a RI/FS project plan
2. Conduct a remedial investigation (RI) study
3. Conduct a feasibility study
4. Complete an RI/FS report

Tasks 1 and 2 above will be completed using the approach described in this section. The RI activities specific to this work plan will be performed in phases as follows:

Phase 1 RI activities will commence during and after construction of the new SR522 roadway and abandonment of the existing roadway in 2012-2013. These activities will be broken out as follows:

- Phase 1A - Additional soil sampling for utility trenches during construction of the new SR522 roadway
- Phase 1B - Installation of monitoring wells and direct push probes along the active SR522 right of way in between the former Hertz property and the Bothell Service Center property, to confirm that HVOCs from Bothell Service Center have migrated across the roadway, into utility trenches, and onto the former Hertz property.
- Phase 1C - Installation of monitoring wells on the former Hertz property after abandonment of the existing highway following completion of the new SR522 roadway construction.

Phase 2 RI activities include:

- Review and analysis of ground water sampling data collected under the expanded area-wide Bothell Landing RI
- Hydrogeologic measurements of ground water elevations and aquifer characteristics to determine flow directions and velocities, coincident with the quarterly ground water monitoring (see below)
- Analysis and inclusion of ground water data from the adjacent Bothell Landing RI, as needed
- One year of quarterly ground water monitoring at the former Hertz property and other areas (to be coordinated with the area wide ground water study)
- A data gap analysis to complete the requirements for a RI/FS per WAC 173-340-350

Phase 3 RI activities include:

- Investigations and modeling necessary to evaluate subsurface vapor intrusion of chlorinated VOCs and petroleum hydrocarbons into buildings

Phase 4 RI activities include:

- Chlorinated VOC source delineation at the Bothell Service Center property, and other properties, if found to be part of the former Hertz Site. This will include a review of existing data, and new explorations as needed and as access allows.

Phase 5 RI activities include

- Investigations necessary to evaluate potential source control options and to close any outstanding data gaps, for which additional work plan supplements will be submitted to Ecology
- Preparation of a complete RI report

5.1 Project Planning

The project plan for the RI study consists of this work plan, the SAP (Sampling and Analysis Plan, including the Quality Assurance Project Plan) included in Appendix B, the Health and Safety Plan (HASP) in Appendix C, and a Public Participation Plan. The Public Participation Plan is issued as a separate document, and is included in the Agreed Order. These documents will be revised as needed through the iterative process of regulatory interaction and public participation.

5.2 Field Sampling Plan and RI Activities

The field sampling plan and associated RI activities described below are designed to meet investigation objectives described in the Agreed Order and this work plan. The sampling strategy and rationale are described in this section. Detailed sampling methodology is described in the SAP.

5.2.1 RI Phase 1 SR522 Construction Activities

Phase 1 RI activities include soil and ground water sampling during and after construction of the new SR522 roadway and abandonment of the existing roadway in 2012-2013.

Phase 1A - Although a soil cleanup was conducted at the Hertz property in 2011 which achieved the Site cleanup levels, other portions of the property and adjoining areas will be excavated for utilities during construction of the new SR522 roadway. Areas not formerly cleaned up will be sampled prior to utility excavation using a backhoe or excavator, as part of the construction contract, primarily to characterize the trench spoils for reuse or disposal. Sampling is needed to characterize soils excavated from the utility trenches for reuse or disposal, either as required by the disposal facility, or to ensure compliance with Ecology End Use Criteria for unrestricted or other uses. These values may be below the cleanup levels. This testing includes approximately five locations on the Hertz property and 50 on adjoining properties that are part of the roadway construction project, that are not part of this RI. Figures 10 and 11 show the approximate locations of these samples. Although not anticipated, if any soils are discovered which exceed the previously established Site cleanup levels, those areas will be further investigated via test pit explorations and cleaned up to Site cleanup levels. Soils below cleanup levels may be re-used in the trenches if they are structurally suitable and meet construction specification requirements.

Phase 1B – This phase includes installation of monitoring wells and direct push probes along the active SR522 right of way in between the former Hertz property and the Bothell Service Center property - these wells are identified as O (Os and Od, for shallow and deep wells) and P (Ps and Pd) on the area-wide monitoring well network for Bothell Landing (Figure 12). The purpose of these wells is to ascertain that HVOCs from Bothell Service Center have migrated across the roadway, into utility trenches, and/or onto the former Hertz property. Selected existing monitoring wells in the area will also be sampled. Figure 13 shows the location of new monitoring wells, vactor/direct push borings, and existing wells to be sampled.

Vinyl chloride detected in ground water on the former Hertz Property has been interpreted to have originated from the Bothell Service Center property. However, the cross-gradient location of some of the vinyl chloride detections, as well as the absence of elevated PCE, TCE, or DCE concentrations in ground water at the former Hertz Property leave a data gap as to the relationship between the two properties with respect to HVOCs in ground water. The northern portion of the former Hertz Property, located in between the vinyl chloride detections and the known Bothell Service Center plume and source area, is the same area formerly impacted by petroleum hydrocarbons that underwent a soil cleanup in 2010 (see Figure 4). It is possible that the former presence of petroleum hydrocarbons in soil and ground water this area acted to enhance partial biodegradation of southward-migrating PCE, leaving a residual plume of vinyl chloride on the former Hertz property. Petroleum hydrocarbons could act to stimulate biodegradation of HVOCs by 1) creating an anoxic environment, 2) providing electron donors, and 3) providing cometabolytes (e.g., BTEX compounds), all of which are known to stimulate HVOC biodegradation. Phase 1B RI Activities will investigate this.

Four ground water monitoring wells will be installed in between the Bothell Service Center property and the former Hertz Property (see Figures 12 & 13), in two adjacent pairs of shallow and deep completed wells. The shallow wells will be screened across first-encountered ground water (approximately 8-15 feet bgs, or total well depths of around 20 feet bgs); the deep wells will be screened at around 30-40 feet bgs (total well depths of around 45 feet bgs).

Utilities along SR522 include storm and sanitary sewers, some of which are below ground water level (see Figures 3, 6, 7, and 13). Preferential migration of HVOCs in ground water along the utility trenches (which are typically backfilled with permeable soils) has been suspected, and will be investigated by advancing two direct push / vactor borings into the utility trenches and collecting ground water samples within saturated trench backfill. Vactor borings are used to safely locate the utility pipes and advance a boring adjacent to the pipe, after which direct push borings can be advanced into the trench backfill for one-time collection of soil and ground water samples. Two such borings will be installed and sampled in sanitary and storm sewer line trenches shown HB-4 and HB-5 on Figure 13.

Sampling of existing monitoring wells will also be conducted to see if the petroleum soil cleanup or passage of time has altered the ground water quality in this area. Wells HZ MW-1, HZMW-4, and BLMW-8 will be sampled for HVOCs and TPH compounds.

Phase 1C - After the new roadway is built, and the old roadway vacated, monitoring wells will be installed on the former Hertz property to confirm the 2010 independent remedial action petroleum soil cleanup. These wells, identified as H & I in the Bothell Landing RI, will characterize and delineate the eastern edges of the chlorinated VOC plume from Bothell Service Center and confirm TPH cleanup in soil and ground water at Hertz. The location and measuring point elevation of each monitoring well will be surveyed with respect to a common datum so that the direction of ground water flow can be accurately assessed. After the monitoring well network is in place the wells will be monitored quarterly for one year.

During borehole drilling, soil samples will be collected in selected intervals above and below the water table. These samples will be tested for several physical and chemical parameters necessary to evaluate subsurface vapor intrusion into buildings and the transport and fate of contaminants in ground water. These parameters include:

- Weight Fraction Organic Carbon
- Dry Bulk Density
- Total Porosity
- Air-Filled Porosity
- Volumetric Moisture Content
- Cation Exchange Capacity

Proposed soil and ground water sample locations, depths, rationale, and analytes for the Phase 1 RI activities are described in Table 3. Planned soil and ground water sample locations are shown on Figures 10 through 13. Specific sample collection and chemical analytical methodologies are presented in the SAP.

5.2.2 RI Phase 2 Soil and Ground Water Characterization

Phase 2 RI activities will include additional explorations to further define the ground water plume (and close data gaps) following Phase 1 results. Phase 2 activities, to be conducted after phase I, include:

- Review and analysis of ground water sampling data collected under the expanded area-wide Bothell Landing RI
- Hydrogeologic measurements of ground water elevations and aquifer characteristics to determine flow directions and velocities
- Contaminant characterization needed to develop a complete conceptual model of the Site
- A data gap analysis to complete the requirements for a RI/FS per WAC 173-340-350

Phase 2 RI activities may include advancing direct push borings, installing small diameter monitoring wells, hollow stem auger explorations, and installing 2-inch diameter ground water monitoring wells at selected accessible locations in the RI study area. Reconnaissance ground water samples may be collected at various depths during drilling to evaluate the vertical extents of the petroleum hydrocarbon plume (the chlorinated VOC plume will be addressed under the Bothell Landing RI).

5.2.3 RI Phase 3 Vapor Intrusion Studies and Modeling

The tiered approach recommended in draft Ecology guidance will be implemented to evaluate the vapor intrusion pathway. This approach starts with screening based on known soil and ground water concentrations and soil properties, and progresses (based on results of initial screening) to sampling of soil gas and/or indoor air.

Potential indoor air concentrations of chlorinated VOCs and petroleum hydrocarbons will be evaluated using the *Johnson and Ettinger Model for Subsurface Vapor Intrusion Into Buildings* (Environmental Quality Management, 2000) and current Ecology guidance (currently in draft form: Ecology, 2009). Analytical data plus the soil physical and chemical parameters tested for during RI Phase 1 and 2 activities will be used as input to the Johnson and Ettinger Model.

5.2.4 RI Phase 4 Solvent Source Site Characterization

Phase 4 activities will be addressed under the Bothell Landing RI – refer to Bothell Landing RI Work Plan (HWA, 2011b)

5.2.5 RI Phase 5 Source Control Evaluation and RI Reporting

Phase 5 activities will be addressed under the Bothell Landing RI (refer to Bothell Landing RI Work Plan (HWA, 2011b)), which will entail investigations necessary to evaluate potential source control options and to close any outstanding data gaps (e.g., residual soil concentrations for all COCs, other information needed for the FS, etc), for which additional work plan supplements will be submitted to Ecology. If needed and likely concurrent with this phase, bench or pilot scale testing may be conducted to evaluate remedial options developed during preparation of the draft Feasibility Study. RI Phase 5 will conclude with the preparation of a complete RI report.

5.3 Feasibility Study

A FS will be conducted as stipulated in the Agreed Order. The study will be conducted in accordance with WAC 173-340-350 (8). This regulation describes the elements that must be included in the FS. The study will identify remedial alternatives to achieve cleanup levels as set forth in MTCA regulations. The RI/FS report will include an evaluation of administrative boundaries of the site following MTCA and suggested administrative mechanisms for the implementation of the preferred cleanup alternative(s).

5.4 Remedial Investigation and Feasibility Study Report

A RI/FS report will be prepared after field data have been collected and the FS is complete. The report will transmit information described in the Agreed Order consistent with MTCA for RI/FS reports.

The completion of the report will allow the selection of a cleanup alternative, production of a draft cleanup action plan (dCAP), and implementation of the cleanup alternative to reduce or remove site hazardous substances posing unacceptable risks to human health and the environment.

5.5 Data Validation and Evaluation

Data management and documentation will include checking all QA parameters, including holding times, method blanks, surrogate recoveries, spike recoveries, field and laboratory duplicates, completeness, detection limits, laboratory control samples, and Chain-of-Custody forms. After the data have been checked, they will be entered into the project database with any assigned data qualifiers.

The project electronic database will be in a format compatible with the Ecology Environmental Information Management (EIM) system, and all analytical data will be entered into the EIM system.

Results of the sampling and laboratory testing will be summarized in a spreadsheet, plotted on a site map, and the data compared to established Site cleanup levels. A report will describe any significant field sampling issues, laboratory QA/QC testing, water level monitoring data and water quality testing results.

6.0 PROJECT MANAGEMENT

6.1 SCHEDULE

The proposed RI/FS schedule is presented in Table 4. Initial RI activities are scheduled for the summer of 2012. Ground water studies related to chlorinated solvents will be conducted according to the schedule in the Bothell Landing RI work plan. Additional investigations will be conducted after construction of the SR 522 realignment, scheduled to be completed in 2013.

6.2 PROJECT MANAGEMENT STAFF

Project management staff for the RI are presented in the SAP. Progress reports will be submitted to Ecology every three months as required by the Agreed Order.

7.0 REFERENCES

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TABLE 1A
HERTZ SOIL ANALYTICAL DATA
(all results in milligrams per kilogram (mg/kg))

Boring		HZ-MW1/ HZ-B1-10	HZ-B2-6	HZ-B3-6	HZ-B3-10	HZ-MW4/ HZ-B4-1	HZ-B5-7	HZ-B6-1	HZ-B7-1	HZ-MW8/ HZ-B8-1	HZ-MW8/ HZ-B8-3.5	HZ-MW8/ 7HZ-B8-5	HZMW-12-5	HZMW-13-2.5	HZMW-13-5	BKGD	MTCA A/B
Sample interval, ft bgs		10-12	6-8	6-8	10-12	1-3	7-9	1-3	1-3	1-3	3.5-5	5-7	5	2.5	5		
Petroleum Hydrocarbons	Gasoline Range	NA	**6.3**	**7.8**	**9.2**	<7.5	**340**	**120**	<6.1	<11	NA	NA	1.9	8.8	<1.6		100/30*
	Diesel Range	NA	<30	<33	<36	<31	<580	**98**	<28	NA	NA	<28	130	<45	<28		2000
	Oil Range	NA	<60	**130**	<71	<61	**2600**	**410**	**68**	NA	NA	<57	220	370	120		2000
VOCs***	Benzene	<0.00065	<0.02	<0.02	<0.02	<0.0011	<0.066	<0.023	<0.02	<0.023	NA	NA					0.03
	Toluene	<0.0033	<0.063	<0.063	<0.063	<0.0053	<0.33	<0.11	<0.061	<0.11	NA	NA					7
	Ethylbenzene	<0.00065	<0.063	<0.063	<0.063	<0.0011	<0.066	<0.11	<0.061	<0.11	NA	NA					6
	Xylenes	<0.00065	<0.063	<0.063	<0.063	<0.0011	<0.066	**0.23**	<0.061	<0.11	NA	NA	0.109	0.122	<0.032		9
	Acetone	<0.0033	NA	NA	NA	<0.0053	<0.33	NA	NA	NA	NA	NA	ND	ND	ND		8000 (B)
	Chlorobenzene	<0.00065	NA	NA	NA	<0.0011	**5**	NA	NA	NA	NA	NA	ND	ND	ND		1600 (B)
	n-Propylbenzene	<0.00065	NA	NA	NA	<0.0011	**0.23**	NA	NA	NA	NA	NA	ND	ND	ND		NE
	1,2,4-Trimethylbenzene	<0.00065	NA	NA	NA	<0.0011	**0.38**	NA	NA	NA	NA	NA	ND	ND	ND		4000 (B)
	sec-Butylbenzene	<0.00065	NA	NA	NA	<0.0011	**0.24**	NA	NA	NA	NA	NA	ND	ND	ND		NE
	1,3-Dichlorobenzene	<0.00065	NA	NA	NA	<0.0011	**0.1**	NA	NA	NA	NA	NA	ND	ND	ND		NE
	p-Isopropyltoluene	<0.00065	NA	NA	NA	<0.0011	**0.088**	NA	NA	NA	NA	NA	ND	ND	ND		NE
	1,4-Dichlorobenzene	<0.00065	NA	NA	NA	<0.0011	**0.64**	NA	NA	NA	NA	NA	ND	ND	ND		42 (B)
	n-Butylbenzene	<0.00065	NA	NA	NA	<0.0011	**0.25**	NA	NA	NA	NA	NA	ND	ND	ND		NE
	Napthalene	<0.00065	NA	NA	NA	<0.0011	**0.11**	NA	NA	NA	NA	NA	ND	ND	ND		5
RCRA Metals***	Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	<11	NA				7	20
	Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	**38**	NA					5600 (B)
	Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.57	NA				1	2
	Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	**13**	NA	60	35	41	48	19/2000**
	Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	**14**	NA	24	9.3	<5.7	24	250
	Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.28	NA	0.027	<0.022	0,027	0.07	2
	Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.57	NA					400

TABLE 1B
SR 522 ROW SOIL ANALYTICAL DATA
(all results in milligrams per kilogram (mg/kg))

		HWA Boring	CDM Borings				MTCA A/B
Boring		HB-3-4	B-1	B-5	B-6	B-7	
Sample depth, ft bgs		4-8	6	8	8	9	
Petroleum Hydrocarbons	Gasoline Range				<5	<5	100/30*
	Diesel Range				<25	<25	2000
	Oil Range				<50	<50	2000
VOCs***	Tetrachloroethylene	ND	**0.0054**	<0.0011	<0.0011	**0.0012**	0.05
	Trichloroethylene		<0.00099	**0.0086**	<0.0011	<0.0010	0.03
	(cis) 1,2-Dichloroethylene		<0.00099	**0.034**	**0.0027**	<0.0010	800B
	Vinyl Chloride		<0.00099	<0.0011	<0.0011	<0.0010	670B

TABLE 1C
BOTHELL SERVICE CENTER SOIL ANALYTICAL DATA
(all results in milligrams per kilogram (mg/kg))

Boring		MW-11	MW-12	MW-13			MTCA A/B
Approximate Depth (ft bgs)		21	32.5	17.5	32.5	55	
VOCs***	Tetrachloroethylene	**0.074**	**0.0053**	<0.00091	<0.00083	<0.00085	0.05

TABLE 1D
AL'S AUTO BOTHELL WEXLER PROPERTY SOIL ANALYTICAL DATA
(all results in milligrams per kilogram (mg/kg))

Boring		GP-02 (8/5/2010)	GP-05 (8/9/2010)	GP-06 (8/9/2010)	GP-07 8/9/2010	GP-08 (8/9/2010)	GP-09 (8/6/2010)	GP-10 8/6/2010)	GP-11 (8/6/2010)	GP-12 (8/6/2010)	GP-13 (8/6/2010)	GP-15 (8/6/2010)	MTCA A/B
Sample depth (ft bgs)		**10'**	**7'-8'**	**8'**	**6'-7'**	**7'**	**9'**	**8'**	**8'**	**6'**	**10'**	**10'**	
Petroleum Hydrocarbons	Gasoline Range	<4.5	21	<5	<6.6	<5.7	<5.7	<5.5	<4.5	**5,900**	<5.1	<5.1	100/30*
	Diesel Range	-	<340	-	-	-	<34	-	-	<680	-	<32	2,000
	Lube Oil Range	-	1,800	-	-	-	<68	-	-	<60	-	<65	2,000
Volatile Organic Compounds**	1,2-Dichlorobenzene	<0.00068	**0.17**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	<1.5	<0.00076	<0.00075	7,200
	1,3-Dichlorobenzene	<0.00068	**0.041**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	<1.5	<0.00076	<0.00075	NE
	1,4-Dichlorobenzene	<0.00068	**0.23**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	<1.5	<0.00076	<0.00075	42
	1,2,3-Trichlorobenzene	<0.00068	**0.0039**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	<1.5	<0.00076	<0.00075	NE
	1,2,4-Trichlorobenzene	<0.00068	**0.01**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	<1.5	<0.00076	<0.00075	800
	1,2,4-Trimethylbenzene	<0.00068	**0.0044**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	**75**	<0.00076	<0.00075	4,000
	1,3,5-Trimethylbenzene	<0.00068	**0.06**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	**23**	<0.00076	<0.00075	4,000
	(cis) 1,2-Dichloroethene	<0.00068	<0.00083	**0.0023**	<0.00079	**0.00087**	<0.00083	<0.00081	**0.039**	<1.5	<0.00076	**0.024**	800
	(trans) 1,2-Dichloroethene	<0.00068	<0.00083	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	<1.5	<0.00076	**0.0011**	1,600
	sec-Butylbenzene	<0.00068	**0.0018**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	**1.6**	<0.00076	<0.00075	NE
	tert-Butylbenzene	<0.00068	**0.0013**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	<1.5	<0.00076	<0.00075	NE
	Ethylbenzene	<0.00068	**0.0015**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	**9**	<0.00076	<0.00075	6
	Isopropylbenzene	<0.00068	**0.001**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	**2.7**	<0.00076	**0.0016**	8,000
	Naphthalene	<0.00068	<0.00083	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	**6.7**	<0.00076	<0.00075	5
	n-Propylbenzene	<0.00068	<0.00083	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	**11**	<0.00076	<0.00075	NE
	p-Isopropyltoluene	<0.00068	**0.0031**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	<1.5	<0.00076	<0.00075	NE
	Tetrachloroethene	<0.00068	**0.0045**	**0.012**	<0.00079	**0.0051**	**0.85**	**0.12**	**0.0066**	<1.5	<0.00076	0.00084	0.05
	Trichloroethene	<0.00068	<0.00083	**0.0015**	<0.00079	**0.0021**	**0.0015**	<0.00081	**0.0035**	<1.5	<0.00076	**0.006**	0.03
	m,p-Xylene	<0.0014	**0.0017**	0.0017	<0.0016	0.0017	0.0017	<0.0016	<0.0013	**42**	<0.0015	<0.0015	9
	o-Xylene	<0.00068	**0.008**	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	**9.8**	<0.00076	<0.00075	9
	Vinyl Chloride	<0.00068	<0.00083	<0.00085	<0.00079	<0.00084	<0.00083	<0.00081	<0.00066	<1.5	<0.00076	<0.00075	0.67

Notes:

MTCA A / B – Ecology MTCA Method A / B soil cleanup levels, Chapter 173-340 WAC, shown for reference only. These cleanup levels may not apply at this site, and are provided as a screening level indication of the environmental quality of the site only.
BKGD - Natural Background Soil Metals Concentrations in Washington State (Ecology, 1994)
NE – Not Established
< - not detected at listed reporting limit
Bold – Analyte Detected
Bold / highlighted – Analyte exceeds cleanup level
Blank – not analyzed
* - The Method A Soil cleanup levels for gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylenes are less than 1% of the gasoline mixture are 100 mg/kg/all other mixtures are 30 mg/kg
** - The Method A soil cleanup levels for Chromium are 19 mg/kg for Cr VI and 2000 mg/kg for Cr III. Analyses are for total chromium.
All diesel range hydrocarbon sample extracts treated with an acid/silica gel cleanup procedure.
***No other VOCs or RCRA metals were detected above laboratory reporting limits.

TABLE 2A
HERTZ GROUND WATER ANALYTICAL DATA (all results in micrograms per liter (µg/l) except as noted)

Boring		HWA Borings									Riley Phase II			PMX RI		MTCA A/B
		HZ-MW-1	HZ-B2-W	HZ-B3-W	HZ-MW-4	HZ-B5-W	HZ-B6-W	HZ-B7-W	HZ-MW-8	HZ-B9-W	HZ-MW-8	MW-10	MW-11	HZMW-12	HZMW-13	
Approximate Depth to Water (ft bgs)		7.0	6.7	7.0	5.92	6.02	9.3	12	5.42	7.5	5.3	5.2	5.3	10	10	
Field Parameters	pH	6.66	6.8	NA***	7.71	6.6	6.3	NA	6.59	6.5				6.74	7.19	
	Conductivity (µS/cm)	300	NA	NA***	200	201.4	NA	NA	200	338.2				960	1170	
	Temperature (C)	17.8	19.5	NA***	20.3	18.3	12.8	NA	19.7	15.7				19.8	20.1	
	Dissolved Oxygen (mg/l)	9.65	6	NA***	10.13	4.2	4.10	NA	9.46	3.0				2.39	2.31	
Petroleum Hydrocarbons	Gasoline Range	<100	<100	<100	<100	<400	<400	**810**	<400	<400		**1300**	<100	<100	**210**	1000/800*
	Diesel Range	<300	<250	<250	<260	<250	<260	<260	**770**	<260	<0.25	<0.25	<0.25			500
	Oil Range	**1500**	<400	<400	<420	<400	<420	**>4000****	**6500**	<420	**2700**	**8800**	<0.4			500
VOCs**	Vinyl Chloride	<0.2	<0.2	<0.2	<0.2	**0.53**	**2**	**0.48**	<0.2	**0.53**	ND	**0.42**	ND	<0.2	<0.2	0.2
	Acetone	<5	<5	**5.8**	<5	<1.0	<10	<2.0	<5	<10						800(B)
	cis-1,2-Dichloroethylene	<0.2	<0.2	<0.2	<0.2	**0.39**	<0.4	<0.4	<0.2	**0.65**		**0.29**		<0.2	**0.24**	16 (B)
	Chloroform	<0.2	**0.31**	<0.2	**0.20**	<0.2	<0.4	<0.4	<0.2	<0.4				<0.2	<0.2	80 (B)
	Benzene	<0.2	<0.2	<0.2	<0.2	**1.6**	**4.9**	**8.8**	**3.3**	**0.83**	**6.8**		<1	<1	<1	5
	Trichloroethylene	<0.2	**0.25**	<0.2	<0.2	<0.2	<0.4	<0.4	<0.2	<0.4				<0.2	<0.2	5
	Toluene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	**2**	<0.2	<0.4	<4		<1	<0.2	<0.2	1000
	Tetrachloroethylene	**0.58**	**1.7**	<0.2	<0.2	<0.2	<0.4	<0.4	<0.2	<0.4				<0.2	<0.2	5
	Chlorobenzene	<0.4	<0.4	<0.4	<0.4	**63**	<0.4	<0.4	**0.35**	<0.4	**0.72**					160 (B)
	Ethylbenzene	<0.2	<0.2	<0.2	<0.2	**0.25**	<0.4	**1**	<0.2	<0.4	<4		<1			700
	Xylenes	<0.2	<0.2	<0.2	<0.2	**0.27**	<0.4	**32**	**0.61**	<0.4	**71**		<1			1000
	Isopropylbenzene	<0.2	<0.2	<0.2	<0.2	**0.2**	<0.4	**2.2**	**0.62**	<0.4						NE
	n-Propylbenzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	**5**	<0.2	<0.4						NE
	1,3,5-Trimethylbenzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	**16**	<0.2	<0.4						400 (B)
	1,2,4-Trimethylbenzene	<0.2	<0.2	<0.2	<0.2	**1.2**	**0.65**	60	<0.2	<0.4						400 (B)
	sec-Butylbenzene	<0.2	<0.2	<0.2	<0.2	**0.2**	<0.4	1.1	<0.2	<0.4						NE
	p-Isopropyltoluene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	1.6	<0.2	<0.4						NE
	1,4-Dichlorobenzene	<0.2	<0.2	<0.2	<0.2	**0.82**	<0.4	<0.40	<0.2	<0.4						1.8 (B)
	1,2-Dichlorobenzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	**0.44**	<0.2	<0.4	ND	**1**	ND			720 (B)
	n-Butylbenzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**0.5**	<0.4						NE
	Napthalene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.40	**15**	**1.6**	<0.4						160
PAHs**	2-Methylnapthalene	NA	NA	NA	NA	NA	NA	NA	**2.4**	NA						320
	1-Methylnapthalene	NA	NA	NA	NA	NA	NA	NA	**2.3**	NA						24
	Phenanthrene	NA	NA	NA	NA	NA	NA	NA	**0.15**	NA						NE
	Pyrene	NA	NA	NA	NA	NA	NA	NA	**0.13**	NA						2400
	Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	**0.067/**	NA						NE
	Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	**0.028/0.0028**	NA						Total cPAHs 0.1
	Chrysene	NA	NA	NA	NA	NA	NA	NA	**0.073/0.00073**	NA						
	Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	**0.023/0.0023**	NA						
	Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	**0.018/0.0018**	NA						
	Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	**0.040/0.040**	NA						
	Ideno(1,2,3-c,d)pyrene	NA	NA	NA	NA	NA	NA	NA	**0.030/0.0030**	NA						
	Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	**0.023/0.0023**	NA						
	Total cPAHs	NA	NA	NA	NA	NA	NA	NA	**0.302/0.05293********	NA						
RCRA Metals (dissolved)**	Arsenic	NA	NA	NA	<3	NA	NA	NA	**21**	NA						5
	Barium	NA	NA	NA	<25	NA	NA	NA	**370**	NA						3200 (B)

TABLE 2B
SR 522 ROW GROUND WATER ANALYTICAL DATA
(all results in micrograms per liter (µg/l) except as noted)

Boring		HWA Borings		CDM Borings				MTCA A/B
		HB-1-W	HB-2-W	B-1-W	B-5-W	B-6-W	B-7-W	
Approximate Depth to Water (ft bgs)		9.5	6.9					
Field Parameters	pH	7.55	7.44					
	Conductivity (µS/cm)	204	279					
	Temperature (C)	11.8	10.8					
	Dissolved Oxygen (mg/l)	1.82	3.32					
Petroleum Hydrocarbons	Gasoline Range			<100		<100	<100	1000/800*
	Diesel Range			<100		<100	<100	500
VOCs**	Oil Range			<100		<100	<100	500
	Tetrachloroethylene	**0.26**	**2.7**	**20**	<0.20	**3.4**	<0.20	5
	Trichloroethylene	<0.20	**1.1**	**1.4**	<0.20	**6.4**	<0.20	5
	cis-1,2-Dichloroethylene	<0.20	**1**	**1.6**	<0.20	**76**	<0.20	16B
	trans-1,2-Dichloroethylene			<0.20	<0.20	**0.66**	<0.20	160B
	1,2-Dichloroethane			<0.20	<0.20	**6.5**	<0.20	0.48B
	Vinyl Chloride			<0.20	<0.20	**0.89**	<0.20	0.2

TABLE 2C
BOTHELL SERVICE CENTER GROUND WATER ANALYTICAL DATA
(all results in micrograms per liter (µg/l) except as noted)

Boring		MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18	MTCA A/B
Most Recent Reported Sampling Date		8/2008	8/2008	8/2008	8/2008	8/2008	8/2008	8/2008	8/2008	8/2008	4/2005	8/2008	8/2008	11/2007	11/2007	11/2007	11/2007	11/2007	5//2008	
Screen interval (ft bgs)		5-20	5-20	5-20	10-25	10-25	10-25	10-25	45-50	45-50	5-25	25-33	25-33	40-55	22-32	22-32	40-55	40-50	22-30	
Approximate Depth to Water (ft bgs)		7.56	8	7	7.3	7.7	8.08	7.79	8.74	9.76	7.27	8.16	7.63	8.68	8.09	8.62	9.24	9.1	8.1	
Field Parameters	pH	6.32	6.38	5.9	6.22	6.02	6.09	6.52	6.33	7.19	5.32	6.26	6.34	7.07	6.96	6.81	7.85	7.65		
	Conductivity (µS/cm)	189	266	172	248	203	256	240	118	166	274	142	227	152	146	157	124	188		
	Temperature (C)	19.33	14.91	18.21	16.81	14.71	19.27	14	16.22	15.71	16.9	16.54	14.69	14.69	12.7	12.26	12.46	12.31		
	Dissolved Oxygen (mg/l)	1.87	2.26	2.88	2.91	3.29	2.34	2.74	2.07	1.17	0.62	1.46	2.12	1.35	3.96	4.02	4.02	0.49		
VOCs**	Tetrachloroethylene	**23000**	**500**	<20	**11000**	**21000**	**25000**	**4300**	**93**	**6000**	**3**	**27**	**1600**	<1	<0.2	<0.2	**10**	**6.5**	<0.25	5
	Trichloroethylene	<200	**200**	<20	**790**	**660**	**1200**	**43**	**4.8**	**3400**	<0.2	**0.53**	<10	<0.2	<0.2	<0.2	<0.2	<0.2	<0.25	5
	cis-1,2-Dichloroethylene	<200	**2300**	<20	**270**	**630**	**1200**	**43**	**4.4**	<50	<0.2	<0.2	<10	<0.2	<0.2	<0.2	<0.2	<0.2	<0.25	16B
	Chloroform	<200	<20	<20	<50	<100	<200	<20	<1	<50	<0.2	<0.2	<10	<0.2	<0.2	**1.4**	**17**	**0.22**	<0.25	80

TABLE 2D
AL'S AUTO BOTHELL WEXLER PROPERTY GROUND WATER ANALYTICAL DATA
(all results in micrograms per liter (µg/l) except as noted)

Boring		RS-1	RP-1	RP-2	MTCA A/B
Approximate Depth to Water (ft bgs)		5.99	6.41	5.9	
Field Parameters	pH	7.2	6.7	7.5	
	Conductivity (µS/cm)	310	290	190	
VOCs**	Tetrachloroethylene	**31**	**1500**	<2	5
	Trichloroethylene	**19**	**600**	<2	5
	cis-1,2-Dichloroethylene	**160**	**2100**	<2	16 (B)
	trans-1,2-Dichloroethylene	**3**	**11**	<2	160 (B)

TABLE 2D (continued)
AL'S AUTO BOTHELL WEXLER PROPERTY GROUND WATER ANALYTICAL DATA
(all results in micrograms per liter (µg/l) except as noted)

Boring		GP-01 (8/5/2010)			GP-02 (8/5/2010)			GP-03 8/5/2010			GP-04 8/6/2010	GP-05 8/9/2010	GP-12 8/6/2010	GP-13 8/6/2010	GP-14 8/9/2010	GP-16 8/6/2010	MTCA A/B
Sample depth (ft bgs)		10'-15'	25'-30'	40'-42'	10'-15'	25'-30'	40'-45'	5'-9'	25'-30'	40'-43'	10'-15'	10'-15'	10'-15'	10'-15'	10'-14'	7'-12'	
Petroleum Hydrocarbons	Gasoline Range	<100 J	-	-	<100	-	-	<100	-	-	<100	<100	**940**	<100 J	<100	**160**	1000/800*
	Diesel Range	-	-	-	<260	-	-	-	-	-	-	-	<330	-	-	<260	500
	Lube Oil Range	-	-	-	<410	-	-	-	-	-	-	-	<420	-	-	<420	500
Volatile Organic Compounds**	1,2,4-Trimethylbenzene	<10	<1	<0.2	<0.4	<1	<0.2	<0.2	<2	<0.2	<0.2	<0.2	**19**	<10	<20	<1	400
	1,3,5-Trimethylbenzene	<10	<1	<0.2	<0.4	<1	<0.2	<0.2	<2	<0.2	<0.2	<0.2	**5**	<10	<20	<1	400
	(cis) 1,2-Dichloroethene	<10	<1	<0.2	**50**	**6.7**	**0.92**	**20**	**9.8**	**0.29**	<0.2	<0.2	**6.8**	**230**	**160**	**140**	16
	(trans) 1,2-Dichloroethene	<10	<1	<0.2	<0.4	<1	<0.2	**0.25**	<2	<0.2	<0.2	<0.2	<0.2	<10	<20	**2.6**	160
	Chloroform	<10	<1	<0.2	<0.4	<1	<0.2	<0.2	<2	<0.2	<0.2	<0.2	**0.82**	**15**	<20	<1	80
	Ethylbenzene	<10	<1	<0.2	<0.4	<1	<0.2	<0.2	<2	<0.2	<0.2	<0.2	**14**	<10	<20	<1	700
	Isopropylbenzene	<10	<1	<0.2	<0.4	<1	<0.2	<0.2	<2	<0.2	<0.2	<0.2	**0.94**	<10	<20	<1	800
	Naphthalene	<50	<5	<1	<2	<5	<1	<1	<10	<1	<1	<1	**5.8**	<50	<100	<5	160
	n-Propylbenzene	<10	<1	<0.2	<0.4	<1	<0.2	<0.2	<2	<0.2	<0.2	<0.2	2	<10	<20	<1	NE
	Tetrachloroethene	**1,900**	**31**	**2.2**	**17**	**91**	**7**	**0.38**	**290**	**15**	**22**	<0.2	**0.43**	**850**	**2,100**	**8.5**	5
	Trichloroethene	<103	<1	<0.2	**26**	**4.1**	**0.56**	**2.4**	**6.4**	0.44	<0.2	<0.2	**0.27**	**19**	**26**	**22**	5
	Vinyl Chloride	<103	<13	<0.2	<0.43	<13	<0.2	<0.2	<23	<0.2	<0.2	<0.2	<0.2	<103	<203	**1.5**	0.2
	m,p-Xylene	<20	<2	<0.4	<0.8	<2	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	**50**	<20	<40	<2	10,004
	o-Xylene	<10	<1	<0.2	<0.4	<1	<0.2	<0.2	<2	<0.2	<0.2	<0.2	**18**	<10	<20	<1	10,004

Notes:

MTCA A / B – Ecology MTCA Method A / B soil cleanup levels, Chapter 173-340 WAC, shown for reference only. These cleanup levels may not apply at this site, and are provided as a screening level indication of the environmental quality of the site only.
Blank – Not Analyzed
< - not detected at listed reporting limit
Bold – detected
Bold / highlighted – Analyte exceeds cleanup level
Blank – not analyzed
* - The Method A Ground Water cleanup levels for gasoline range organics without detectable benzene is 1000 mg/l. If benzene is present the cleanup level is 800 mg/l
**No other VOCs, PAHs or RCRA metals were detected above laboratory reporting limits.

Table 3
Sample Analytes and Rationale (Soil and Ground Water)
See Figures 12 and 13 for Sampling Locations

Location*	Depth (feet)	Analytes	Analytical Method	Rationale
Deep exploration points	Up to 50 feet	VOCs Diesel/Oil Range TPH Gasoline Range TPH	EPA 8260 NWTPH-Dx NWTPH-Gx	To delineate the horizontal and vertical extent of chlorinated VOCs and petroleum hydrocarbons downgradient of apparent source areas and to determine if there are strata present that limit the vertical migration of chlorinated VOCs
Shallow exploration points,	10-25 feet			To delineate the horizontal extent of chlorinated VOCs and petroleum hydrocarbons up- and downgradient of apparent source areas
Utility/construction test pits (see Figures 10,11)	0-15 feet	VOCs Diesel/Oil Range TPH Gasoline Range TPH Metals Analytes will be selected based on area sampled and past results	EPA 8260 NWTPH-Dx NWTPH-Gx EPA 6010/7471A	Primarily to characterize trench spoils for disposal or reuse (not part of this RI), but data will be evaluated and follow up sampling recommended based on results
All exploration points below water table	Up to 50 feet	Total & Dissolved Arsenic	EPA 6010/7471A	To delineate arsenic distribution in ground water throughout the RI area
Select shallow exploration points	Above water table	Weight Fraction Organic Carbon Dry Bulk Density Total Porosity Air-Filled Porosity Volumetric Moisture Content	ASTM D2974 ASTM D2937 Army COE EM1110-2-1906, Append. II Army COE EM1110-2-1906, Append. II ASTM D2216	To determine typical values of soil parameters for the Johnson and Ettinger subsurface vapor intrusion model (Environmental Quality Management, 2000) to be used to evaluate indoor air concentrations of VOCs in RI area. Samples will be selected based on planned development, end use, geological conditions
Select shallow or deep exploration points	Below water table	Weight Fraction Organic Carbon Dry Bulk Density Total Porosity Grain Size Distribution Cation Exchange Capacity	ASTM D2974 ASTM D2937 Army COE EM1110-2-1906, Append. II ASTM D422 & ASTM D4464 EPA 9081	To determine typical values of soil parameters for the ground water transport model to be used to evaluate COPC concentrations at receptor points down gradient of source areas

* See Figures 10,11,12, 13
Number of samples and/or analytes will be based on results of field screening, ground water depth, location, past site use, etc.

Table 3a
Sample Analytes and Rationale (Area Wide Ground Water Monitoring Network)
See Figures 12 and 13 for Sampling Locations

Well*	Screened Depth (feet)**	Rationale	Analytical
A	15-25	Define edges of plume near Case property	HVOCs
B	15-25		
C	15-25	Define edges of plume downgradient of Case property Also check for TPH detected at Speedy Auto Glass (soil and water) Sample soils	HVOCs TPH***
D	10-20	Define edges / relationship of both plumes. Also check for TPH, detected at Al's Auto/Wexler and Grease Monkey, at low concentrations	HVOCs TPH
E	10-20	Delineate HVOCs migrating along roadway – may include completions within utility trenches, after roadway is vacated Also check for TPH from Bothell Landing and detected in roadway by CDM	HVOCs TPH Metals (As, Cd, Cr, Pb)
F	10-20		
G	10-20		
H	10-20 30-50	Delineate edge of BSC plume Confirm TPH cleanup in soil and ground water at Hertz	HVOCs TPH As
I	10-20	Delineate edge of BSC plume Confirm soil cleanup in this area, sample soils 12-15' below clean backfill	HVOCs TPH As
J	10-20	Delineate edge of plume(s) Confirm TPH cleanup in ground water at Bothell Landing	HVOCs TPH Metals (As, Cd, Cr, Pb)
K	10-20		
L	10-20	Delineate downgradient edge of plume(s) – if HVOCs > cleanup levels, will need to monitor further downgradient	HVOCs
M	10-20 30-50		
N	10-20 30-50	Delineate edge of BSC plume	HVOCs

* Temporary designations – wells will be renamed after installation
** Approximate, 10-25' indicates first encountered, non-perched ground water, 30-50' indicates deeper, confined aquifer, as encountered in each location
***TPH = TPH-Gx/BTEX, TPH-Dx
See Table 3b on next page for new wells Os, Od, Ps, & Pd

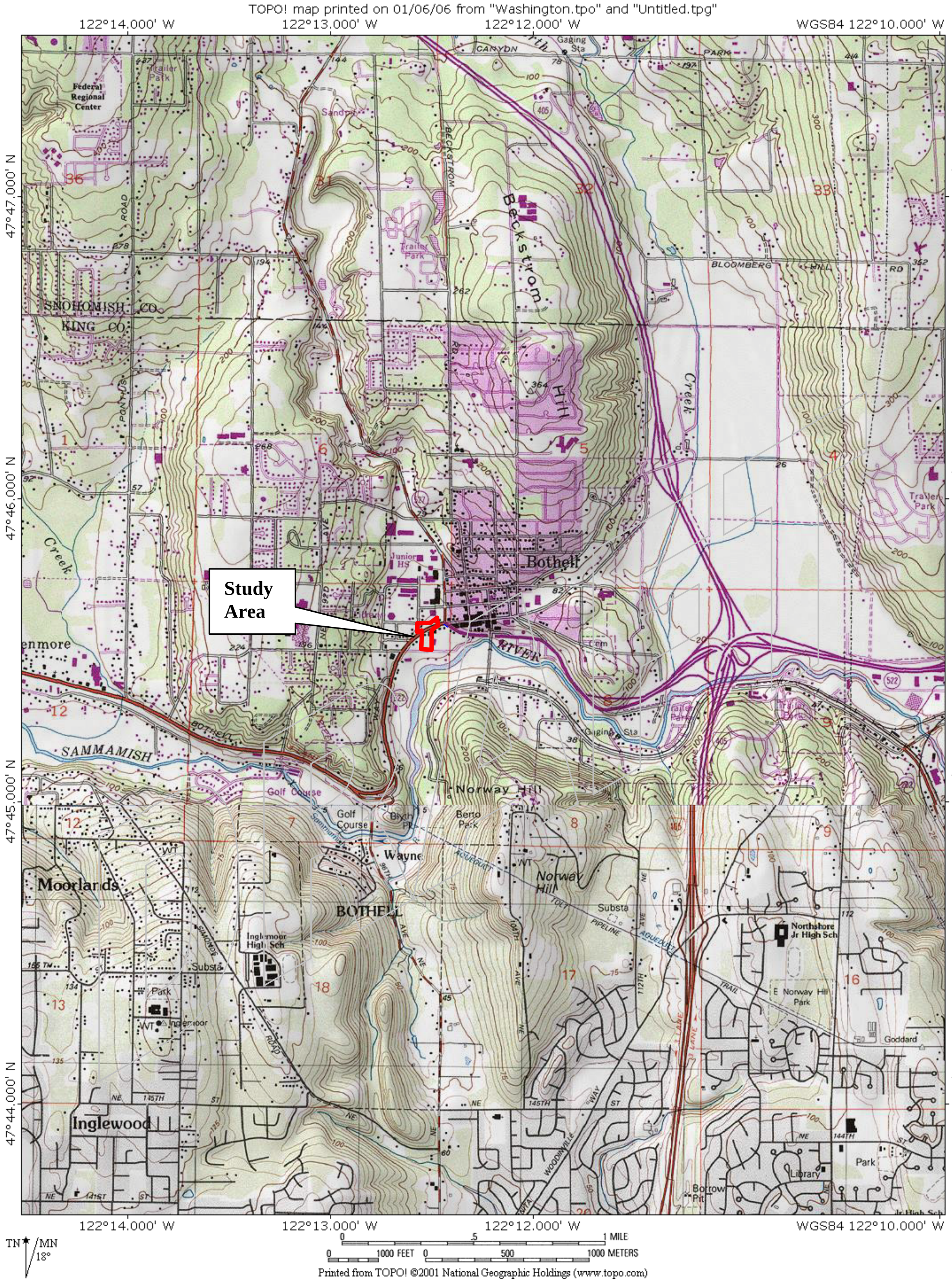
Table 3b
Sample Analytes and Rationale - RI Phase 1B Explorations and Rationale
See Figures 12 and 13 for Sampling Locations

Well	Screened Depth (feet)*	Rationale	Analytical
Os	15-25	Assess if HVOCs have migrated across SR522 to Hertz property in shallow aquifer	HVOCs TPH**
Ps			
Od	40-45	Assess if HVOCs have migrated across SR522 to Hertz property in deep aquifer	HVOCs TPH**
Pd			
HB-4	5-15	Assess if HVOCs have migrated in utility trenches	HVOCs TPH**
HB-5			
HZMW-1	5-15	Sample existing wells to monitor changes over time, possible impacts of soil cleanup	HVOCs TPH**
HZMW-4	8-18		
BLMW-8	5-15		

* designations – wells will be renamed after installation
** Approximate, 10-25' indicates first encountered, non-perched ground water, 30-50' indicates deeper, confined aquifer, as encountered in each location
***TPH = TPH-Gx/BTEX, TPH-Dx

Table 4
Proposed RI Schedule

Phase	Activity	Anticipated Completion	Reporting
1	• Additional soil sampling for utility trenches during construction of the new SR522 roadway • Installation of monitoring wells in the active SR 522 highway Installation of monitoring wells on the former Hertz property and in the vacated SR522 right of way	During and after construction of the new SR522 roadway and abandonment of the existing roadway in 2012-2013	Letter report/Technical Memorandum, 2013
2	• Review and analysis of ground water sampling data collected under the expanded area-wide Bothell Landing RI • Hydrogeologic measurements of ground water elevations and aquifer characteristics to determine flow directions and velocities • Contaminant characterization needed to develop a complete conceptual model of the Site • Analysis and inclusion of data from the adjacent Bothell Landing RI, as needed • One year of quarterly ground water monitoring at the former Hertz property and the off-property monitoring well network in place at that time • A data gap analysis to complete the requirements for a RI/FS per WAC 173-340-350	Following Phase 1	Quarterly ground water monitoring reports and summary annual report
3	• Vapor intrusion studies / modeling	Following Phase 2	Included in draft RI/FS
4	• Chlorinated VOC source delineation at the Bothell Service Center property, and other properties, if found to be commingled with the former Hertz Site	Contingent on site access	Included in draft RI/FS
5	• Investigations necessary to evaluate potential source control options and to close any outstanding data gaps • Preparation of a complete RI report	Contingent on prior tasks	Included in draft RI/FS



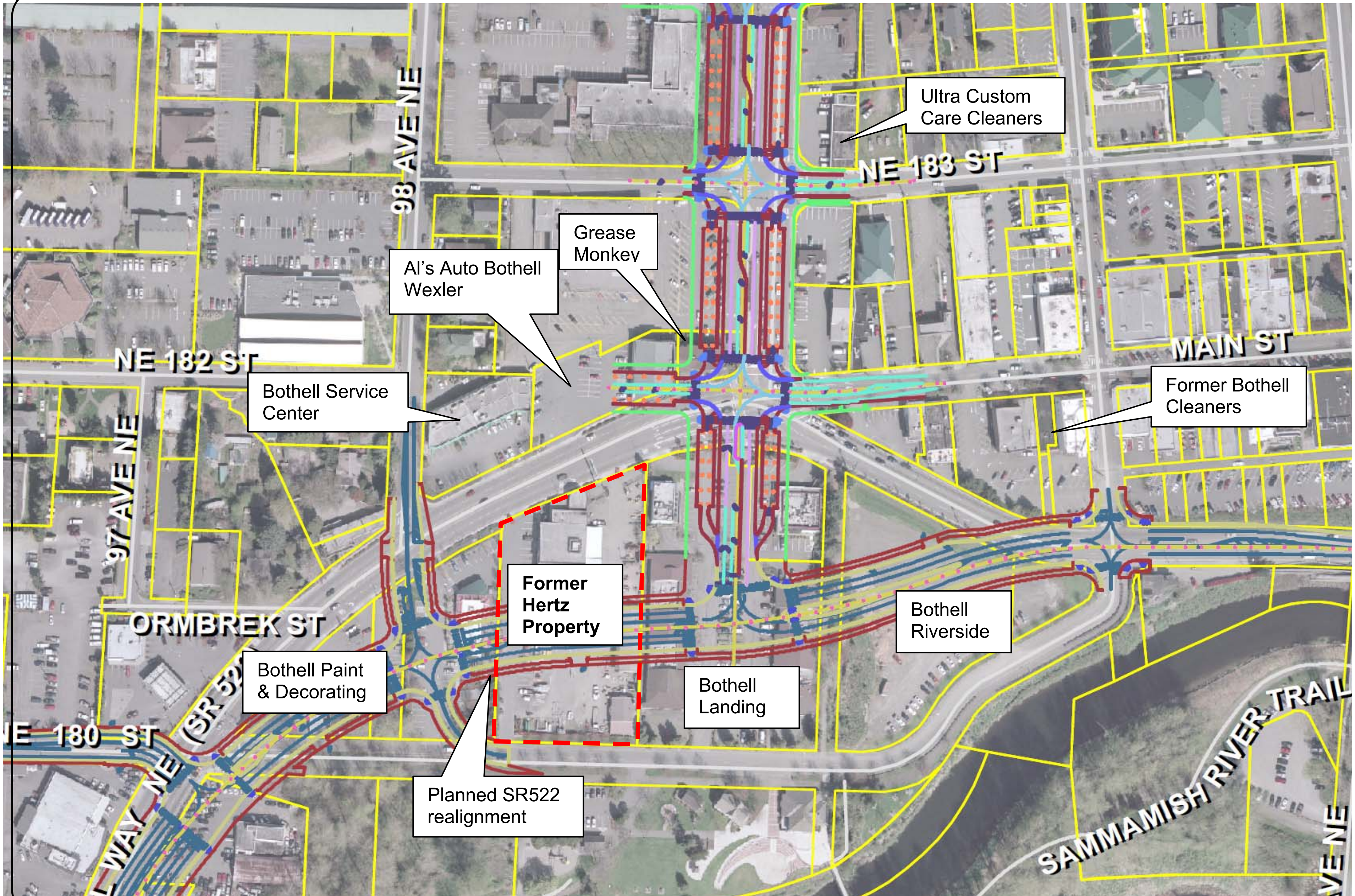
HWA GEOSCIENCES INC.

SITE VICINITY

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION
BOTHELL, WASHINGTON

FIGURE NO.
1

PROJECT NO.
2007-098



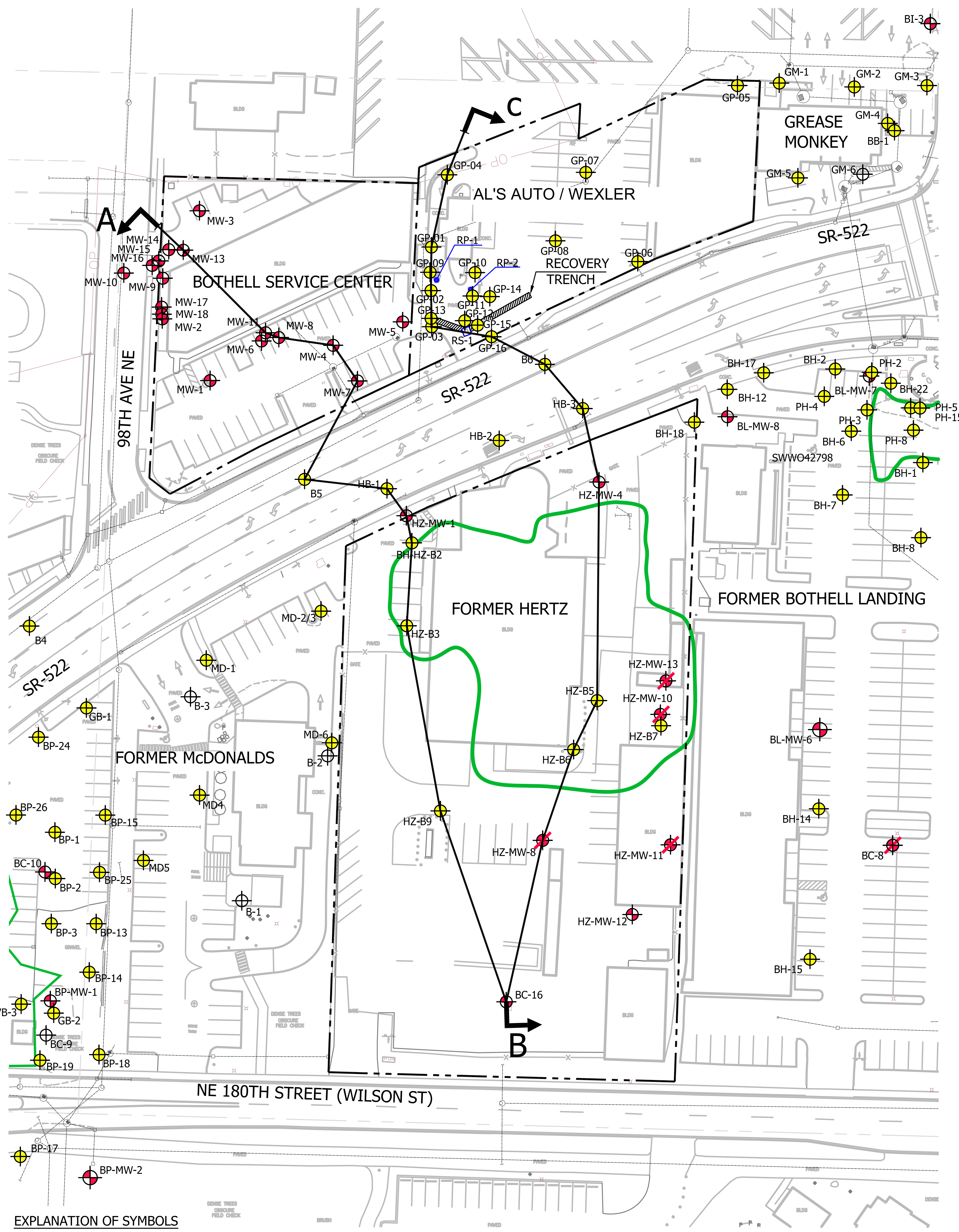
HWA GEOSCIENCES INC.

SITE LOCATION & ADJACENT PROPERTIES

BOTHELL FOMRER HERTZ FACILITY
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

FIGURE NO.
2

PROJECT NO.
2007-098-931



EXPLANATION OF SYMBOLS

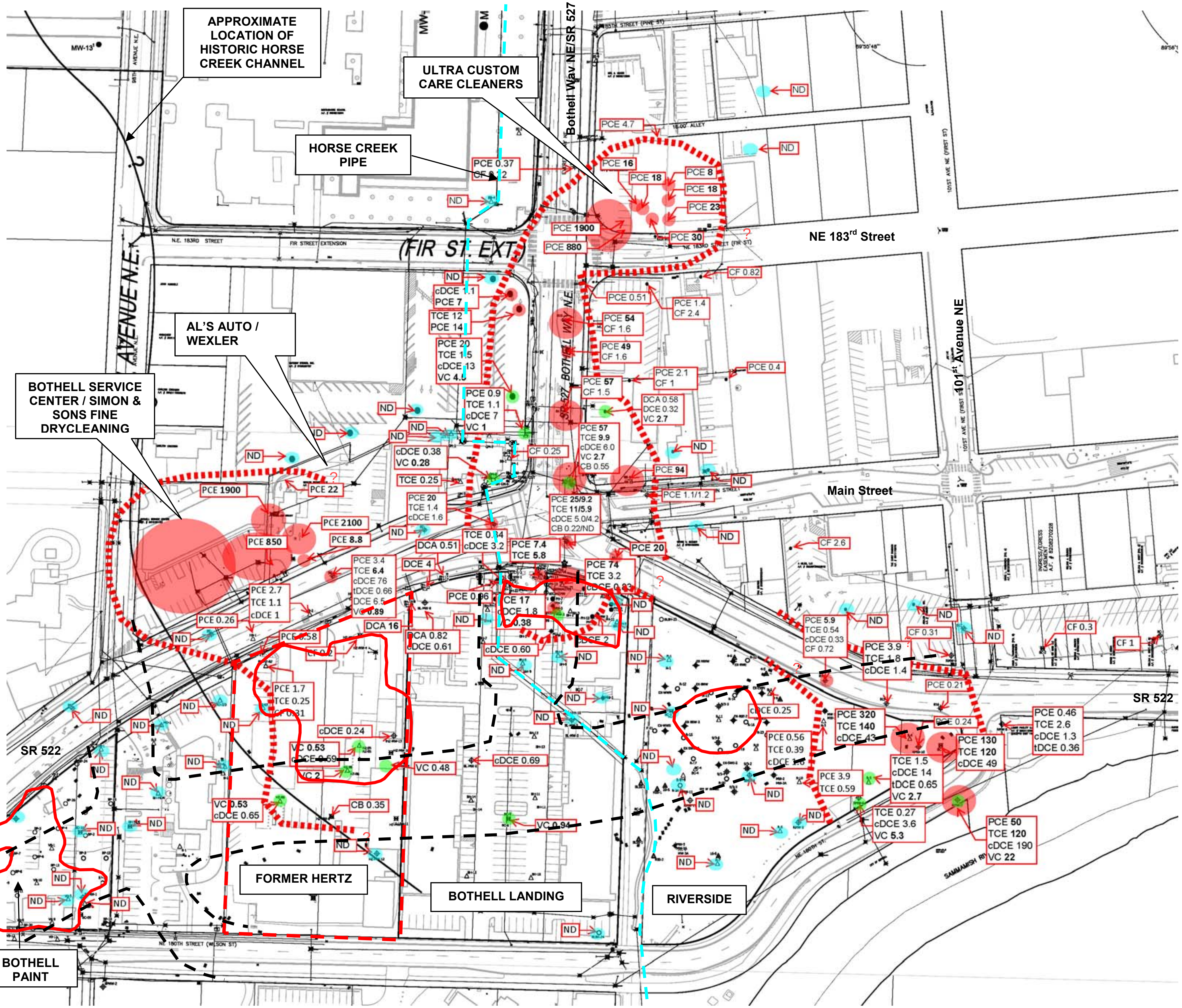
- APPROXIMATE LOCATION PROPERTY LINE
- 2010 SOIL CLEANUP LIMITS
- MW — MONITORING WELL
- SB — SOIL BORING
- DPP — DIRECT PUSH PROBE
- MW — DECOMMISSIONED MONITORING WELL
- RS-1 — RECOVERY SUMP
- RP-2 — REINTRODUCTION POINT

0' 30' 60' 120'
SCALE: 1"=60'

BASE MAP PROVIDED BY PERTEET ENGINEERING INC

HWA GEOSCIENCES INC.	BOTHELL FORMER HERTZ FACILITY REMEDIAL INVESTIGATION BOTHELL, WASHINGTON	SITE PLAN	DRAWN BY EFK CHECK BY AS DATE 08.07.12	FIGURE NO. 3 PROJECT NO. 2007-098 T943

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T943B.DWG <FIG 3 T943> Plotted: 9/11/2012 2:09 AM



LEGEND

- PCE > 50 ug/L
- Any Chlorinated VOC > MTCA A
- VC Present
- All Chlorinated VOCs ND
- Approximate Extent of Chlorinated VOC Plume in Ground Water

ABBREVIATIONS

PCE	Tetrachloroethene
TCE	Trichloroethene
DCE	Dichloroethene
cDCE	(cis) 1,2-Dichloroethene
tDCE	(trans) 1,2-Dichloroethene
DCA	Dichloroethane
VC	Vinyl Chloride
CF	Chloroform
CB	Chlorobenzene
VOC	Volatile Organic Compound
ND	Not Detected At Laboratory's Reporting Limit
ug/L	Micrograms per Liter

NOTES

- Sample and chlorinated VOC plume boundary locations are approximate.
- Concentration values in **bold** exceed MTCA Method A ground water cleanup level.

MTCA METHOD A GROUND WATER CLEANUP LEVELS (ug/L)

PCE	5.0
TCE	5.0
DCE	Not Established
cDCE	Not Established
tDCE	Not Established
DCA	Not Established
VC	0.2
CF	Not Established
CB	Not Established

HWA GEOSCIENCES INC.

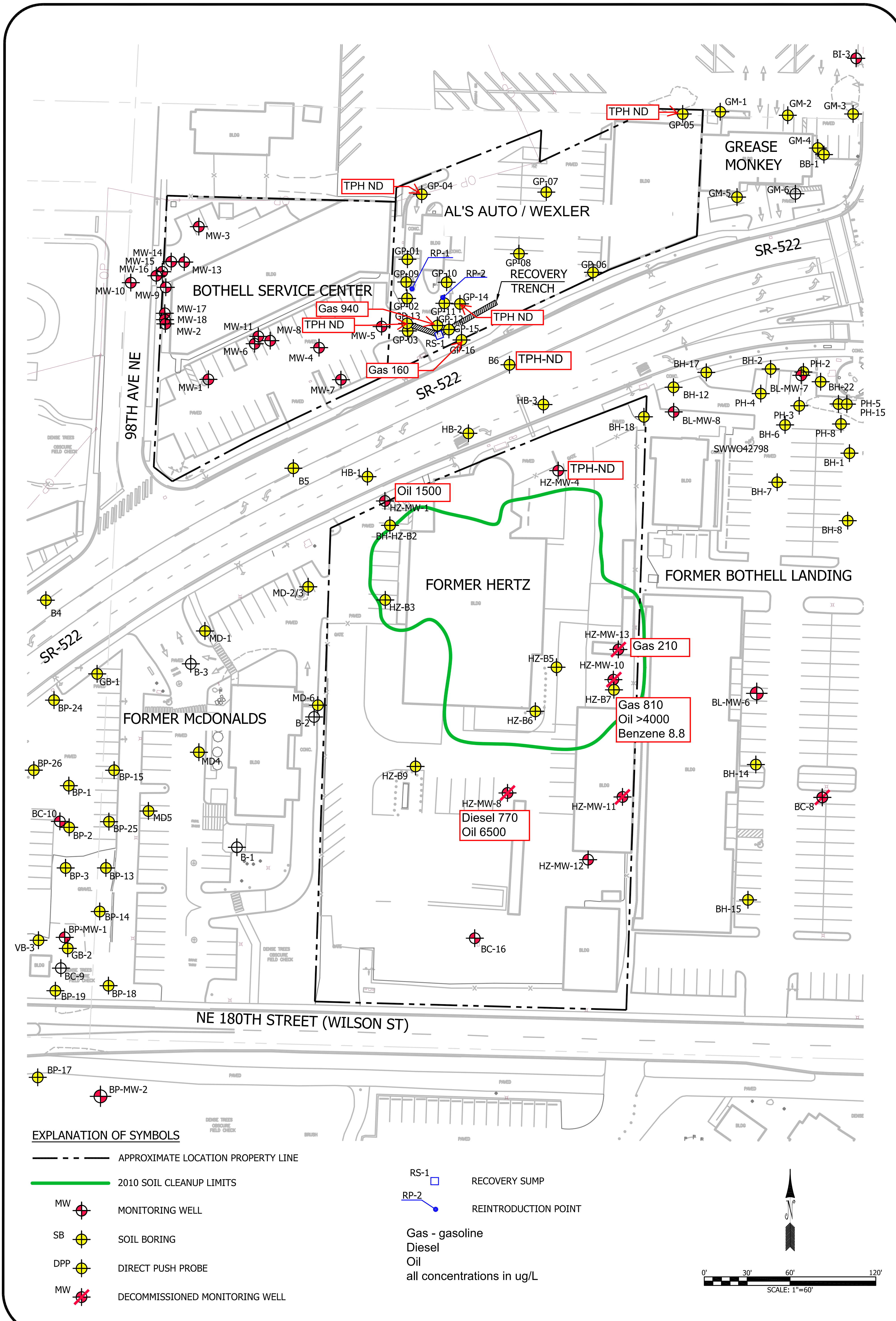
SUMMARY OF KNOWN CHLORINATED VOC OCCURRENCES IN GROUND WATER

(FOR REFERENCE: EXTRACTED FROM BOTHELL LANDING RI WORK PLAN)

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

FIGURE NO. 4

PROJECT NO. 2007-098-931



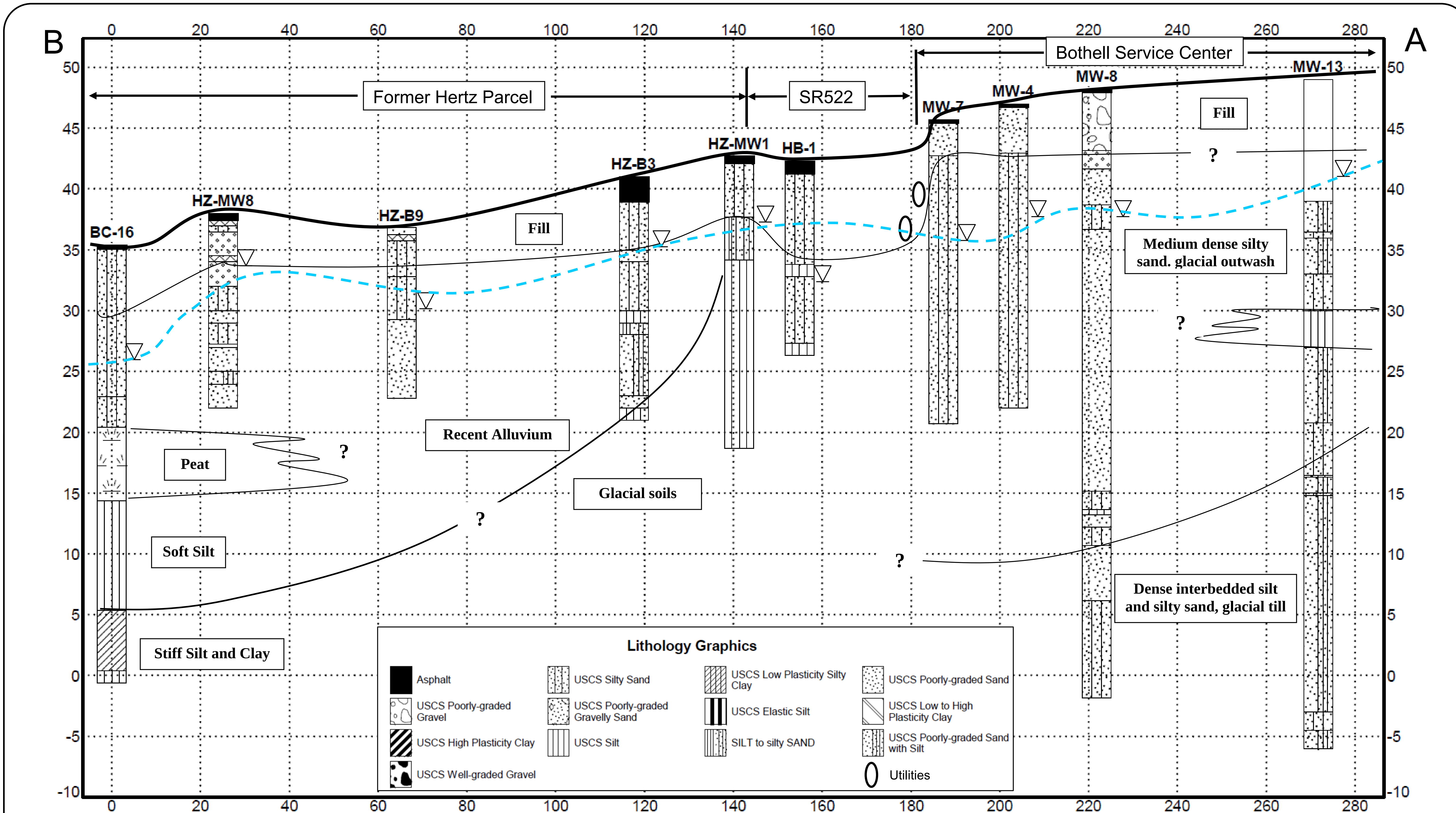
HWA GEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION
BOTHELL, WASHINGTON

SUMARY OF KNOWN TPH OCCURENCES IN GROUND WATER

DRAWN BY EFK	FIGURE NO. 5
CHECK BY AS	PROJECT NO. 2007-098 T931
DATE 07.24.10	

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T931.DWG <FIG 2 T931> Plotted: 5/25/2011 7:01 PM



See Figure 3 for lines of section

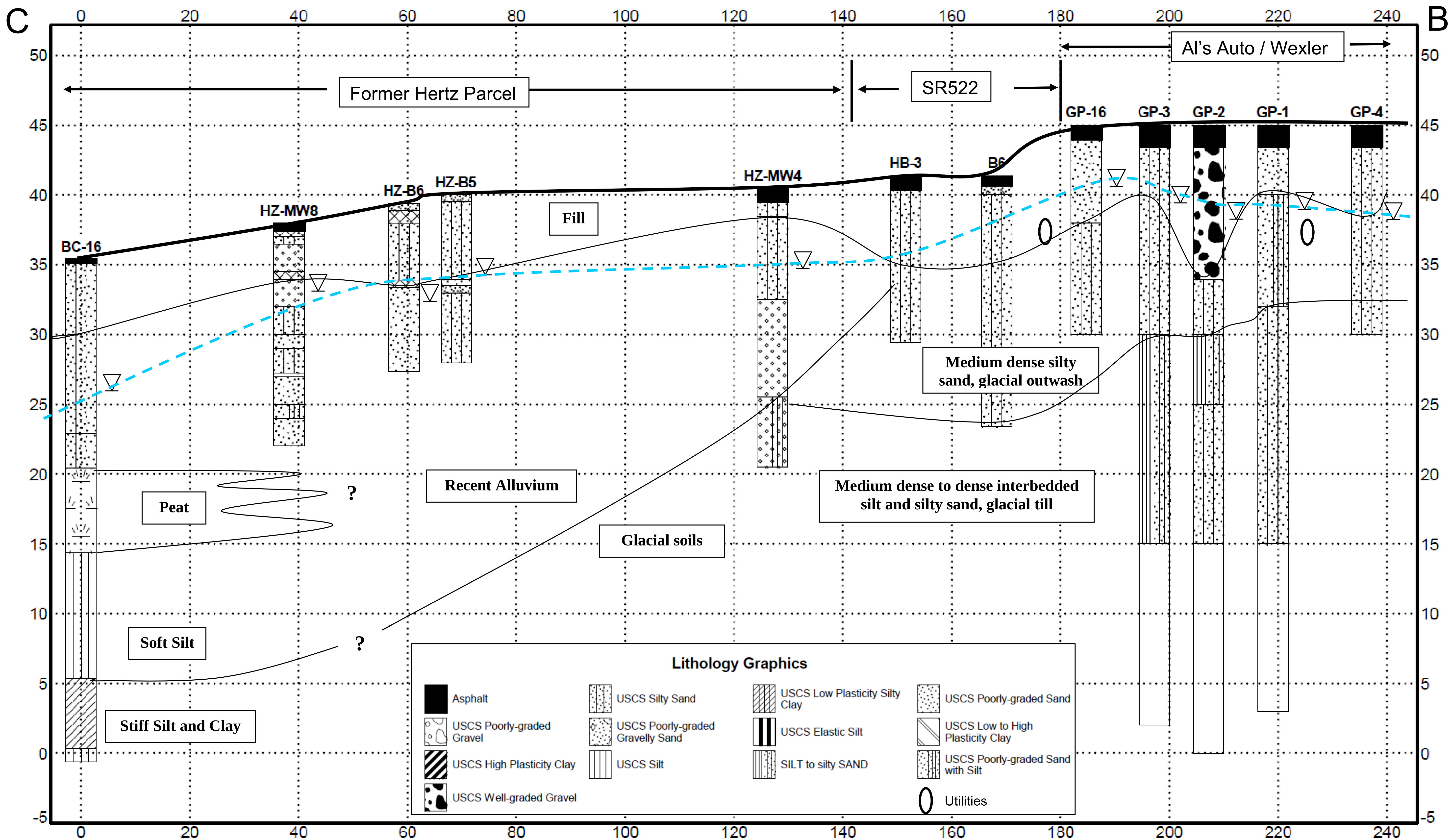
HWA GEOSCIENCES INC.

CROSS SECTION B – A
HERTZ TO BOTHELL SERVICE CENTER

BOTHELL FOMRER HERTZ FACILITY
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

PROJECT NO.
2007-098

FIGURE NO.
6



See Figure 3 for lines of section

HWA GEOSCIENCES INC.

CROSS SECTION C - B
HERTZ TO AL'S AUTO / WEXLER

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

PROJECT NO.
2007-098

FIGURE NO.
7

HWA GEOSCIENCES INC.	Area-Wide Gradient Study Bothell, Washington	Ground Water Gradient August 29-31, 2012	DRAWN BY EFK CHECK BY VA DATE: 09.07.12	FIGURE # 8 PROJECT # 2012-098-21 TASK 950

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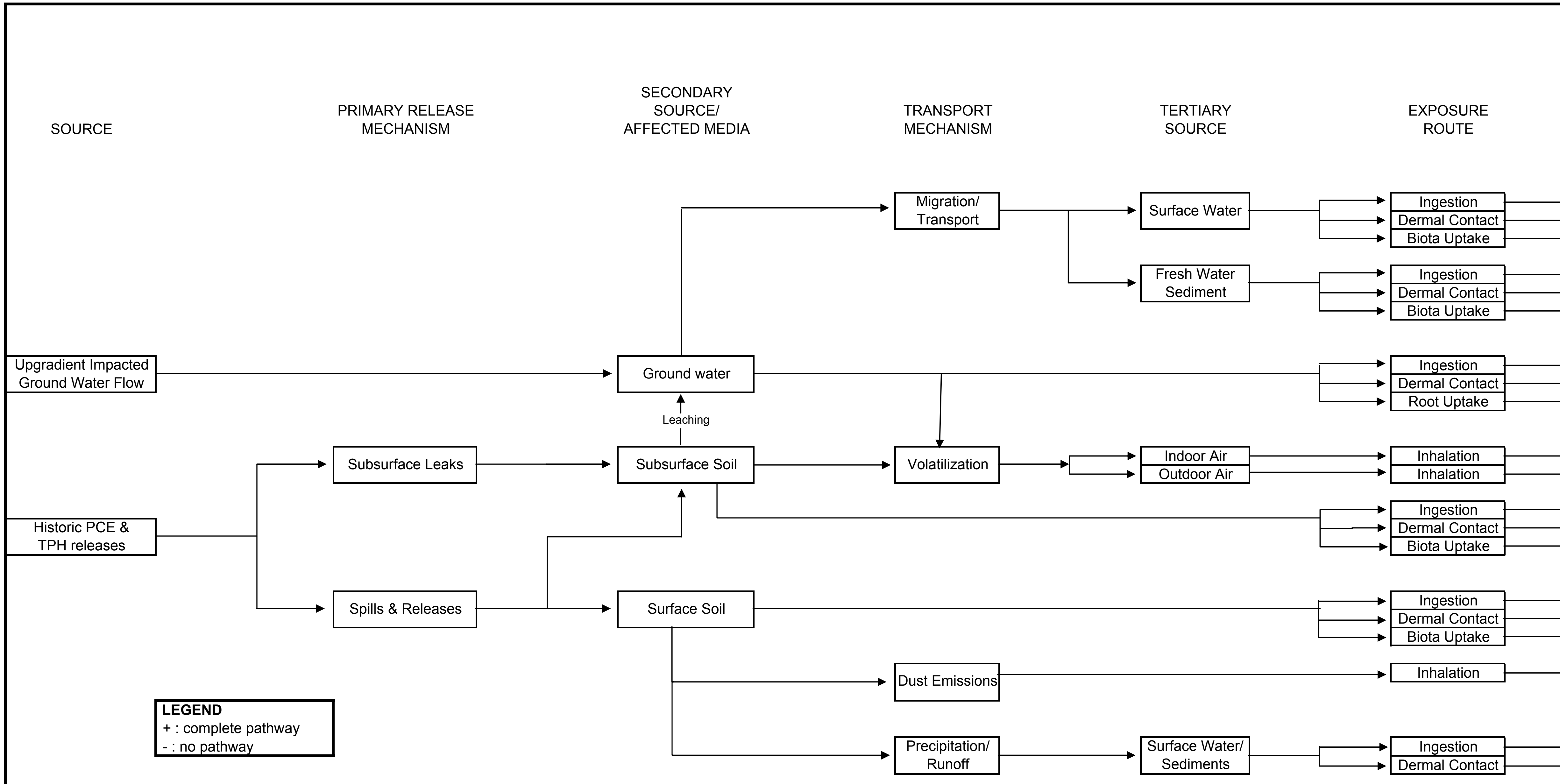


POTENTIAL RECEPTORS

Tertiary Source / Media	Exposure Route	Non-Intrusive Current Worker/Visitor	Non-Intrusive Future Worker/Visitor	Intrusive Worker	Off-site Recreational User	On-Site Ecological	Off-Site Ecological
Surface Water	Ingestion	-	-	-	+	-	+
Surface Water	Dermal Contact	-	-	-	+	-	+
Surface Water	Biota Uptake	-	-	-	+	-	+
Fresh Water Sediment	Ingestion	-	-	-	-	-	+
Fresh Water Sediment	Dermal Contact	-	-	-	-	-	+
Fresh Water Sediment	Biota Uptake	-	-	-	+	-	+
Ground water	Ingestion	-	-	+	-	-	-
Ground water	Dermal Contact	-	-	+	-	-	-
Ground water	Root Uptake	-	-	-	-	+	-
Indoor Air	Inhalation	+	+	+	-	-	-
Outdoor Air	Inhalation	+	+	+	-	-	-
Subsurface Soil	Ingestion	-	-	+	-	-	-
Subsurface Soil	Dermal Contact	-	-	+	-	-	-
Subsurface Soil	Biota Uptake	-	-	-	-	+	-
Surface Soil	Ingestion	-	+	+	-	+	-
Surface Soil	Dermal Contact	-	+	+	-	+	-
Surface Soil	Biota Uptake	-	-	-	-	+	-
Dust Emissions	Inhalation	-	+	+	-	+	-
Surface Water/ Sediments	Ingestion	-	-	-	+	-	+
Surface Water/ Sediments	Dermal Contact	-	-	-	+	-	+

HWA GEOSCIENCES INC.

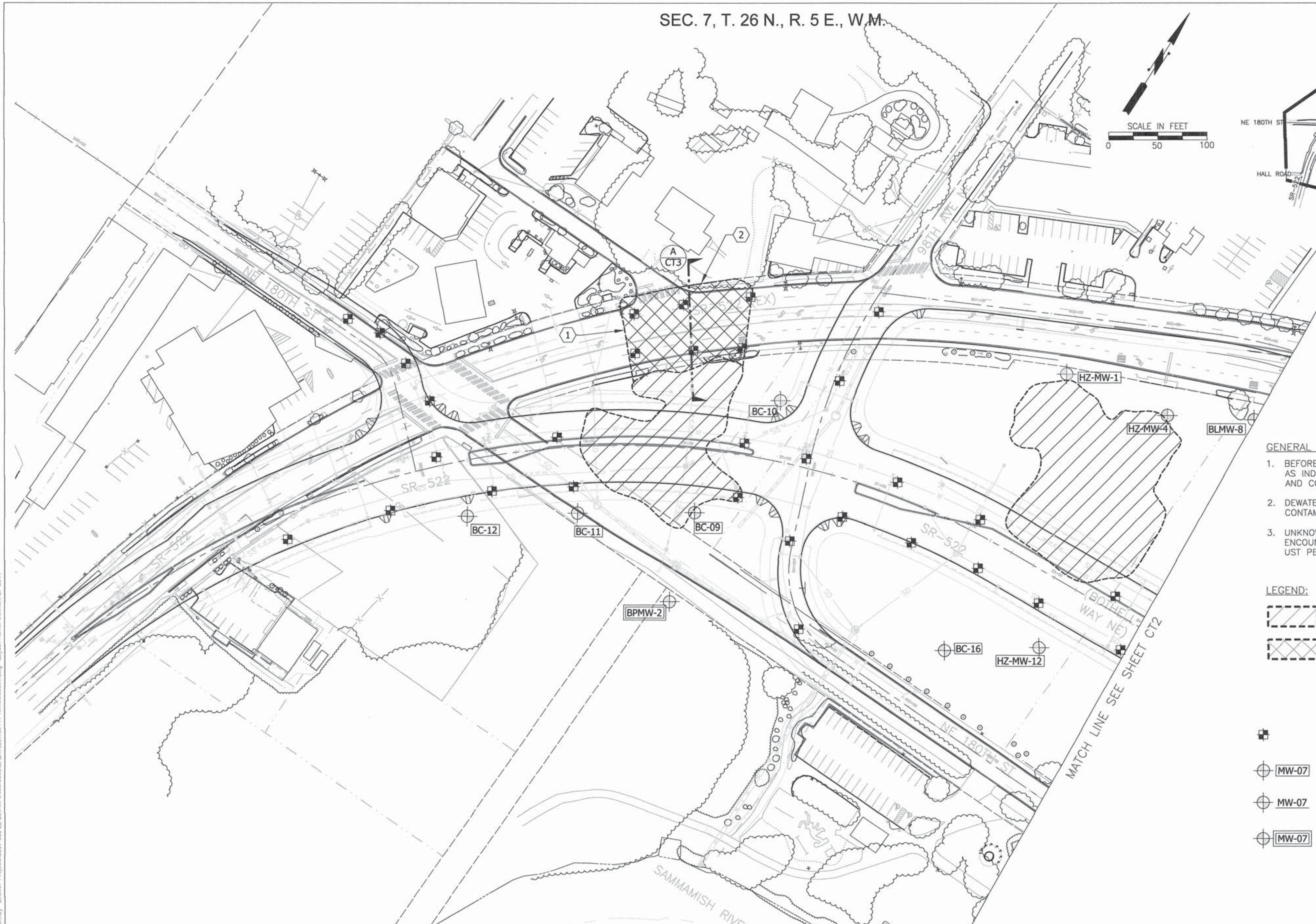
CONCEPTUAL SITE MODEL

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

FIGURE NO. 9

PROJECT NO. 2007-098

SEC. 7, T. 26 N., R. 5 E., W.M.



KEY MAP
NOT TO SCALE

WORK NOTES:

(1) ADD ORC TO EXCAVATION AS DIRECTED BY ENGINEER, SEE SPECIAL PROVISION.

(2) INSTALL MINIMUM 20 MIL PVC/HDPE/MDPE SEPARATOR LINER AT EDGE OF EXCAVATION. SETBACK AND SLOPE EXCAVATIONS ADJACENT TO ROADWAY PER SPECIFICATIONS.

GENERAL NOTES:

1. BEFORE EXCAVATION OF CONTAMINATED/UNSUITABLE SOIL AS INDICATED, EXCAVATE CLEAN OVERBURDEN, STOCKPILE AND COVER ON SITE AS DIRECTED BY ENGINEER.
2. DEWATER EXCAVATIONS PER SPECIFICATIONS. TREAT CONTAMINATED WATER AND DISPOSE PER SPECIFICATIONS.
3. UNKNOWN UNDERGROUND STORAGE TANKS MAY BE ENCOUNTERED. IF ENCOUNTERED, NOTIFY OWNER. REMOVE UST PER SPECIFICATIONS.

LEGEND:

REMEDIATED AREA (BACKFILLED WITH CLEAN SOIL)

ESTIMATED SOIL REMEDIATION AREA – PROVIDE SOIL SAMPLING AND TESTING COORDINATION AS DIRECTED BY ENGINEER. ENGINEER WILL COLLECT SAMPLES AND SUBMIT FOR ANALYSES. WAIT FOR ANALYTICAL TEST RESULTS PER SPECIFICATION. EXCAVATE CONTAMINATED/UNSUITABLE SOIL AS DIRECTED BY ENGINEER (APPROXIMATE EXCAVATION LIMITS SHOWN) AND DISPOSE. REPEAT AS DIRECTED BY ENGINEER.

TEST PIT LOCATION, TYPICAL. ACTUAL LOCATIONS TO BE DETERMINED BY ENGINEER.

MW-07 MONITORING WELL TO READJUST TO FINAL GRADE.

MW-07 MONITORING WELL TO DECOMMISSION

MW-07 MONITORING WELL TO PROTECT

No.	Date	Revision	By	Appr.

PB 100 YEARS PBQD, INC 999 THIRD AVE. SEATTLE, WA 98104 TEL (206) 382-5200 FAX (206) 382-5222

Perteet Inc. 425-252-7700 I 1-800-615-9900 2707 Colby Avenue, Suite 900 Everett, Washington 98201

City of Bothell

HWA HWA GEOSCIENCES INC.

ERIK O. ANDERSEN STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER

Drawn By EFK	Date 3/2011	SCALE Horiz 1"=50'-0"
Designed By AS	3/2011	Vert
Checked By	3/2011	Project Number 27061
Approved By		

CITY OF BOTHELL

BOTHELL CROSSROADS PROJECT – PHASE III

SHEET 1 OF 3

CONTAMINATED SOILS PLAN

Sheet No. 24 of Total 279

10

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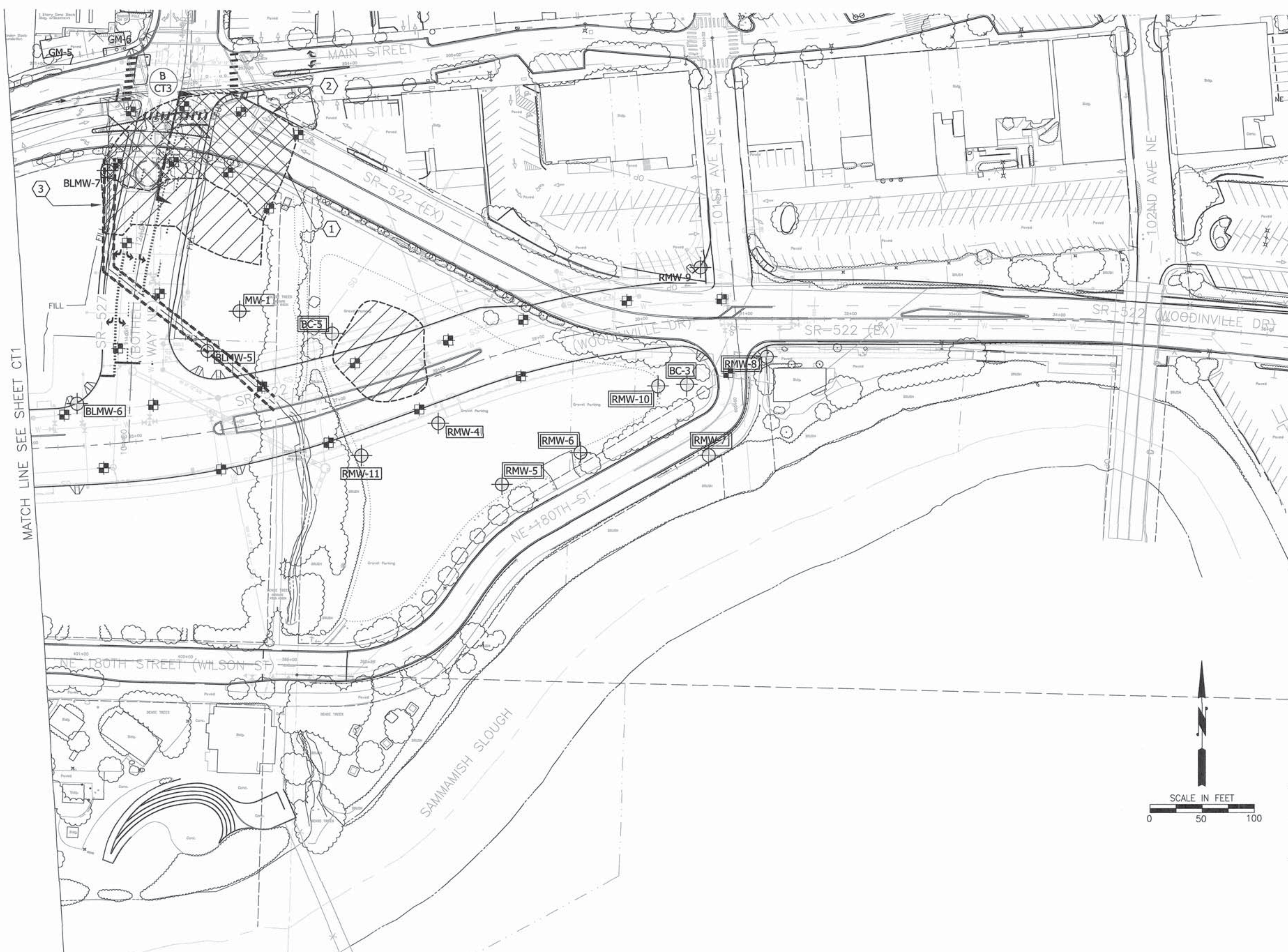

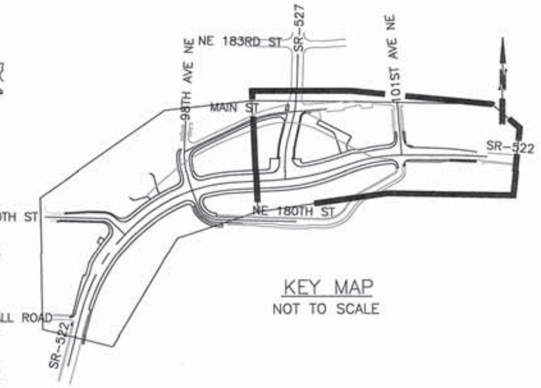

KEY MAP
NOT TO SCALE

WORK NOTES:

1. ADD ORC TO EXCAVATION AS DIRECTED BY ENGINEER, SEE SPECIAL PROVISION.
2. INSTALL MINIMUM 20 MIL PVC/HDPE/MDPE SEPARATOR LINER AT EDGE OF EXCAVATION. SETBACK AND SLOPE EXCAVATIONS ADJACENT TO ROADWAY PER SPECIFICATIONS.
3. PROTECT EXISTING STORM DRAIN PIPE PER SPECIFICATIONS.

GENERAL NOTES:

1. BEFORE EXCAVATION OF CONTAMINATED/UNSUITABLE SOIL AS INDICATED, EXCAVATE CLEAN OVERBURDEN, STOCKPILE AND COVER ON SITE AS DIRECTED BY ENGINEER.
2. DEWATER EXCAVATIONS PER SPECIFICATIONS. TREAT CONTAMINATED WATER AND DISPOSE PER SPECIFICATIONS.
3. UNKNOWN UNDERGROUND STORAGE TANKS MAY BE ENCOUNTERED. IF ENCOUNTERED, NOTIFY OWNER. REMOVE UST PER SPECIFICATIONS.

LEGEND:

- REMEDIATED AREA (BACKFILLED WITH CLEAN SOIL)
- ESTIMATED SOIL REMEDIATION AREA – PROVIDE SOIL SAMPLING AND TESTING COORDINATION AS DIRECTED BY ENGINEER. ENGINEER WILL COLLECT SAMPLES AND SUBMIT FOR ANALYSES. WAIT FOR ANALYTICAL TEST RESULTS PER SPECIFICATION. EXCAVATE CONTAMINATED/UNSUITABLE SOIL AS DIRECTED BY ENGINEER (APPROXIMATE EXCAVATION LIMITS SHOWN) AND DISPOSE. REPEAT AS DIRECTED BY ENGINEER.
- TEST PIT LOCATION, TYPICAL. ACTUAL LOCATIONS TO BE DETERMINED BY ENGINEER.
- MW-07 MONITORING WELL TO READJUST TO FINAL GRADE.
- MW-07 MONITORING WELL TO DECOMMISSION
- MW-07 MONITORING WELL TO PROTECT

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No.	Date	Revision	By	Appr.

PB
PBCID, INC
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Perteet Inc.
425-252-7700 | 1-800-615-9900
2707 Colby Avenue, Suite 900
Everett, Washington 98201

City of Bothell™

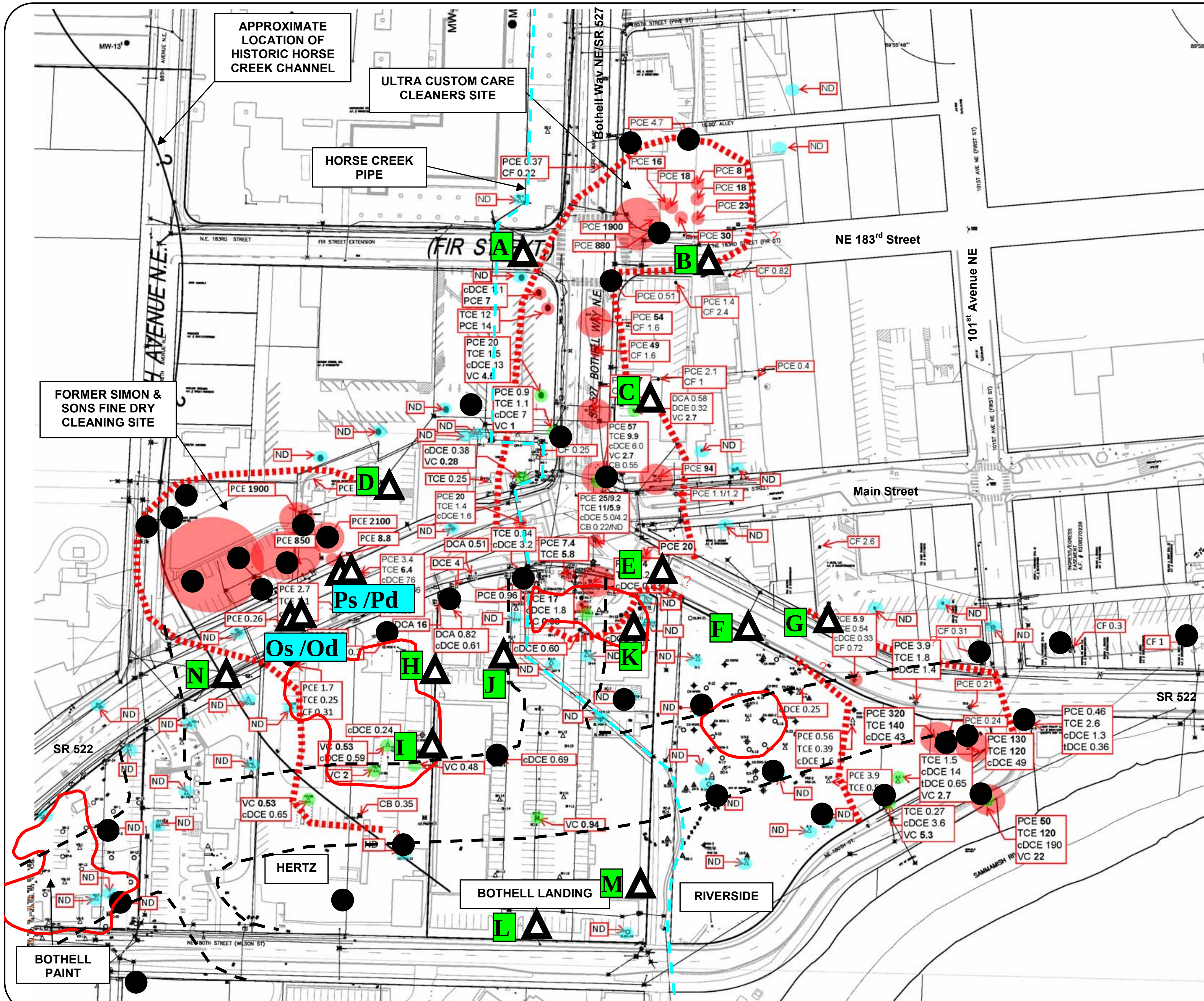
HWA GEOSCIENCES INC.

ERIK O. ANDERSEN, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER

Drawn By EFK	Date 3/2011	SCALE
Designed By AS	3/2011	Horiz 1"=50'-0"
Checked By	3/2011	Vert
Approved By		Project Number 27061

CITY OF BOTHELL
BOTHELL CROSSROADS PROJECT – PHASE III
SHEET 2 OF 3
CONTAMINATED SOILS PLAN

Dr 11
Sheet No. 25 / 279 of Total



LEGEND

- PCE > 50 ug/L
- Any Chlorinated VOC > MTCA A
- Exisitng monitoring well
- Future monitoring well (typical)
- All Chlorinated VOCs ND
- Approximate Extent of HVOCPlume
- 2010 TPH Cleanup areas

ABBREVIATIONS

PCE	Tetrachloroethene
TCE	Trichloroethene
DCE	Dichloroethene
cDCE	(cis) 1,2-Dichloroethene
tDCE	(trans) 1,2-Dichloroethene
DCA	Dichloroethane
VC	Vinyl Chloride
CF	Chloroform
CB	Chlorobenzene
VOC	Volatile Organic Compound
ND	Not Detected At Laboratory's Reporting Limit
ug/L	Micrograms per Liter

NOTES

- Sample and chlorinated VOC plume boundary locations are approximate.
- Concentration values in **bold** exceed MTCA Method A ground water cleanup level.

MTCA METHOD A GROUND WATER CLEANUP LEVELS (ug/L)

PCE	5.0
TCE	5.0
DCE	Not Established
cDCE	Not Established
tDCE	Not Established
DCA	Not Established
VC	0.2
CF	Method B = 80
CB	Not Established

N

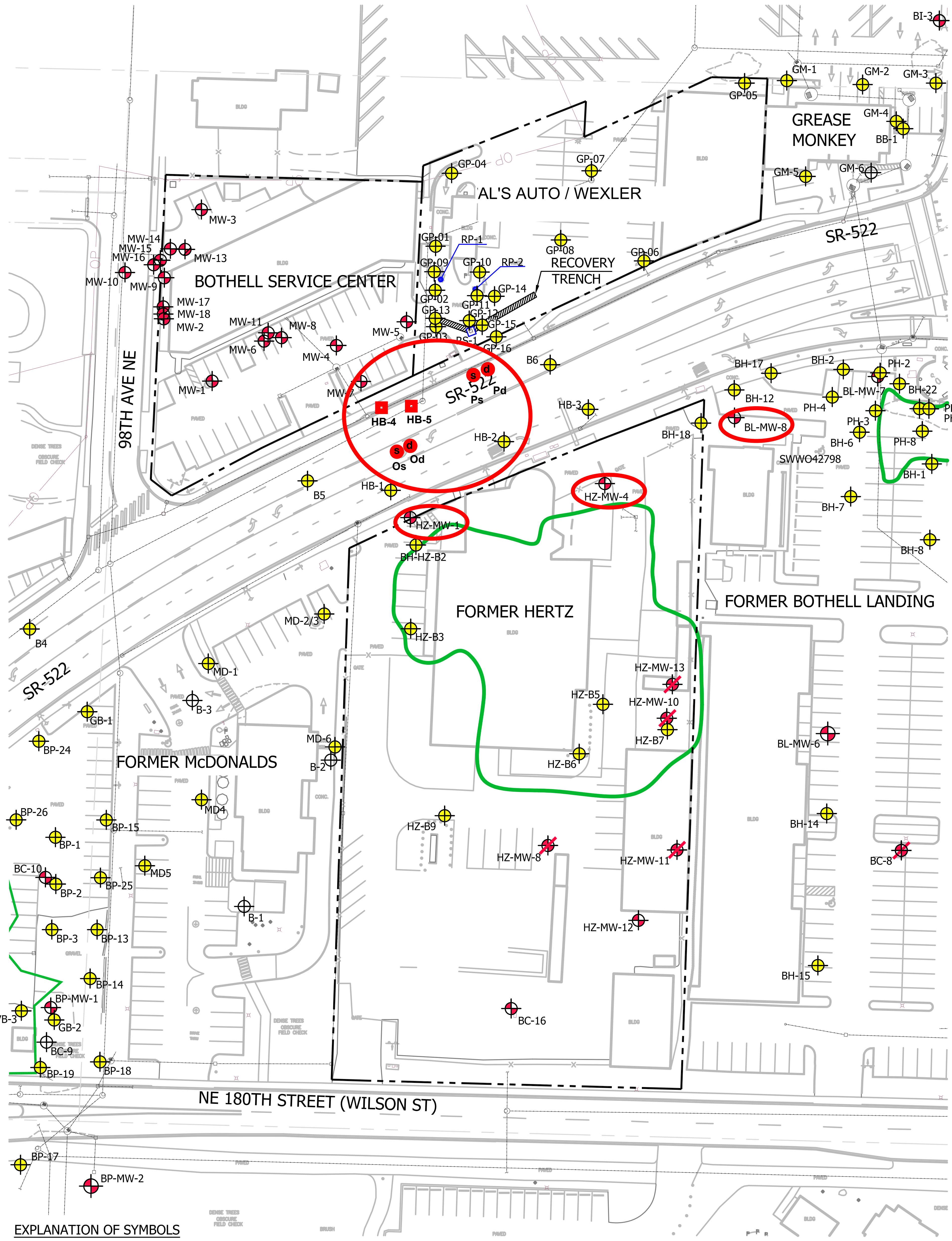
HWA GEOSCIENCES INC.

AREA-WIDE MONITORING WELL NETWORK
(FROM BOTHELL LANDING REMEDIAL INVESTIGATION WORK PLAN)

BOTHELL FORMER HERTZ FACILTY
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

FIGURE NO. 12

PROJECT NO. 2007-098-929



EXPLANATION OF SYMBOLS

APPROXIMATE LOCATION PROPERTY LINE

2010 SOIL CLEANUP LIMITS

MW — MONITORING WELL

SB — SOIL BORING

DPP — DIRECT PUSH PROBE

MW — DECOMMISSIONED MONITORING WELL

RS-1 — RECOVERY SUMP

RP-2 — REINTRODUCTION POINT

EXISTING MONITORING WELL TO SAMPLE

s — NEW SHALLOW MONITORING WELL

d — NEW DEEP MONITORING WELL

NEW DIRECT PUSH SAMPLE IN UTILITY TRENCH

0' 30' 60' 120'

SCALE: 1"=60'

N

BASE MAP PROVIDED BY PERTEET ENGINEERING INC

HWA GEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION
BOTHELL, WASHINGTON

PHASE 1B
EXPLORATIONS
IN THE ACTIVE SR522
ROADWAY

DRAWN BY EFK	FIGURE NO. 13
CHECK BY AS	PROJECT NO.
DATE 08.07.12	2007-098 T943

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December 10, 2012
HWA Project 2007 098

M E M O R A N D U M

To: Jerome Cruz
From: Arnie Sugar
Subject: Amendment I to Remedial Investigation and Feasibility Study Work Plan, Bothell Former Hertz Facility, Bothell Washington
cc: Nduta Mbuthia
Project: Bothell Downtown On-Call Hazardous Materials Services

This memorandum documents addenda to the *Remedial Investigation Feasibility Study Final Work Plan, Bothell Former Hertz Facility, Bothell, Washington* Dated September 10, 2012, based on comments received from Ecology on November 5, 2012. The September 10, 2012 *Final Remedial Investigation Feasibility Study Work Plan* replaced the *Remedial Investigation Feasibility Study Final Work Plan, Bothell Former Hertz Facility, Bothell, Washington* dated August 30, 2011, which was submitted to Ecology in 2011 in response to Ecology comments received prior to that date.

Based on the Ecology November 5, 2012 comments, the following changes are incorporated into the work plan:

1. **Ecology Comment -** Ecology recommended the City provide locations and elevations of subsurface utilities beneath Bothell Highway and Bothell Hertz. The revised work plan illustrates some utilities in the cross sections located on the north side of the highway. Are there any subsurface utilities beneath the highway extending south to the Hertz property? Are there utility lines on the south side of SR522?
   Response - An alternate version of Figure 3 (labeled 3a) which shows underground utility locations and elevations is attached to this memo.

2. **Ecology Comment -** Ecology recommended the City add two hydrogeologic cross sections along groundwater flow paths from the Bothell Service Center and Schuck's (Wexler) sites to the Hertz property. These cross-sections were to show hydrostratigraphic units, measured and inferred contacts, elevations and depths of utilities, soil and, groundwater contaminant concentrations, and well construction details. The September 9th version of the RI/FS work plan included two new hydrostratigraphic cross-sections (Figures 6 and 7); however, soil and groundwater contamination data were omitted. I have added the contaminant concentrations in the attached cross-sections.
   Response - Alternate versions of Figures 6 and 7, the geologic cross sections, with Ecology's interpretations, are attached to this memo.

21312 30th Drive SE
Suite 110
Bothell, WA 98021-7010
Tel: 425.774.0106
Fax: 425.774.2714
www.hwageo.com

3. **Ecology Comment -** Based on the contaminant detections depicted in the cross-sections, it appears that tetrachloroethylene (PCE) and vinyl chloride (VC) plumes have migrated south from the Bothell Service Center property to the Former Hertz property. Furthermore, it appears that PCE and VC have commingled with petroleum hydrocarbon contamination at HZMW-1 at the Former Hertz site. The vinyl chloride may be a daughter product of the Bothell Service Center PCE plume. Or, as suggested by Tad Cline of Farallon Associates, the environmental consultants for the Bothell Service Center site, the vinyl chloride may be from a VOC source on the Former Hertz property. This source ambiguity needs to be resolved.
   Response – Comment noted; RI/FS report will address.

4. **Ecology Comment -** There are significant errors in the cross-sections submitted by the City that need to be corrected for accuracy:
   a. The cross-section labels for cross-section B-C are reversed.
   b. Borehole log for B-5 on cross-section A-B is omitted.
   c. Monitoring well HZ-MW-S is shown in cross-section A-B but not shown on the location map for cross-section line A-B (see Figure 3 for revised RI/FS work plan).
   Response - A revised Figure 7 (Rev1) is attached to this memo with the letters B and C reversed on the top. A revised Figure 3 (Rev1) is attached to this memo with the line of section A-B revised to exclude boring B5, and to include well HZMW-8.

5. **Ecology Comment –** I have provided Ecology's interpretation of hydro stratigraphic units based on lithologies recorded in the borehole logs used for the cross-sections.
   Response - Alternate versions of Figures 6 and 7, the geologic cross sections, with Ecology's interpretations, are attached to this memo (see Ecology November 5, 2012 letter).

6. **Ecology Comment -** At our meeting on March 12th, Ecology and the City agreed to two well pairs (deep and shallow) located on the northernmost boundary of the Hertz property. In the revised work plan, Figure 13, the City has moved one of the well pairs to the middle of SR522 and the other pair to the north side of the highway, closer to the Schuck's/Wexler site. Please provide statement of rationale for these changes and why these relocations are necessary.
   Response - Proposed wells are located downgradient of HVOC impacts, based on past and recent ground water level measurements and gradient interpretations.

7. **Ecology Comment -** Ecology requests field verification of well pair locations before the final version of the RI/FS work plan is prepared. Please schedule a mutually convenient time for Ecology and City to verify locations of the proposed well pairs.

Response - Field meeting held on December 11, 2012. Meeting notes are attached to this memo.

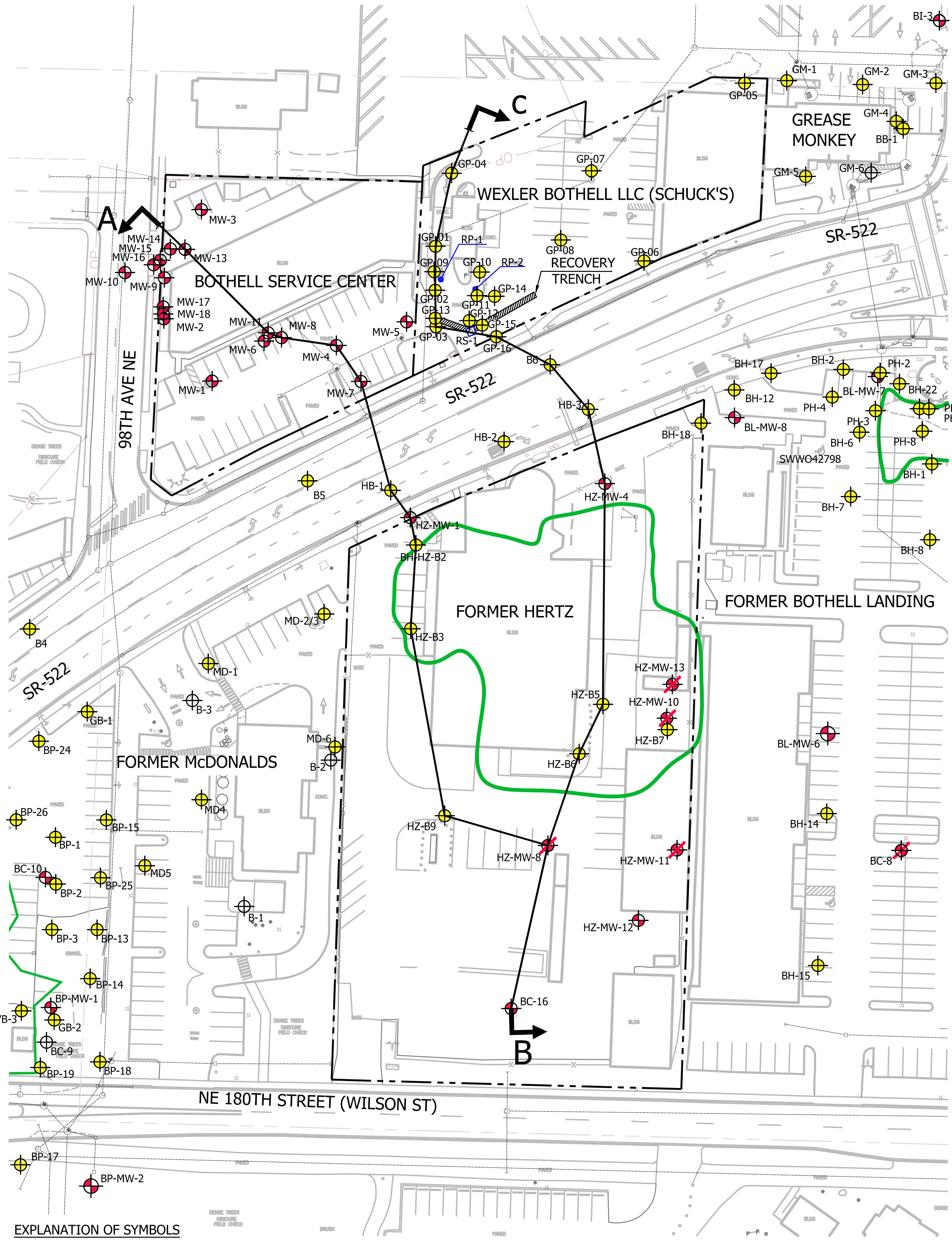
8. **Ecology Comment -** Ecology concurs with the addition of two direct push/vactor borings into utility trenches for sampling to determine if there is preferential migration of HVOCs in groundwater along the utility trenches (HB-4 and HB-5 in Figure 13). The pathway for groundwater contaminants may be preferential flow though utility trench backfill. If preferential flow is established, then the extent of contaminant migration will need to be identified.
Response - Comment noted; RI/FS report will address.

9. **Ecology Comment -** On page I, section 1.1, second paragraph, the word "off site" should be changed to "off property". The extent of contamination on the site will be identified by the remedial investigation.
Response – On page 1, section 1.1, second paragraph, the word "off site" is replaced with "off property".

10. **Ecology Comment –** On Table 3b, under the column titled "rationale", the text in each row for wells Os, Ps, Od and Pd should read as "Assess if HVOCs have migrated into SR522" instead of "across",
Response - On Table 3b, under the column titled "rationale", text in each row for wells Os, Ps, Od and Pd, the word “across” is replaced with “into”

Attachments:

Figure 3 (rev 1) – Site plan (revised)
Figure 3a - Site plan showing utilities
Ecology November 5, 2012 letter, including:
    Figure 6 - Cross section with Ecology interpretation
    Figure 7 - Cross section with Ecology interpretation
Meeting notes - December 11, 2012 field meeting, including:
    Ground water gradient map



EXPLANATION OF SYMBOLS

APPROXIMATE LOCATION PROPERTY LINE

2010 SOIL CLEANUP LIMITS

MW MONITORING WELL

SB SOIL BORING

DPP DIRECT PUSH PROBE

MW DECOMMISSIONED MONITORING WELL

RS-1 RECOVERY SUMP

RP-2 REINTRODUCTION POINT

N

0' 30' 60' 120'

SCALE: 1"=60'

BASE MAP PROVIDED BY PERTEET ENGINEERING INC

HWA GEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION
BOTHELL, WASHINGTON

SITE PLAN

DRAWN BY EFK

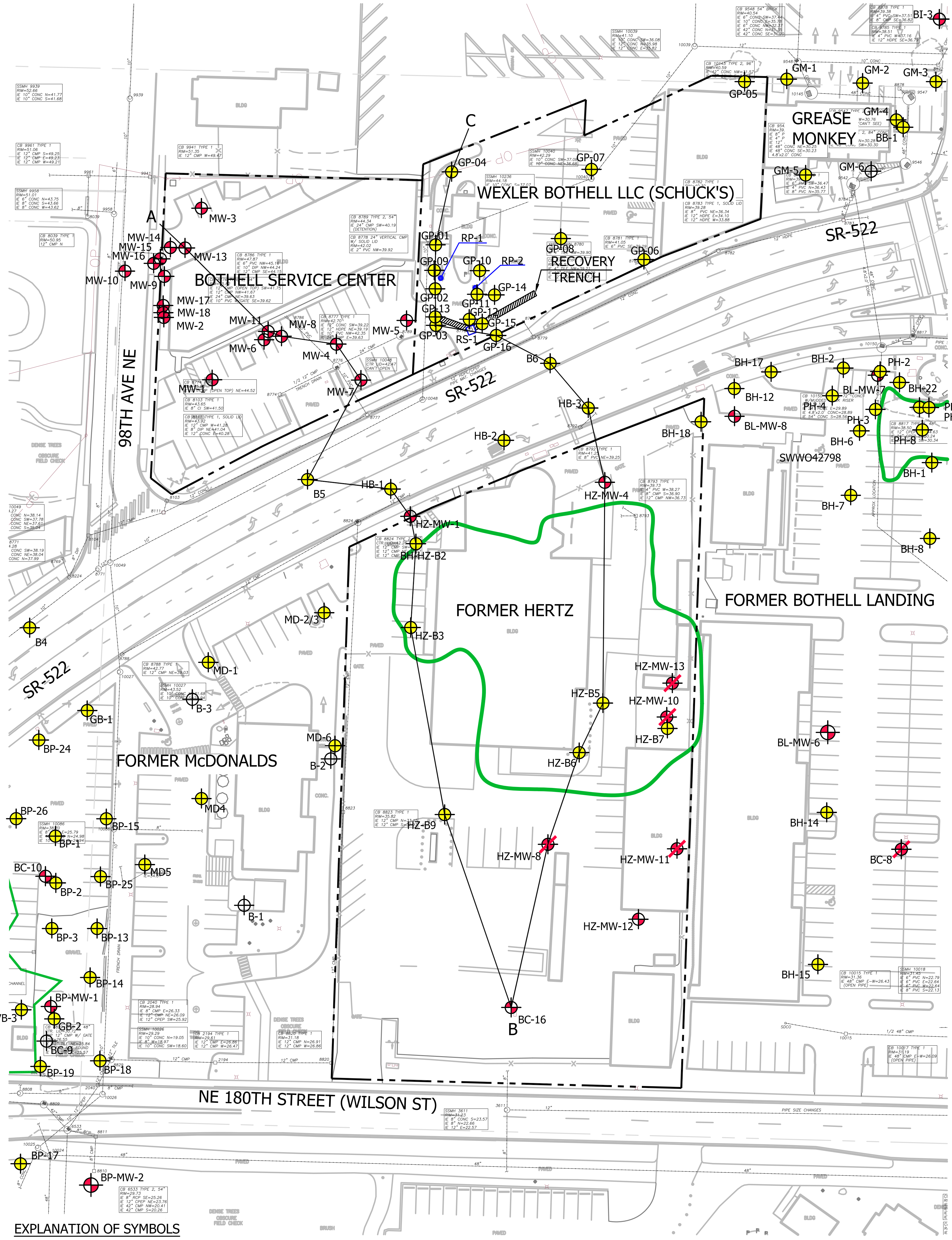
CHECK BY AS

DATE 08.07.12

FIGURE NO. 3 Rev. 1

PROJECT NO. 2007-098 T943

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T943B.DWG <FIG 3 T943> Plotted: 11/9/2012 3:33 PM



EXPLANATION OF SYMBOLS

APPROXIMATE LOCATION PROPERTY LINE

2010 SOIL CLEANUP LIMITS

MW MONITORING WELL

SB SOIL BORING

DPP DIRECT PUSH PROBE

MW DECOMMISSIONED MONITORING WELL

RS-1 RECOVERY SUMP

RP-2 REINTRODUCTION POINT

N

0' 30' 60' 120'

SCALE: 1"=60'

BASE MAP PROVIDED BY PERTEET ENGINEERING INC

HWA GEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION
BOTHELL, WASHINGTON

SITE PLAN
With underground utilities

DRAWN BY EFK

CHECK BY AS

DATE 08.07.12

FIGURE NO. 3a

PROJECT NO. 2007-098 T943

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T943B.DWG <FIG 3 T943> Plotted: 9/9/2012 3:56 PM

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

November 5, 2012

Ms. Nduta Mbuthia
City of Bothell
Public Works Department
18305 101st Avenue NE
Bothell, WA 98011

Re: Revised Former Bothell Hertz Final RI/FS Work Plan Submittal

Dear Ms. Mbuthia:

This letter addresses the City of Bothell's submittal of a revised Final Work Plan for the Former Bothell Hertz MTCA site. The September 10, 2012, updates to the RI/FS work plan were prepared by the City to address recommendations presented by TCP Uplands Unit Supervisor Ching-Pi Wang, in a memo dated March 16, 2012. These recommendations were communicated in a meeting with the City last March 12, 2012.

This letter addresses the City's September 10, 2012, response to the Department of Ecology's (Ecology) revisions of March 16, 2012. I have attached Ching-Pi Wang's meeting notes dated March 16, 2012, and his memo of February 17, 2012.

Based on Ecology recommendations in March (see number 10 in attached notes), the following comments are provided on the City's September 10, 2012, update of the RI/FS work plan:

1. Ecology recommended the City provide locations and elevations of subsurface utilities beneath Bothell Highway and Bothell Hertz. The revised work plan illustrates some utilities in the cross sections located on the north side of the highway. Are there any subsurface utilities beneath the highway extending south to the Hertz property? Are there utility lines on the south side of SR522?

2. Ecology recommended the City add two hydrogeologic cross sections along groundwater flow paths from the Bothell Service Center and Schuck's (Wexler) sites to the Hertz property. These cross-sections were to show hydrostratigraphic units, measured and inferred contacts, elevations and depths of utilities, soil and, groundwater contaminant concentrations, and well construction details. The September 9th version of the RI/FS work plan included two new hydrostratigraphic cross-sections (Figures 6 and 7);

however, soil and groundwater contamination data were omitted. I have added the contaminant concentrations in the attached cross-sections.

3. Based on the contaminant detections depicted in the cross-sections, it appears that tetrachloroethylene (PCE) and vinyl chloride (VC) plumes have migrated south from the Bothell Service Center property to the Former Hertz property. Furthermore, it appears that PCE and VC have commingled with petroleum hydrocarbon contamination at HZ-MW-1 at the Former Hertz site. The vinyl chloride may be a daughter product of the Bothell Service Center PCE plume. Or, as suggested by Tad Cline of Farallon Associates, the environmental consultants for the Bothell Service Center site, the vinyl chloride may be from a VOC source on the Former Hertz property. This source ambiguity needs to be resolved.

4. There are significant errors in the cross-sections submitted by the City that need to be corrected for accuracy:

    a. The cross-section labels for cross-section B-C are reversed.

    b. Borehole log for B-5 on cross-section A-B is omitted.

    c. Monitoring well HZ-MW-8 is shown in cross-section A-B but not shown on the location map for cross-section line A-B (see Figure 3 for revised RI/FS work plan).

5. I have provided Ecology's interpretation of hydrostratigraphic units based on lithologies recorded in the borehole logs used for the cross-sections.

6. At our meeting on March 12th, Ecology and the City agreed to two well pairs (deep and shallow) located on the northernmost boundary of the Hertz property. In the revised work plan, Figure 13, the City has moved one of the well pairs to the middle of SR522 and the other pair to the north side of the highway, closer to the Schuck's/Wexler site. Please provide statement of rationale for these changes and why these relocations are necessary.

7. Ecology requests field verification of well pair locations before the final version of the RI/FS work plan is prepared. Please schedule a mutually convenient time for Ecology and City to verify locations of the proposed well pairs.

8. Ecology concurs with the addition of two direct push/vactor borings into utility trenches for sampling to determine if there is preferential migration of HVOCs in groundwater along the utility trenches (HB-4 and HB-5 in Figure 13). The pathway for groundwater contaminants may be preferential flow though utility trench backfill. If preferential flow is established, then the extent of contaminant migration will need to be identified.

9. On page 1, section 1.1, second paragraph, the word "off site" should be changed to "off property". The extent of contamination on the site will be identified by the remedial investigation.

10. On Table 3b, under the column titled "rationale", the text in each row for wells Os, Ps, Od and Pd should read as "Assess if HVOCs have migrated ***into*** SR522" instead of "***across***".

If you have any questions, you may reach me at (425)-648-7094 or by email at jcru461@ecy.wa.gov.

Sincerely,

Jerome B. Cruz
Site Manager
Toxic Cleanup Program

Enclosures

cc: Ching-Pi Wang, Uplands Unit Supervisor, Ecology

To: Jerome Cruz

From: Ching-Pi Wang

Date: February 17, 2012

Subj: Review of Bothell Hertz RI/FS Final Work Plan, August 30, 2011

I recommend we accept the proposed "final" workplan with the following additions to the workplan:

1. Add two conceptual hydrostratigraphic cross sections along ground-water flow paths to guide locations of new monitoring wells. Show the following features in cross-sections:

    - Hydrostratigraphic units from Bothell Service Center to Bothell Hertz.
    - Hydrostratigraphic units from Schucks to Bothell Hertz.
    - Elevations and depths below ground surface of subsurface features:
        - Utilities, invert.
        - Soil contaminant concentrations.
        - Ground-water contaminant concentrations.
        - Well construction details.

2. Add to Phase 1 of RI activities, the installation of two or more ground-water monitoring wells to investigate off-property migrations of contaminants in the 2^{nd} water-bearing zone at approximately 25 to 40-feet below ground surface at the Hertz property. Recommend installation of monitoring wells in the areas shown on attached figure.

    - Sample and test for dissolved contaminants in 2^{nd} water-bearing zone.
    - Sample and test for contaminants that may be adsorbed to aquifer and aquiclude matrix.
    - Construct monitoring well to locate possible DNAPL migration from Bothell Service Center.

- Locate and install monitoring well(s) to determine if vertical gradients are present between upper and lower water-bearing zones.
- Identify the continuity or lack of presence of upper silty sand aquiclude separating the upper and lower water-bearing zones.

3. Install, if necessary, proposed monitoring wells H & I after completion and evaluation of Phase 1 results.

To: Nduta Mbuthia
Shawn Pourazari
Arnie Sugar

From: Ching-Pi Wang

CC: Jerome Cruz
Sunny Becker

Date: March 16, 2012.

These are my meetings notes from our meeting at the City of Bothell Police Station on March 12, 2012 from 0930 – 1130. Attendees are listed in the address and cc lines. Topics of discussion were contaminant migration onto the Bothell Hertz site and contaminant migration into the Sammamish River from the Bothell Riverside site.

<u>Bothell Hertz</u>

1. Ecology exhibited a conceptual hydrogeological cross section showing stratigraphic units extending south from the Bothell Service Center site.

    a) Routes of contaminant migration from Bothell Service Center were identified.
    b) Upper and lower water-bearing zones were identified.
    c) The lateral continuity of aquicludes was identified as uncertain with likelihood of inter-fingering and occurrences of lenses.
    d) Vertical gradients may exist.
    e) Sammamish River is the regional discharge zone.
    f) Hydrostratigraphy beneath Bothell Hertz needs to be determined.

2. Ecology concluded it is highly likely that contaminants from Bothell Service Center have migrated beneath Bothell Highway and onto Bothell Hertz.

3. Ecology identified need to know concentrations of contaminants crossing the northernmost boundary of Bothell Hertz from Bothell Service Center.

4. Ecology recommended City of Bothell collect evidence to demonstrate contaminants from Bothell Service Center have reached Bothell Hertz.

5. Ecology recommended City of Bothell develop case for contribution claim against Bothell Service Center.

6. Ecology identified possible contaminant migration from Wexler Bothell LLC (also known as Schucks) beneath Bothell Highway and onto Bothell Hertz.

7. Ecology identified need to know concentrations of contaminants crossing the northernmost boundary of Bothell Hertz from Wexler Bothell LLC/Schucks.

8. City of Bothell agreed with Ecology's interpretation of hydrogeologic model and contaminant migration.

9. Ecology and City of Bothell agree that subsurface man-made features beneath Bothell Highway may be preferential flow paths.

10. Based on discussion of hydrogeology and contaminant migration, Ecology made the following requests.

    a) Provide locations and elevations of subsurface utilities beneath Bothell Highway and Bothell Hertz.

    b) Develop hydrogeologic cross-sections from Bothell Service Center and Wexler Bothell LLC, across Bothell Highway and onto Bothell Hertz, Show standard cross-section features such depth and elevations of utilities, ground-water levels, and hydrostratigraphic units.

c) Use dashed lines and questions marks for contact and contour lines where inferred for hydrostatigraphic units and water level contours.

d) Located two locations for well nests (2 deep and 2 shallow) on the northernmost boundary of Bothell Hertz.

e) Measure contaminant migration onto Bothell Hertz from Bothell Service Center and Wexler Bothell LLC via the upper and lower water-bearing zones, and the subsurface features beneath Bothell Highway.

f) Test soil and ground water from well nests for contaminants from Bothell Service Center and Wexler Bothell LLC.

g) City of Bothell to provide draft addendum of work scope for new well nest locations for Ecology review and approval.

h) Ecology requested immediate installation of well nests upon agreement of well nest locations.

i) Ecology agreed well nests may need to be abandoned and then re-installed when Bothell Highway is re-aligned.

j) Ecology stated that Ecology's share of the cost of installation, abandonment, and re-installation of well nests is worthy.

k) Ecology requested field truthing of proposed well nest locations.

l) Ecology agreed that incremental installation of wells at proposed area-wide locations will provide intelligent design of future well locations.

m) Ecology agreed that "re-mob" costs for incremental installation future monitoring wells are necessary to guide intelligent design of future well locations.

n) Ecology agreed that flexibility and professional judgment are necessary to located future well locations as new information becomes available from each new well installed.

<u>Bothell Riverside</u>

1. Ecology presented evidence of VOC contamination in ground water flowing into the Sammamish River. The concentrations exceed ground water and surface water quality standards.

2. Ecology requested expedited evaluation of feasible options for interim actions to reduce and eliminate VOC contamination of the Sammamish River.

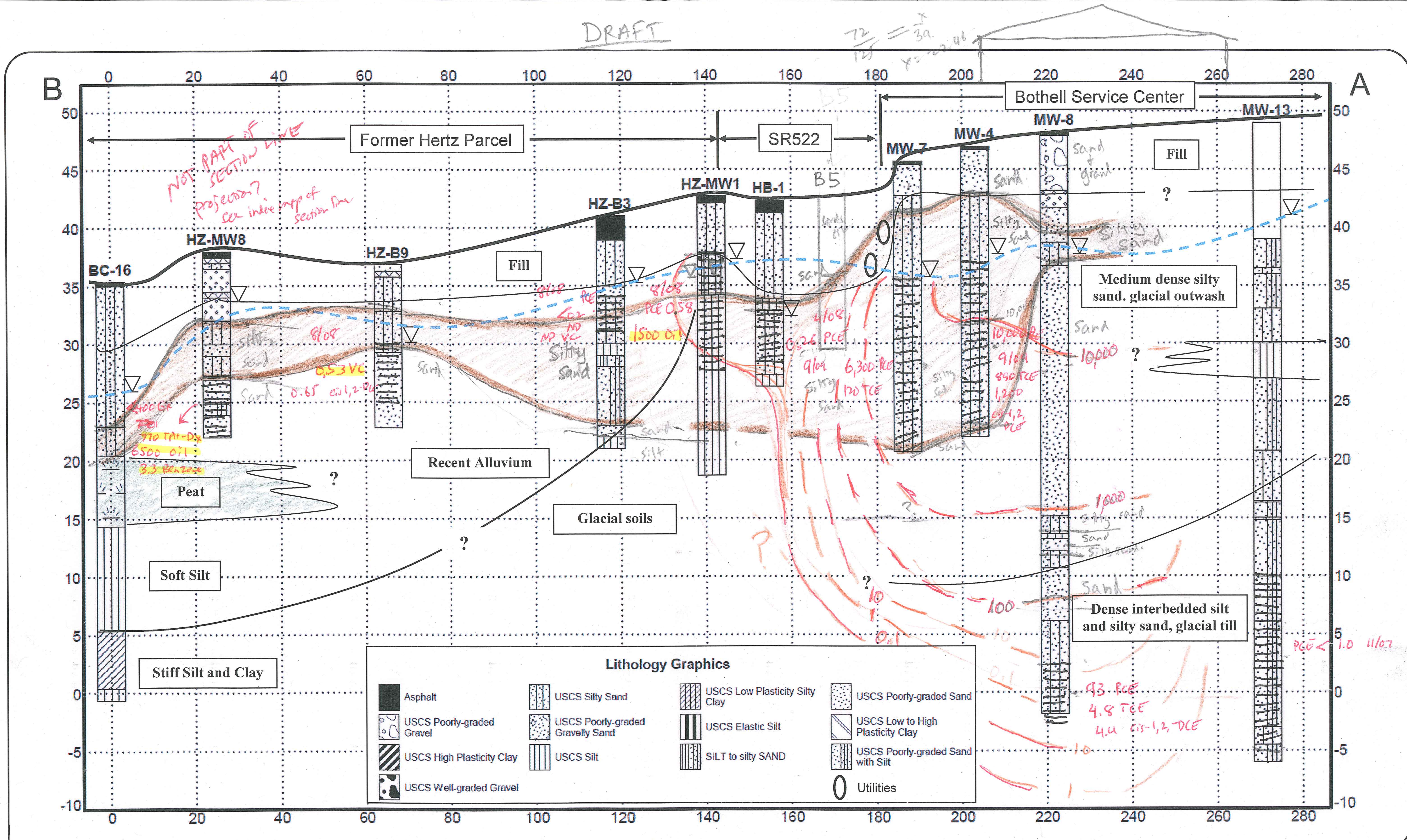
3. Ecology stated that waiting for source investigation is an unacceptable delay.

4. Ecology requested a City of Bothell propose a range of options for interim actions as soon as possible.

<u>Schedule of Final RI/FS Workplan for Bothell Hertz</u>

1. Ecology stated that the Final RI/FS workplan for Bothell Hertz is acceptable with the additional scope for upgradient contaminant sources from Bothell Service Center and Wexler Bothell LLC.

2. Ecology expressed surprise that the implementation of the workplan would not start for 24 months. City of Bothell acknowledged that this was not made clear to Ecology. Ecology and City of Bothell agreed that some ground-water monitoring wells may be installed before or during road construction.



See Figure 3 for lines of section

INTERPRETATION BY
DEPARTMENT OF ECOLOGY

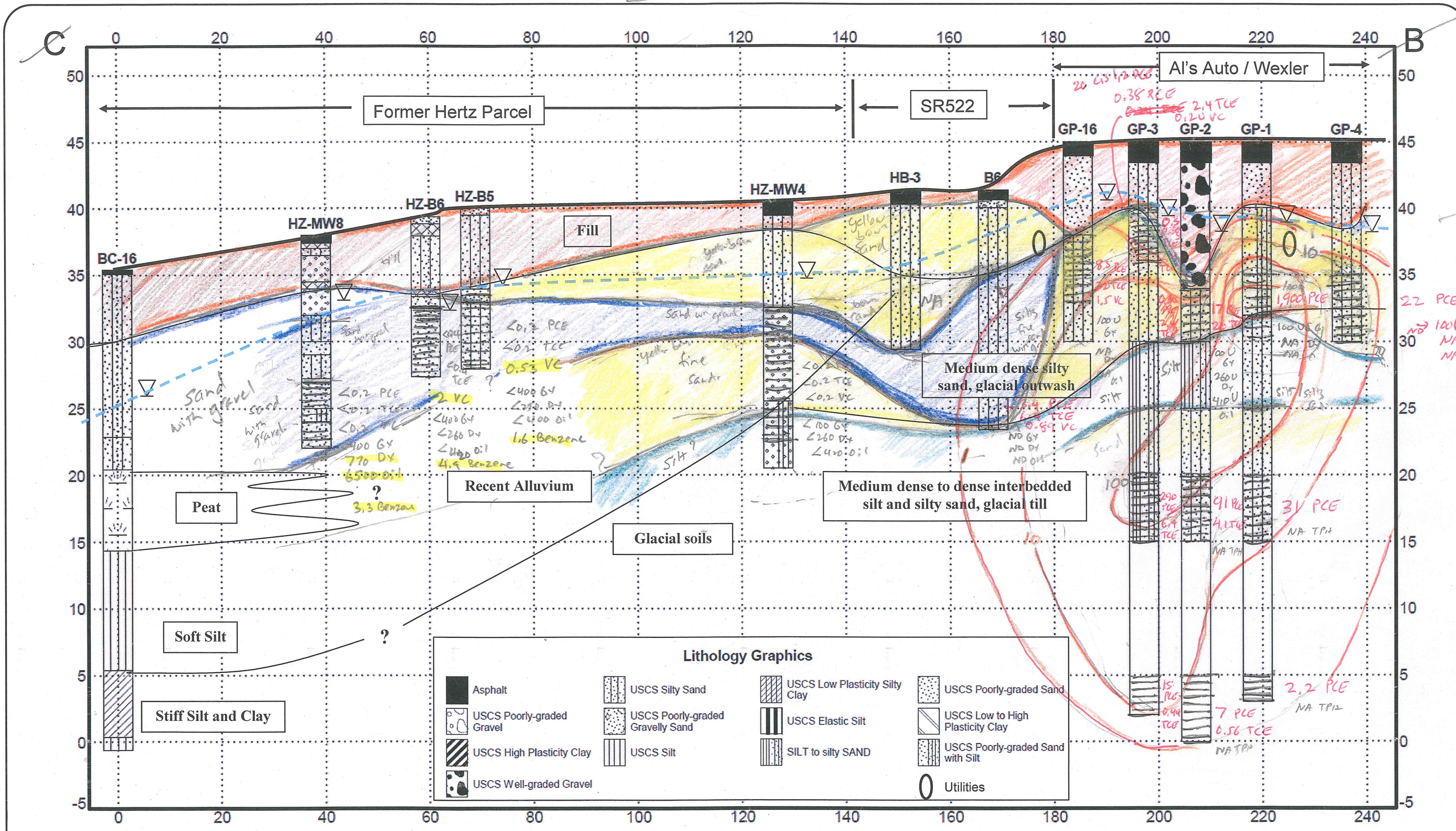
CROSS SECTION B – A
HERTZ TO BOTHELL SERVICE CENTER

BOTHELL FOMRER HERTZ FACILITY
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

PROJECT NO.
2007-098

FIGURE NO.
6

B DRAFT C



See Figure 3 for lines of section

INTERPRETATION BY
DEPARTMENT OF ECOLOGY

CROSS SECTION C - B
HERTZ TO AL'S AUTO / WEXLER

BOTHELL FORMER HERTZ FACILITY
REMEDIAL INVESTIGATION WORK PLAN
BOTHELL, WASHINGTON

PROJECT NO.
2007-098

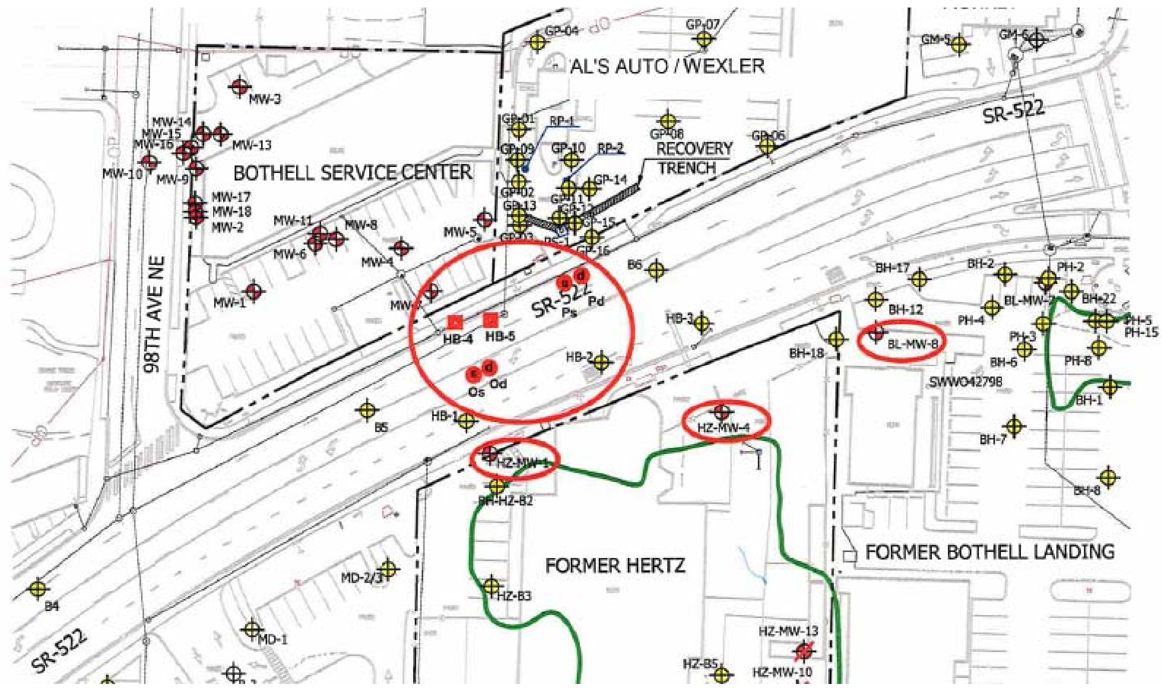
FIGURE NO.
7

Date: Tuesday, December 11, 2012
Time: 11:00 a.m. – 12:00 noon
Venue: Site visit – Bothell Service Center/SR 522 ROW

Attendees: Jerome Cruz, Arnie Sugar, Nduta Mbuthia

Meeting Purpose:

Site visit was scheduled in response to Ecology comment #7 presented in a letter dated November 5, 2012. Ecology requested a site visit to field verify proposed well locations presented in the Revised Hertz RI work plan prepared by HWA (September 10, 2012 version).

- Jerome wanted to understand the rationale used in determining the locations of the well pairs which are currently shown in the outside westbound lane on SR 522 and in the center turn lane
- 

- Arnie explained that he developed some contouring diagrams after collecting water level data from almost 60 existing wells located in the downtown area (groundwater gradient map presented in the RI work plan, Fig 8 is attached)
    - This gradient study demonstrated an easterly groundwater flow pattern
    - The borings HB-4 and HB-5 have been located along two existing utility lines in (1) the sewer trench and, (2) the storm trench backfill. Specifically because these utilities are deep enough that they intersect with the water table at some point
    - Well pairs Os and Od were located to the west in order the bound the westerly plume extent
    - Well pairs Ps and Pd were located further east to collect data in the easterly area as well as any data that from Al's/Wexler to the north
- Jerome indicated that Ching-Pi's map showed the wells along the northern edge of Hertz property, but now understood Arnie's rationale for the proposed placement within SR522 roadway.
- Arnie added that there was a big data gap in the roadway, and that was another reason for getting some more data here…. Especially since there are existing wells HZ-MW1 and MZ-MW4 located near the north property line

- Jerome will talk to Ching-Pi and update him on HWA's rationale for well placement and get back to the City with a decision

- Nduta stated that City had began responding to Jerome's Nov 5 letter and asked if the work plan will be approved after this site visit to field verify well locations was completed. Jerome responded that the intent of his Nov 5 letter comments was to move towards getting the RI work plan approval and issuing notice to proceed on implementing the work plan, once all were in concurrence

- Nduta also seeking clarification on a scenario whereby if the 2 well pairs are installed well ahead of the area-wide monitoring well network, then would the early rounds of data collected from these two discrete wells be useful in Jerome's synoptic analysis of the 4 consecutive rounds of monitoring area-wide? Or would these wells have to be re-sampled again with the rest of the network at that time in order for the info to be useful?

- Jerome's response was that he would prefer the entire network to be in, in order to understand the full context and interactions of the groundwater plumes.

- However, Jerome will check back with Ching-Pi to find out if the installation of these two well pairs ahead of the area-wide schedule will still meet Ching-Pi's intent of establishing that the Bothell Service Center plume has migrated down-gradient into Hertz

- Nduta explained that the City is ready to expedite the well installation sooner rather than later if Ecology prefers

---

Next steps:

These meeting notes will be incorporated into the Hertz RI work plan addendum, along with Ecology's Nov 5 letter, and HWA's response to the comments

---

HWA GeoSciences Inc.	Area-Wide Gradient Study Bothell, Washington	Ground Water Gradient August 29-31, 2012	DRAWN BY EFK CHECK BY VA DATE 09.07.12	FIGURE # 8 PROJECT # 2012-098-21 TASK 950

APPENDIX G

LABORATORY CERTIFICATES OF ANALYSES

(on CD)

OnSite
Environmental Inc.

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

January 17, 2014

Arnie Sugar
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-98-998
Laboratory Reference No. 1401-054

Dear Arnie:

Enclosed are the analytical results and associated quality control data for samples submitted on January 9, 2014.

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: January 17, 2014
Samples Submitted: January 9, 2014
Laboratory Reference: 1401-054
Project: 2007-98-998

Case Narrative

Samples were collected on January 6, 7, and 8, 2014 and received by the laboratory on January 9, 2014. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples BL MW-12-11 and BL MW-12-9 were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. All other samples were received outside of 48 hours from the time of collection. Upon receipt, they were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Halogenated Volatiles EPA 8260C Analysis

Per EPA Method 5035A, samples BL MW-12-11 and BL MW-12-9 were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. All other samples were received outside of 48 hours from the time of collection. Upon receipt, they were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

Internal Standard 1,4-Dichlorobenzene-d4 does not meet acceptance criteria for sample BP MW-5-5 due to sample matrix effects. The sample was re-analyzed with similar results. All results, including Practical Quantitation Limits, from Bromobenzene onward should be considered estimates.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: January 17, 2014
Samples Submitted: January 9, 2014
Laboratory Reference: 1401-054
Project: 2007-98-998

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZ MW-16-12.5**					
Laboratory ID:	01-054-01					
Benzene	**ND**	0.020	EPA 8021B	1-14-14	1-14-14	
Toluene	**ND**	0.055	EPA 8021B	1-14-14	1-14-14	
Ethyl Benzene	**ND**	0.055	EPA 8021B	1-14-14	1-14-14	
m,p-Xylene	**ND**	0.055	EPA 8021B	1-14-14	1-14-14	
o-Xylene	**ND**	0.055	EPA 8021B	1-14-14	1-14-14	
Gasoline	**ND**	5.5	NWTPH-Gx	1-14-14	1-14-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*71-121*				
Client ID:	**HZ MW-18-7.5**					
Laboratory ID:	01-054-02					
Benzene	**ND**	0.020	EPA 8021B	1-14-14	1-16-14	
Toluene	**ND**	0.051	EPA 8021B	1-14-14	1-16-14	
Ethyl Benzene	**ND**	0.051	EPA 8021B	1-14-14	1-16-14	
m,p-Xylene	**ND**	0.051	EPA 8021B	1-14-14	1-16-14	
o-Xylene	**ND**	0.051	EPA 8021B	1-14-14	1-16-14	
Gasoline	**ND**	5.1	NWTPH-Gx	1-14-14	1-16-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*82*	*71-121*				
Client ID:	**BP MW-4-14**					
Laboratory ID:	01-054-03					
Benzene	**ND**	0.020	EPA 8021B	1-14-14	1-14-14	
Toluene	**ND**	0.057	EPA 8021B	1-14-14	1-14-14	
Ethyl Benzene	**ND**	0.057	EPA 8021B	1-14-14	1-14-14	
m,p-Xylene	**ND**	0.057	EPA 8021B	1-14-14	1-14-14	
o-Xylene	**ND**	0.057	EPA 8021B	1-14-14	1-14-14	
Gasoline	**ND**	5.7	NWTPH-Gx	1-14-14	1-14-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*106*	*71-121*				

Date of Report: January 17, 2014
Samples Submitted: January 9, 2014
Laboratory Reference: 1401-054
Project: 2007-98-998

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BP MW-5-5**					
Laboratory ID:	01-054-04					
Benzene	**ND**	0.020	EPA 8021B	1-14-14	1-16-14	
Toluene	**ND**	0.078	EPA 8021B	1-14-14	1-16-14	
Ethyl Benzene	**ND**	0.078	EPA 8021B	1-14-14	1-16-14	
m,p-Xylene	**ND**	0.078	EPA 8021B	1-14-14	1-16-14	
o-Xylene	**ND**	0.078	EPA 8021B	1-14-14	1-16-14	
Gasoline	**ND**	7.8	NWTPH-Gx	1-14-14	1-16-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*84*	*71-121*				
Client ID:	**BP MW-6-10**					
Laboratory ID:	01-054-05					
Benzene	**ND**	0.020	EPA 8021B	1-14-14	1-14-14	
Toluene	**ND**	0.048	EPA 8021B	1-14-14	1-14-14	
Ethyl Benzene	**ND**	0.048	EPA 8021B	1-14-14	1-14-14	
m,p-Xylene	**ND**	0.048	EPA 8021B	1-14-14	1-14-14	
o-Xylene	**ND**	0.048	EPA 8021B	1-14-14	1-14-14	
Gasoline	**ND**	4.8	NWTPH-Gx	1-14-14	1-14-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*105*	*71-121*				
Client ID:	**BL MW-12-11**					
Laboratory ID:	01-054-06					
Benzene	**ND**	0.020	EPA 8021B	1-14-14	1-14-14	
Toluene	**ND**	0.064	EPA 8021B	1-14-14	1-14-14	
Ethyl Benzene	**ND**	0.064	EPA 8021B	1-14-14	1-14-14	
m,p-Xylene	**ND**	0.064	EPA 8021B	1-14-14	1-14-14	
o-Xylene	**ND**	0.064	EPA 8021B	1-14-14	1-14-14	
Gasoline	**ND**	6.4	NWTPH-Gx	1-14-14	1-14-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*71-121*				

Date of Report: January 17, 2014
Samples Submitted: January 9, 2014
Laboratory Reference: 1401-054
Project: 2007-98-998

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BL MW-12-9**					
Laboratory ID:	01-054-07					
Benzene	**ND**	0.022	EPA 8021B	1-14-14	1-14-14	
Toluene	**ND**	0.11	EPA 8021B	1-14-14	1-14-14	
Ethyl Benzene	**ND**	0.11	EPA 8021B	1-14-14	1-14-14	
m,p-Xylene	**ND**	0.11	EPA 8021B	1-14-14	1-14-14	
o-Xylene	**ND**	0.11	EPA 8021B	1-14-14	1-14-14	
Gasoline	**ND**	11	NWTPH-Gx	1-14-14	1-14-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*112*	*71-121*				

Date of Report: January 17, 2014
Samples Submitted: January 9, 2014
Laboratory Reference: 1401-054
Project: 2007-98-998

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0114S1					
Benzene	**ND**	0.020	EPA 8021B	1-14-14	1-14-14	
Toluene	**ND**	0.050	EPA 8021B	1-14-14	1-14-14	
Ethyl Benzene	**ND**	0.050	EPA 8021B	1-14-14	1-14-14	
m,p-Xylene	**ND**	0.050	EPA 8021B	1-14-14	1-14-14	
o-Xylene	**ND**	0.050	EPA 8021B	1-14-14	1-14-14	
Gasoline	**ND**	5.0	NWTPH-Gx	1-14-14	1-14-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*71-121*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	01-054-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*96*	*79*	*71-121*			
SPIKE BLANKS											
Laboratory ID:	SB0114S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.08**	**1.13**	1.00	1.00		**108**	**113**	73-121	5	10	
Toluene	**1.10**	**1.14**	1.00	1.00		**110**	**114**	75-124	4	10	
Ethyl Benzene	**1.07**	**1.12**	1.00	1.00		**107**	**112**	75-125	5	9	
m,p-Xylene	**1.07**	**1.11**	1.00	1.00		**107**	**111**	75-126	4	9	
o-Xylene	**1.05**	**1.08**	1.00	1.00		**105**	**108**	74-123	3	8	
Surrogate:											
Fluorobenzene						*103*	*105*	*71-121*			

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Project: 2007-98-998

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZ MW-16-12.5**					
Laboratory ID:	01-054-01					
Dichlorodifluoromethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Chloromethane	ND	0.0045	EPA 8260C	1-10-14	1-10-14	
Vinyl Chloride	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Bromomethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Chloroethane	ND	0.0045	EPA 8260C	1-10-14	1-10-14	
Trichlorofluoromethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Iodomethane	ND	0.0045	EPA 8260C	1-10-14	1-10-14	
Methylene Chloride	ND	0.0045	EPA 8260C	1-10-14	1-10-14	
(trans) 1,2-Dichloroethene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
2,2-Dichloropropane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
(cis) 1,2-Dichloroethene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Bromochloromethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Chloroform	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,1,1-Trichloroethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Carbon Tetrachloride	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloropropene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloroethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Trichloroethene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloropropane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Dibromomethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Bromodichloromethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
2-Chloroethyl Vinyl Ether	ND	0.0045	EPA 8260C	1-10-14	1-10-14	
(cis) 1,3-Dichloropropene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
(trans) 1,3-Dichloropropene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZ MW-16-12.5**					
Laboratory ID:	01-054-01					
1,1,2-Trichloroethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Tetrachloroethene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,3-Dichloropropane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Dibromochloromethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromoethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Chlorobenzene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,1,1,2-Tetrachloroethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Bromoform	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Bromobenzene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,1,2,2-Tetrachloroethane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichloropropane	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
2-Chlorotoluene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
4-Chlorotoluene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,3-Dichlorobenzene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,4-Dichlorobenzene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,2-Dichlorobenzene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromo-3-chloropropane	ND	0.0045	EPA 8260C	1-10-14	1-10-14	
1,2,4-Trichlorobenzene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Hexachlorobutadiene	ND	0.0045	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichlorobenzene	ND	0.00091	EPA 8260C	1-10-14	1-10-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*95*	*65-129*				
Toluene-d8	*99*	*77-122*				
4-Bromofluorobenzene	*99*	*73-124*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZ MW-18-7.5**					
Laboratory ID:	01-054-02					
Dichlorodifluoromethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Chloromethane	ND	0.0044	EPA 8260C	1-10-14	1-10-14	
Vinyl Chloride	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Bromomethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Chloroethane	ND	0.0044	EPA 8260C	1-10-14	1-10-14	
Trichlorofluoromethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Iodomethane	ND	0.0044	EPA 8260C	1-10-14	1-10-14	
Methylene Chloride	ND	0.0044	EPA 8260C	1-10-14	1-10-14	
(trans) 1,2-Dichloroethene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
2,2-Dichloropropane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
(cis) 1,2-Dichloroethene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Bromochloromethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Chloroform	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,1,1-Trichloroethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Carbon Tetrachloride	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloropropene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloroethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Trichloroethene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloropropane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Dibromomethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Bromodichloromethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
2-Chloroethyl Vinyl Ether	ND	0.0044	EPA 8260C	1-10-14	1-10-14	
(cis) 1,3-Dichloropropene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
(trans) 1,3-Dichloropropene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZ MW-18-7.5**					
Laboratory ID:	01-054-02					
1,1,2-Trichloroethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Tetrachloroethene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,3-Dichloropropane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Dibromochloromethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromoethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Chlorobenzene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,1,1,2-Tetrachloroethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Bromoform	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Bromobenzene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,1,2,2-Tetrachloroethane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichloropropane	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
2-Chlorotoluene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
4-Chlorotoluene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,3-Dichlorobenzene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,4-Dichlorobenzene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,2-Dichlorobenzene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromo-3-chloropropane	ND	0.0044	EPA 8260C	1-10-14	1-10-14	
1,2,4-Trichlorobenzene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Hexachlorobutadiene	ND	0.0044	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichlorobenzene	ND	0.00088	EPA 8260C	1-10-14	1-10-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*65-129*				
Toluene-d8	*100*	*77-122*				
4-Bromofluorobenzene	*101*	*73-124*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BP MW-4-14**					
Laboratory ID:	01-054-03					
Dichlorodifluoromethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Chloromethane	ND	0.0042	EPA 8260C	1-10-14	1-10-14	
Vinyl Chloride	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Bromomethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Chloroethane	ND	0.0042	EPA 8260C	1-10-14	1-10-14	
Trichlorofluoromethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Iodomethane	ND	0.0042	EPA 8260C	1-10-14	1-10-14	
Methylene Chloride	ND	0.0042	EPA 8260C	1-10-14	1-10-14	
(trans) 1,2-Dichloroethene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
2,2-Dichloropropane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
(cis) 1,2-Dichloroethene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Bromochloromethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Chloroform	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,1,1-Trichloroethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Carbon Tetrachloride	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloropropene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloroethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Trichloroethene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloropropane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Dibromomethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Bromodichloromethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
2-Chloroethyl Vinyl Ether	ND	0.0042	EPA 8260C	1-10-14	1-10-14	
(cis) 1,3-Dichloropropene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
(trans) 1,3-Dichloropropene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BP MW-4-14**					
Laboratory ID:	01-054-03					
1,1,2-Trichloroethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Tetrachloroethene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,3-Dichloropropane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Dibromochloromethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromoethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Chlorobenzene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,1,1,2-Tetrachloroethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Bromoform	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Bromobenzene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,1,2,2-Tetrachloroethane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichloropropane	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
2-Chlorotoluene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
4-Chlorotoluene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,3-Dichlorobenzene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,4-Dichlorobenzene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,2-Dichlorobenzene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromo-3-chloropropane	ND	0.0042	EPA 8260C	1-10-14	1-10-14	
1,2,4-Trichlorobenzene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Hexachlorobutadiene	ND	0.0042	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichlorobenzene	ND	0.00085	EPA 8260C	1-10-14	1-10-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*95*	*65-129*				
Toluene-d8	*99*	*77-122*				
4-Bromofluorobenzene	*98*	*73-124*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BP MW-5-5**					
Laboratory ID:	01-054-04					
Dichlorodifluoromethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Chloromethane	ND	0.0061	EPA 8260C	1-10-14	1-10-14	
Vinyl Chloride	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Bromomethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Chloroethane	ND	0.0061	EPA 8260C	1-10-14	1-10-14	
Trichlorofluoromethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Iodomethane	ND	0.0061	EPA 8260C	1-10-14	1-10-14	
Methylene Chloride	ND	0.0061	EPA 8260C	1-10-14	1-10-14	
(trans) 1,2-Dichloroethene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
2,2-Dichloropropane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
(cis) 1,2-Dichloroethene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Bromochloromethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Chloroform	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,1,1-Trichloroethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Carbon Tetrachloride	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloropropene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloroethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Trichloroethene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloropropane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Dibromomethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Bromodichloromethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
2-Chloroethyl Vinyl Ether	ND	0.0061	EPA 8260C	1-10-14	1-10-14	
(cis) 1,3-Dichloropropene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
(trans) 1,3-Dichloropropene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BP MW-5-5**					
Laboratory ID:	01-054-04					
1,1,2-Trichloroethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Tetrachloroethene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,3-Dichloropropane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Dibromochloromethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromoethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Chlorobenzene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,1,1,2-Tetrachloroethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Bromoform	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Bromobenzene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,1,2,2-Tetrachloroethane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichloropropane	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
2-Chlorotoluene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
4-Chlorotoluene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,3-Dichlorobenzene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,4-Dichlorobenzene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,2-Dichlorobenzene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromo-3-chloropropane	ND	0.0061	EPA 8260C	1-10-14	1-10-14	
1,2,4-Trichlorobenzene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Hexachlorobutadiene	ND	0.0061	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichlorobenzene	ND	0.0012	EPA 8260C	1-10-14	1-10-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*65-129*				
Toluene-d8	*97*	*77-122*				
4-Bromofluorobenzene	*79*	*73-124*				

Date of Report: January 17, 2014
Samples Submitted: January 9, 2014
Laboratory Reference: 1401-054
Project: 2007-98-998

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BP MW-6-10**					
Laboratory ID:	01-054-05					
Dichlorodifluoromethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Chloromethane	ND	0.0037	EPA 8260C	1-10-14	1-10-14	
Vinyl Chloride	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Bromomethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Chloroethane	ND	0.0037	EPA 8260C	1-10-14	1-10-14	
Trichlorofluoromethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Iodomethane	ND	0.0037	EPA 8260C	1-10-14	1-10-14	
Methylene Chloride	ND	0.0037	EPA 8260C	1-10-14	1-10-14	
(trans) 1,2-Dichloroethene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
2,2-Dichloropropane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
(cis) 1,2-Dichloroethene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Bromochloromethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Chloroform	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,1,1-Trichloroethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Carbon Tetrachloride	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloropropene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloroethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Trichloroethene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloropropane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Dibromomethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Bromodichloromethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
2-Chloroethyl Vinyl Ether	ND	0.0037	EPA 8260C	1-10-14	1-10-14	
(cis) 1,3-Dichloropropene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
(trans) 1,3-Dichloropropene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BP MW-6-10**					
Laboratory ID:	01-054-05					
1,1,2-Trichloroethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Tetrachloroethene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,3-Dichloropropane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Dibromochloromethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromoethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Chlorobenzene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,1,1,2-Tetrachloroethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Bromoform	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Bromobenzene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,1,2,2-Tetrachloroethane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichloropropane	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
2-Chlorotoluene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
4-Chlorotoluene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,3-Dichlorobenzene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,4-Dichlorobenzene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,2-Dichlorobenzene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromo-3-chloropropane	ND	0.0037	EPA 8260C	1-10-14	1-10-14	
1,2,4-Trichlorobenzene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Hexachlorobutadiene	ND	0.0037	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichlorobenzene	ND	0.00073	EPA 8260C	1-10-14	1-10-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*94*	*65-129*				
Toluene-d8	*96*	*77-122*				
4-Bromofluorobenzene	*97*	*73-124*				

Date of Report: January 17, 2014
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BL MW-12-11**					
Laboratory ID:	01-054-06					
Dichlorodifluoromethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Chloromethane	ND	0.0054	EPA 8260C	1-10-14	1-10-14	
Vinyl Chloride	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Bromomethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Chloroethane	ND	0.0054	EPA 8260C	1-10-14	1-10-14	
Trichlorofluoromethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Iodomethane	ND	0.0054	EPA 8260C	1-10-14	1-10-14	
Methylene Chloride	ND	0.0054	EPA 8260C	1-10-14	1-10-14	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
2,2-Dichloropropane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Bromochloromethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Chloroform	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Carbon Tetrachloride	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloropropene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloroethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Trichloroethene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloropropane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Dibromomethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Bromodichloromethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
2-Chloroethyl Vinyl Ether	ND	0.0054	EPA 8260C	1-10-14	1-10-14	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BL MW-12-11**					
Laboratory ID:	01-054-06					
1,1,2-Trichloroethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Tetrachloroethene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,3-Dichloropropane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Dibromochloromethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromoethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Chlorobenzene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Bromoform	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Bromobenzene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
2-Chlorotoluene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
4-Chlorotoluene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromo-3-chloropropane	ND	0.0054	EPA 8260C	1-10-14	1-10-14	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Hexachlorobutadiene	ND	0.0054	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260C	1-10-14	1-10-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*95*	*65-129*				
Toluene-d8	*98*	*77-122*				
4-Bromofluorobenzene	*98*	*73-124*				

Date of Report: January 17, 2014
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Project: 2007-98-998

HALOGENATED VOLATILES EPA 8260C
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BL MW-12-9**					
Laboratory ID:	01-054-07					
Dichlorodifluoromethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Chloromethane	ND	0.0084	EPA 8260C	1-10-14	1-10-14	
Vinyl Chloride	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Bromomethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Chloroethane	ND	0.0084	EPA 8260C	1-10-14	1-10-14	
Trichlorofluoromethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Iodomethane	ND	0.0084	EPA 8260C	1-10-14	1-10-14	
Methylene Chloride	ND	0.0084	EPA 8260C	1-10-14	1-10-14	
(trans) 1,2-Dichloroethene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
2,2-Dichloropropane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
(cis) 1,2-Dichloroethene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Bromochloromethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Chloroform	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,1,1-Trichloroethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Carbon Tetrachloride	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloropropene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloroethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Trichloroethene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloropropane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Dibromomethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Bromodichloromethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
2-Chloroethyl Vinyl Ether	ND	0.0084	EPA 8260C	1-10-14	1-10-14	
(cis) 1,3-Dichloropropene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
(trans) 1,3-Dichloropropene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	

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Samples Submitted: January 9, 2014
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Project: 2007-98-998

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BL MW-12-9**					
Laboratory ID:	01-054-07					
1,1,2-Trichloroethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Tetrachloroethene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,3-Dichloropropane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Dibromochloromethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromoethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Chlorobenzene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,1,1,2-Tetrachloroethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Bromoform	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Bromobenzene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,1,2,2-Tetrachloroethane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichloropropane	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
2-Chlorotoluene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
4-Chlorotoluene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,3-Dichlorobenzene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,4-Dichlorobenzene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,2-Dichlorobenzene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromo-3-chloropropane	ND	0.0084	EPA 8260C	1-10-14	1-10-14	
1,2,4-Trichlorobenzene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Hexachlorobutadiene	ND	0.0084	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichlorobenzene	ND	0.0017	EPA 8260C	1-10-14	1-10-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*65-129*				
Toluene-d8	*97*	*77-122*				
4-Bromofluorobenzene	*92*	*73-124*				

Date of Report: January 17, 2014
Samples Submitted: January 9, 2014
Laboratory Reference: 1401-054
Project: 2007-98-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0110S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Chloromethane	ND	0.0050	EPA 8260C	1-10-14	1-10-14	
Vinyl Chloride	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Bromomethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Chloroethane	ND	0.0050	EPA 8260C	1-10-14	1-10-14	
Trichlorofluoromethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Iodomethane	ND	0.0050	EPA 8260C	1-10-14	1-10-14	
Methylene Chloride	ND	0.0050	EPA 8260C	1-10-14	1-10-14	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloroethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
2,2-Dichloropropane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Bromochloromethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Chloroform	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Carbon Tetrachloride	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,1-Dichloropropene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloroethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Trichloroethene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,2-Dichloropropane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Dibromomethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Bromodichloromethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260C	1-10-14	1-10-14	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	

Date of Report: January 17, 2014
Samples Submitted: January 9, 2014
Laboratory Reference: 1401-054
Project: 2007-98-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0110S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Tetrachloroethene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,3-Dichloropropane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Dibromochloromethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromoethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Chlorobenzene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Bromoform	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Bromobenzene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
2-Chlorotoluene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
4-Chlorotoluene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260C	1-10-14	1-10-14	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Hexachlorobutadiene	ND	0.0050	EPA 8260C	1-10-14	1-10-14	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260C	1-10-14	1-10-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*65-129*				
Toluene-d8	*101*	*77-122*				
4-Bromofluorobenzene	*102*	*73-124*				

Date of Report: January 17, 2014
Samples Submitted: January 9, 2014
Laboratory Reference: 1401-054
Project: 2007-98-998

HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0110S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0490**	**0.0495**	0.0500	0.0500	98	99	56-141	1	15	
Benzene	**0.0474**	**0.0481**	0.0500	0.0500	95	96	70-121	1	15	
Trichloroethene	**0.0480**	**0.0483**	0.0500	0.0500	96	97	74-118	1	15	
Toluene	**0.0477**	**0.0480**	0.0500	0.0500	95	96	75-120	1	15	
Chlorobenzene	**0.0525**	**0.0516**	0.0500	0.0500	105	103	75-120	2	15	
Surrogate:										
Dibromofluoromethane					*93*	*93*	*65-129*			
Toluene-d8					*95*	*94*	*77-122*			
4-Bromofluorobenzene					*96*	*96*	*73-124*			

Date of Report: January 17, 2014
Samples Submitted: January 9, 2014
Laboratory Reference: 1401-054
Project: 2007-98-998

% MOISTURE

Date Analyzed: 1-10-14

Client ID	Lab ID	% Moisture
HZ MW-16-12.5	01-054-01	14
HZ MW-18-7.5	01-054-02	13
BP MW-4-14	01-054-03	18
BP MW-5-5	01-054-04	25
BP MW-6-10	01-054-05	10
BL MW-12-11	01-054-06	21
BL MW-12-9	01-054-07	38

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-napthalene) 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 method 8260C, 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

Laboratory Number: 01-054

Company: HWA
Project Number: 2007-98-998
Project Name: Bothell
Project Manager: Arnie Sugar
Sampled by: Norm Nielsen

Turnaround Request (in working days) (Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Days ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	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/ MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664A							% Moisture
1	HZMW-16-12.5	1/6/14	10:00	Soil	5		X				X																X
2	HZ MW-18-7.5	1/6/14	13:30		5		X				X																X
3	BPMW-4-14	1/7/14	8:45		5		X				X																X
4	BPMW-5-5	1/7/14	12:00		5		X				X																X
5	BPMW-6-10	1/7/14	14:30		5		X				X																X
6	BL MW-12-11	1/8/14	9:40		5		X				X																X
7	BL MW-12-9	1/8/14	9:25		5		X				X																X

	Signature	Company	Date	Time
Relinquished	[illegible]	HWA	1/9/14	1400
Received	[illegible]	OSE	1/9/14	1400
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

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

January 21, 2014

Arnie Sugar
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-998
Laboratory Reference No. 1401-083

Dear Arnie:

Enclosed are the analytical results and associated quality control data for samples submitted on January 14, 2014.

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: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

Case Narrative

Samples were collected on January 13, 2014 and received by the laboratory on January 14, 2014. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX and Halogenated Volatiles EPA 8260C (soil) Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19-12.5**					
Laboratory ID:	01-083-01					
Benzene	**ND**	0.020	EPA 8021B	1-20-14	1-20-14	
Toluene	**ND**	0.052	EPA 8021B	1-20-14	1-20-14	
Ethyl Benzene	**ND**	0.052	EPA 8021B	1-20-14	1-20-14	
m,p-Xylene	**ND**	0.052	EPA 8021B	1-20-14	1-20-14	
o-Xylene	**ND**	0.052	EPA 8021B	1-20-14	1-20-14	
Gasoline	**ND**	5.2	NWTPH-Gx	1-20-14	1-20-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*71-121*				
Client ID:	**BLMW-11-14**					
Laboratory ID:	01-083-02					
Benzene	**ND**	0.027	EPA 8021B	1-20-14	1-20-14	
Toluene	**ND**	0.13	EPA 8021B	1-20-14	1-20-14	
Ethyl Benzene	**ND**	0.13	EPA 8021B	1-20-14	1-20-14	
m,p-Xylene	**ND**	0.13	EPA 8021B	1-20-14	1-20-14	
o-Xylene	**ND**	0.13	EPA 8021B	1-20-14	1-20-14	
Gasoline	**ND**	13	NWTPH-Gx	1-20-14	1-20-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*107*	*71-121*				

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0120S1					
Benzene	**ND**	0.020	EPA 8021B	1-20-14	1-20-14	
Toluene	**ND**	0.050	EPA 8021B	1-20-14	1-20-14	
Ethyl Benzene	**ND**	0.050	EPA 8021B	1-20-14	1-20-14	
m,p-Xylene	**ND**	0.050	EPA 8021B	1-20-14	1-20-14	
o-Xylene	**ND**	0.050	EPA 8021B	1-20-14	1-20-14	
Gasoline	**ND**	5.0	NWTPH-Gx	1-20-14	1-20-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*71-121*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	01-083-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*101*	*96*	*71-121*			
MATRIX SPIKES											
Laboratory ID:	01-083-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**0.816**	**0.864**	1.00	1.00	ND	**82**	**86**	64-130	6	18	
Toluene	**0.836**	**0.883**	1.00	1.00	ND	**84**	**88**	71-133	5	15	
Ethyl Benzene	**0.833**	**0.887**	1.00	1.00	ND	**83**	**89**	72-133	6	17	
m,p-Xylene	**0.834**	**0.893**	1.00	1.00	ND	**83**	**89**	74-131	7	20	
o-Xylene	**0.824**	**0.893**	1.00	1.00	ND	**82**	**89**	69-133	8	12	
Surrogate:											
Fluorobenzene						*104*	*106*	*71-121*			

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Equipment Blank**					
Laboratory ID:	01-083-03					
Benzene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
Toluene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
Gasoline	**ND**	100	NWTPH-Gx	1-17-14	1-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*85*	*71-112*				
Client ID:	**Trip Blank**					
Laboratory ID:	01-083-04					
Benzene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
Toluene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
Gasoline	**ND**	100	NWTPH-Gx	1-17-14	1-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*85*	*71-112*				

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0117W1					
Benzene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
Toluene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	1-17-14	1-17-14	
Gasoline	**ND**	100	NWTPH-Gx	1-17-14	1-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*86*	*71-112*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	01-083-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*85*	*84*	*71-112*			
MATRIX SPIKES											
Laboratory ID:	01-083-03										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**53.2**	**55.4**	50.0	50.0	ND	**106**	**111**	78-120	4	12	
Toluene	**53.6**	**55.4**	50.0	50.0	ND	**107**	**111**	80-121	3	12	
Ethyl Benzene	**53.3**	**54.3**	50.0	50.0	ND	**107**	**109**	81-120	2	13	
m,p-Xylene	**52.7**	**53.4**	50.0	50.0	ND	**105**	**107**	81-119	1	13	
o-Xylene	**52.6**	**52.1**	50.0	50.0	ND	**105**	**104**	79-117	1	13	
Surrogate:											
Fluorobenzene						*98*	*98*	*71-112*			

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19-12.5**					
Laboratory ID:	01-083-01					
Dichlorodifluoromethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Chloromethane	ND	0.0042	EPA 8260C	1-15-14	1-15-14	
Vinyl Chloride	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Bromomethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Chloroethane	ND	0.0042	EPA 8260C	1-15-14	1-15-14	
Trichlorofluoromethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,1-Dichloroethene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Iodomethane	ND	0.0042	EPA 8260C	1-15-14	1-15-14	
Methylene Chloride	ND	0.0042	EPA 8260C	1-15-14	1-15-14	
(trans) 1,2-Dichloroethene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,1-Dichloroethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
2,2-Dichloropropane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
(cis) 1,2-Dichloroethene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Bromochloromethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Chloroform	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,1,1-Trichloroethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Carbon Tetrachloride	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,1-Dichloropropene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,2-Dichloroethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Trichloroethene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,2-Dichloropropane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Dibromomethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Bromodichloromethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
2-Chloroethyl Vinyl Ether	ND	0.0042	EPA 8260C	1-15-14	1-15-14	
(cis) 1,3-Dichloropropene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
(trans) 1,3-Dichloropropene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19-12.5**					
Laboratory ID:	01-083-01					
1,1,2-Trichloroethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Tetrachloroethene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,3-Dichloropropane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Dibromochloromethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,2-Dibromoethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Chlorobenzene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,1,1,2-Tetrachloroethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Bromoform	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Bromobenzene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,1,2,2-Tetrachloroethane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,2,3-Trichloropropane	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
2-Chlorotoluene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
4-Chlorotoluene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,3-Dichlorobenzene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,4-Dichlorobenzene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,2-Dichlorobenzene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
1,2-Dibromo-3-chloropropane	ND	0.0042	EPA 8260C	1-15-14	1-15-14	
1,2,4-Trichlorobenzene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Hexachlorobutadiene	ND	0.0042	EPA 8260C	1-15-14	1-15-14	
1,2,3-Trichlorobenzene	ND	0.00083	EPA 8260C	1-15-14	1-15-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*65-129*				
Toluene-d8	*107*	*77-122*				
4-Bromofluorobenzene	*99*	*73-124*				

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BLMW-11-14**					
Laboratory ID:	01-083-02					
Dichlorodifluoromethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Chloromethane	ND	0.011	EPA 8260C	1-15-14	1-15-14	
Vinyl Chloride	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Bromomethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Chloroethane	ND	0.011	EPA 8260C	1-15-14	1-15-14	
Trichlorofluoromethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,1-Dichloroethene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Iodomethane	ND	0.011	EPA 8260C	1-15-14	1-15-14	
Methylene Chloride	ND	0.011	EPA 8260C	1-15-14	1-15-14	
(trans) 1,2-Dichloroethene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,1-Dichloroethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
2,2-Dichloropropane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
(cis) 1,2-Dichloroethene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Bromochloromethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Chloroform	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,1,1-Trichloroethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Carbon Tetrachloride	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,1-Dichloropropene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,2-Dichloroethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Trichloroethene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,2-Dichloropropane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Dibromomethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Bromodichloromethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
2-Chloroethyl Vinyl Ether	ND	0.011	EPA 8260C	1-15-14	1-15-14	
(cis) 1,3-Dichloropropene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
(trans) 1,3-Dichloropropene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BLMW-11-14**					
Laboratory ID:	01-083-02					
1,1,2-Trichloroethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Tetrachloroethene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,3-Dichloropropane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Dibromochloromethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,2-Dibromoethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Chlorobenzene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,1,1,2-Tetrachloroethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Bromoform	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Bromobenzene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,1,2,2-Tetrachloroethane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,2,3-Trichloropropane	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
2-Chlorotoluene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
4-Chlorotoluene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,3-Dichlorobenzene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,4-Dichlorobenzene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,2-Dichlorobenzene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
1,2-Dibromo-3-chloropropane	ND	0.011	EPA 8260C	1-15-14	1-15-14	
1,2,4-Trichlorobenzene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Hexachlorobutadiene	ND	0.011	EPA 8260C	1-15-14	1-15-14	
1,2,3-Trichlorobenzene	ND	0.0022	EPA 8260C	1-15-14	1-15-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*65-129*				
Toluene-d8	*103*	*77-122*				
4-Bromofluorobenzene	*89*	*73-124*				

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0115S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Chloromethane	ND	0.0050	EPA 8260C	1-15-14	1-15-14	
Vinyl Chloride	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Bromomethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Chloroethane	ND	0.0050	EPA 8260C	1-15-14	1-15-14	
Trichlorofluoromethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,1-Dichloroethene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Iodomethane	ND	0.0050	EPA 8260C	1-15-14	1-15-14	
Methylene Chloride	ND	0.0050	EPA 8260C	1-15-14	1-15-14	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,1-Dichloroethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
2,2-Dichloropropane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Bromochloromethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Chloroform	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Carbon Tetrachloride	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,1-Dichloropropene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,2-Dichloroethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Trichloroethene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,2-Dichloropropane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Dibromomethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Bromodichloromethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260C	1-15-14	1-15-14	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	

Date of Report: January 21, 2014
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HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0115S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Tetrachloroethene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,3-Dichloropropane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Dibromochloromethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,2-Dibromoethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Chlorobenzene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Bromoform	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Bromobenzene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
2-Chlorotoluene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
4-Chlorotoluene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260C	1-15-14	1-15-14	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Hexachlorobutadiene	ND	0.0050	EPA 8260C	1-15-14	1-15-14	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260C	1-15-14	1-15-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*65-129*				
Toluene-d8	*109*	*77-122*				
4-Bromofluorobenzene	*102*	*73-124*				

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	01-083-01										
	MS	MSD	MS	MSD		MS	MSD				
1,1-Dichloroethene	**0.0262**	**0.0278**	0.0367	0.0334	ND	71	83	57-140	15	17	
Benzene	**0.0270**	**0.0270**	0.0367	0.0334	ND	74	81	62-124	9	15	
Trichloroethene	**0.0267**	**0.0269**	0.0367	0.0334	ND	73	81	59-116	10	15	
Toluene	**0.0286**	**0.0285**	0.0367	0.0334	ND	78	85	62-114	9	16	
Chlorobenzene	**0.0289**	**0.0277**	0.0367	0.0334	ND	79	83	57-122	5	18	
Surrogate:											
Dibromofluoromethane						*94*	*91*	*65-129*			
Toluene-d8						*101*	*99*	*77-122*			
4-Bromofluorobenzene						*95*	*95*	*73-124*			

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Equipment Blank**					
Laboratory ID:	01-083-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chloromethane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Vinyl Chloride	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromomethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chloroethane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Iodomethane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Methylene Chloride	ND	1.0	EPA 8260C	1-14-14	1-14-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromochloromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chloroform	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Trichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Dibromomethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromodichloromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	1-14-14	1-14-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	1-14-14	1-14-14	

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Samples Submitted: January 14, 2014
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Equipment Blank**					
Laboratory ID:	01-083-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Tetrachloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Dibromochloromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromoform	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Bromobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*81*	*62-122*				
Toluene-d8	*101*	*70-120*				
4-Bromofluorobenzene	*95*	*71-120*				

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	01-083-04					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chloromethane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Vinyl Chloride	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromomethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chloroethane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Iodomethane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Methylene Chloride	ND	1.0	EPA 8260C	1-14-14	1-14-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromochloromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chloroform	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Trichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Dibromomethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromodichloromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	1-14-14	1-14-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	1-14-14	1-14-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	01-083-04					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Tetrachloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Dibromochloromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromoform	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Bromobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*79*	*62-122*				
Toluene-d8	*101*	*70-120*				
4-Bromofluorobenzene	*95*	*71-120*				

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0114W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chloromethane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Vinyl Chloride	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromomethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chloroethane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Iodomethane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Methylene Chloride	ND	1.0	EPA 8260C	1-14-14	1-14-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromochloromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chloroform	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Trichloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Dibromomethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromodichloromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	1-14-14	1-14-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	1-14-14	1-14-14	

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0114W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Tetrachloroethene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Dibromochloromethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Chlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Bromoform	ND	1.0	EPA 8260C	1-14-14	1-14-14	
Bromobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	1-14-14	1-14-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	1-14-14	1-14-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	1-14-14	1-14-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*62-122*				
Toluene-d8	*102*	*70-120*				
4-Bromofluorobenzene	*96*	*71-120*				

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
MS/MSD 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:	01-083-03										
	MS	MSD	MS	MSD		MS	MSD				
1,1-Dichloroethene	**10.3**	**10.1**	10.0	10.0	ND	103	101	57-133	2	15	
Benzene	**11.0**	**11.0**	10.0	10.0	ND	110	110	78-117	0	15	
Trichloroethene	**10.5**	**10.4**	10.0	10.0	ND	105	104	77-120	1	15	
Toluene	**10.6**	**10.5**	10.0	10.0	ND	106	105	80-115	1	15	
Chlorobenzene	**10.8**	**10.9**	10.0	10.0	ND	108	109	80-122	1	15	
Surrogate:											
Dibromofluoromethane						*78*	*82*	*62-122*			
Toluene-d8						*102*	*101*	*70-120*			
4-Bromofluorobenzene						*92*	*95*	*71-120*			

Date of Report: January 21, 2014
Samples Submitted: January 14, 2014
Laboratory Reference: 1401-083
Project: 2007-098-998

% MOISTURE

Date Analyzed: 1-15-14

Client ID	Lab ID	% Moisture
HZMW-19-12.5	01-083-01	14
BLMW-11-14	01-083-02	46

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-napthalene) 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 method 8260C, 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: 01-083

Company: HWA
Project Number: 2007-098-998
Project Name: Area Wide Monitoring
Project Manager: Arnie Sugar
Sampled by: Norm Nielsen

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ ________ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	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/ MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664A	% Moisture
1	HZMW-19-12.5	1/13/14	9:45	soil	11		X				X										X
2	BLMW-11-14	1/13/14	12:40	soil	5		X				X										X
3	Equipment Blank	1/13/14	10:45	water	6		X				X										
4	Trip Blank	1/13/14	13:40	water	3		X				X										

	Signature	Company	Date	Time
Relinquished		HWA GeoSciences	1/14/14	8:45am
Received	Van		1/14	1135
Relinquished	Van		1/14	1150
Received			1/14/14	1150
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
For QC, do MS/MSD test on sample HZMW-19-12.5

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐

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

June 9, 2014

Arnie Sugar
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-2003
Laboratory Reference No. 1405-232

Dear Arnie:

Enclosed are the analytical results and associated quality control data for samples submitted on May 29, 2014.

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: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

Case Narrative

Samples were collected on May 28 and 29, 2014 and received by the laboratory on May 29, 2014. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

The presence of Tetrachloroethene was impacting the gasoline result for sample UCCMW-8. Per the client's request, the Tetrachloroethene peak was subtracted from the gasoline range result in the sample referenced above.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	05-232-01					
Benzene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Toluene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
o-Xylene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Gasoline	**ND**	100	NWTPH-Gx	5-29-14	5-29-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*71-112*				
Client ID:	**UCCMW-9**					
Laboratory ID:	05-232-02					
Benzene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Toluene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
o-Xylene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Gasoline	**ND**	100	NWTPH-Gx	5-29-14	5-29-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*71-112*				
Client ID:	**UCCMW-8**					
Laboratory ID:	05-232-03					
Benzene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Toluene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
o-Xylene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Gasoline	**ND**	100	NWTPH-Gx	5-29-14	5-29-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*71-112*				

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0529W2					
Benzene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Toluene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
o-Xylene	**ND**	1.0	EPA 8021B	5-29-14	5-29-14	
Gasoline	**ND**	100	NWTPH-Gx	5-29-14	5-29-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*71-112*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	05-215-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*94*	*94*	*71-112*			
MATRIX SPIKES											
Laboratory ID:	05-209-09										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**54.0**	**52.5**	50.0	50.0	ND	**108**	**105**	78-120	3	12	
Toluene	**56.0**	**52.6**	50.0	50.0	ND	**112**	**105**	80-121	6	12	
Ethyl Benzene	**55.5**	**51.6**	50.0	50.0	ND	**111**	**103**	81-120	7	13	
m,p-Xylene	**57.0**	**51.3**	50.0	50.0	ND	**114**	**103**	81-119	11	13	
o-Xylene	**56.3**	**49.8**	50.0	50.0	ND	**113**	**100**	79-117	12	13	
Surrogate:											
Fluorobenzene						*98*	*103*	*71-112*			

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	05-232-01					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	6-2-14	6-2-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	6-2-14	6-2-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*91*	*50-150*				
Client ID:	**UCCMW-9**					
Laboratory ID:	05-232-02					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	6-2-14	6-2-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	6-2-14	6-2-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*90*	*50-150*				
Client ID:	**UCCMW-8**					
Laboratory ID:	05-232-03					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	6-2-14	6-2-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	6-2-14	6-2-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*91*	*50-150*				

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0602W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	6-2-14	6-2-14	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	6-2-14	6-2-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*89*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	05-232-01										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*91*	*90*	*50-150*			

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	05-232-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chloromethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromomethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chloroethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Iodomethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-3-14	6-3-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
(cis) 1,2-Dichloroethene	0.30	0.20	EPA 8260C	6-3-14	6-3-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chloroform	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Trichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Dibromomethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-3-14	6-3-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-3-14	6-3-14	

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	05-232-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Tetrachloroethene	0.32	0.20	EPA 8260C	6-3-14	6-3-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromoform	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Bromobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2,3-Trichloropropane	ND	0.25	EPA 8260C	6-3-14	6-3-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*62-122*				
Toluene-d8	*99*	*70-120*				
4-Bromofluorobenzene	*100*	*71-120*				

Date of Report: June 9, 2014
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Project: 2007-098-2003

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**UCCMW-9**					
Laboratory ID:	05-232-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chloromethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromomethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chloroethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Iodomethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-3-14	6-3-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chloroform	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Trichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Dibromomethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-3-14	6-3-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-3-14	6-3-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**UCCMW-9**					
Laboratory ID:	05-232-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Tetrachloroethene	1.0	0.20	EPA 8260C	6-3-14	6-3-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromoform	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Bromobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2,3-Trichloropropane	ND	0.25	EPA 8260C	6-3-14	6-3-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*62-122*				
Toluene-d8	*97*	*70-120*				
4-Bromofluorobenzene	*98*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**UCCMW-8**					
Laboratory ID:	05-232-03					
Dichlorodifluoromethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Chloromethane	ND	5.0	EPA 8260C	6-3-14	6-3-14	
Vinyl Chloride	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Bromomethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Chloroethane	ND	5.0	EPA 8260C	6-3-14	6-3-14	
Trichlorofluoromethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloroethene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Iodomethane	ND	5.0	EPA 8260C	6-3-14	6-3-14	
Methylene Chloride	ND	5.0	EPA 8260C	6-3-14	6-3-14	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloroethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
2,2-Dichloropropane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
(cis) 1,2-Dichloroethene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Bromochloromethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Chloroform	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Carbon Tetrachloride	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloropropene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,2-Dichloroethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Trichloroethene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,2-Dichloropropane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Dibromomethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Bromodichloromethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
2-Chloroethyl Vinyl Ether	ND	5.0	EPA 8260C	6-3-14	6-3-14	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	6-3-14	6-3-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**UCCMW-8**					
Laboratory ID:	05-232-03					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Tetrachloroethene	110	1.0	EPA 8260C	6-3-14	6-3-14	
1,3-Dichloropropane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Dibromochloromethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,2-Dibromoethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Chlorobenzene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Bromoform	ND	5.0	EPA 8260C	6-3-14	6-3-14	
Bromobenzene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,2,3-Trichloropropane	ND	1.3	EPA 8260C	6-3-14	6-3-14	
2-Chlorotoluene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
4-Chlorotoluene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,2-Dibromo-3-chloropropane	ND	5.0	EPA 8260C	6-3-14	6-3-14	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Hexachlorobutadiene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*62-122*				
Toluene-d8	*95*	*70-120*				
4-Bromofluorobenzene	*98*	*71-120*				

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0603W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chloromethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromomethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chloroethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Iodomethane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-3-14	6-3-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chloroform	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Trichloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Dibromomethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-3-14	6-3-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-3-14	6-3-14	

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
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Project: 2007-098-2003

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METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0603W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Bromoform	ND	1.0	EPA 8260C	6-3-14	6-3-14	
Bromobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2,3-Trichloropropane	ND	0.25	EPA 8260C	6-3-14	6-3-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-3-14	6-3-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-3-14	6-3-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*62-122*				
Toluene-d8	*99*	*70-120*				
4-Bromofluorobenzene	*103*	*71-120*				

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
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HALOGENATED VOLATILES EPA 8260C
MS/MSD 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:	05-232-01										
	MS	MSD	MS	MSD		MS	MSD				
1,1-Dichloroethene	**9.19**	**9.28**	10.0	10.0	ND	92	93	57-133	1	15	
Benzene	**9.13**	**9.38**	10.0	10.0	ND	91	94	78-117	3	15	
Trichloroethene	**9.03**	**9.32**	10.0	10.0	ND	90	93	77-120	3	15	
Toluene	**9.25**	**9.74**	10.0	10.0	ND	93	97	80-115	5	15	
Chlorobenzene	**9.20**	**9.41**	10.0	10.0	ND	92	94	80-122	2	15	
Surrogate:											
Dibromofluoromethane						*95*	*100*	*62-122*			
Toluene-d8						*98*	*100*	*70-120*			
4-Bromofluorobenzene						*96*	*99*	*71-120*			

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

NITRATE (as Nitrogen)
EPA 353.2

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	05-232-01					
Nitrate	**1.6**	0.050	EPA 353.2	6-2-14	6-2-14	
Client ID:	**UCCMW-9**					
Laboratory ID:	05-232-02					
Nitrate	**1.0**	0.050	EPA 353.2	6-2-14	6-2-14	
Client ID:	**UCCMW-8**					
Laboratory ID:	05-232-03					
Nitrate	**2.3**	0.050	EPA 353.2	6-2-14	6-2-14	

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0602W1					
Nitrate	**ND**	0.050	EPA 353.2	6-2-14	6-2-14	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-232-01								
	ORIG	DUP							
Nitrate	**1.61**	**1.66**	NA	NA	NA	NA	3	16	
MATRIX SPIKE									
Laboratory ID:	05-232-01								
	MS		MS		MS				
Nitrate	**3.79**		2.00	1.61	109	84-119	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0602W1								
	SB		SB		SB				
Nitrate	**2.12**		2.00	NA	106	86-114	NA	NA	

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SULFATE
ASTM D516-07

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	05-232-01					
Sulfate	**16**	10	ASTM D516-07	6-2-14	6-2-14	
Client ID:	**UCCMW-9**					
Laboratory ID:	05-232-02					
Sulfate	**19**	5.0	ASTM D516-07	6-2-14	6-2-14	
Client ID:	**UCCMW-8**					
Laboratory ID:	05-232-03					
Sulfate	**18**	5.0	ASTM D516-07	6-2-14	6-2-14	

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
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Project: 2007-098-2003

SULFATE
ASTM D516-07
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0602W1					
Sulfate	**ND**	5.0	ASTM D516-07	6-2-14	6-2-14	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-232-01								
	ORIG	DUP							
Sulfate	**16.1**	**15.7**	NA	NA	NA	NA	3	10	
MATRIX SPIKE									
Laboratory ID:	05-232-01								
	MS		MS		MS				
Sulfate	**36.7**		20.0	16.1	103	82-123	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0602W1								
	SB		SB		SB				
Sulfate	**9.94**		10.0	NA	99	91-114	NA	NA	

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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:	**HZMW-16**					
Laboratory ID:	05-232-01					
Total Organic Carbon	**ND**	1.0	SM 5310B	6-5-14	6-5-14	
Client ID:	**UCCMW-9**					
Laboratory ID:	05-232-02					
Total Organic Carbon	**2.0**	1.0	SM 5310B	6-5-14	6-5-14	
Client ID:	**UCCMW-8**					
Laboratory ID:	05-232-03					
Total Organic Carbon	**ND**	1.0	SM 5310B	6-5-14	6-5-14	

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

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:	MB0605W1					
Total Organic Carbon	**ND**	1.0	SM 5310B	6-5-14	6-5-14	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	05-232-01								
	ORIG	DUP							
Total Organic Carbon	**ND**	**ND**	NA	NA	NA	NA	NA	15	
MATRIX SPIKE									
Laboratory ID:	05-232-01								
	MS		MS		MS				
Total Organic Carbon	**10.6**		10.0	ND	106	70-124	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0605W1								
	SB		SB		SB				
Total Organic Carbon	**10.5**		10.0	NA	105	91-119	NA	NA	

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

DISSOLVED GASES
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	05-232-01					
Methane	**0.66**	0.50	RSK 175	6-5-14	6-5-14	
Ethane	**ND**	0.50	RSK 175	6-5-14	6-5-14	
Ethene	**ND**	0.50	RSK 175	6-5-14	6-5-14	
Client ID:	**UCCMW-9**					
Laboratory ID:	05-232-02					
Methane	**16**	1.0	RSK 175	6-5-14	6-5-14	
Ethane	**ND**	1.0	RSK 175	6-5-14	6-5-14	
Ethene	**ND**	1.0	RSK 175	6-5-14	6-5-14	
Client ID:	**UCCMW-8**					
Laboratory ID:	05-232-03					
Methane	**ND**	0.50	RSK 175	6-5-14	6-5-14	
Ethane	**ND**	0.50	RSK 175	6-5-14	6-5-14	
Ethene	**ND**	0.50	RSK 175	6-5-14	6-5-14	

Date of Report: June 9, 2014
Samples Submitted: May 29, 2014
Laboratory Reference: 1405-232
Project: 2007-098-2003

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:	MB0605W1					
Methane	**ND**	0.50	RSK 175	6-5-14	6-5-14	
Ethane	**ND**	0.50	RSK 175	6-5-14	6-5-14	
Ethene	**ND**	0.50	RSK 175	6-5-14	6-5-14	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB0605W1										
	SB	SBD	SB	SBD		SB	SBD				
Methane	**3.78**	**3.85**	4.42	4.42	N/A	**86**	**87**	75-125	2	25	
Ethane	**6.20**	**6.32**	8.32	8.32	N/A	**75**	**76**	75-125	2	25	
Ethene	**6.49**	**6.53**	7.77	7.77	N/A	**84**	**84**	75-125	1	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-napthalene) 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 method 8260C, 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 - The Tetrachloroethene peak was subtracted from the gasoline result.

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

Page 1 of 1

Company: HWA GeoSciences
Project Number: 2007-098-2003
Project Name: ~~Area Wide~~ Ultra custom Core Down Gradient
Project Manager: Arnie Sagar
Sampled by: Norm Nielsen

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ ________ (other)

Laboratory Number: 05-232

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	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	Nitrate	Sulfate	Total Organic Carbon	Methane/ethane/ethene		% Moisture
1	HZMW-16	5/28/14	14:59	W	10		X		X		X											X	X	X	X		
2	UCCMW-9	5/28/14	17:06	↓	↓		X		X		X											X	X	X	X		
3	UCCMW-8	5/29/14	7:12	↓	↓		X		X		X											X	X	X	X		

	Signature	Company	Date	Time
Relinquished	[signature]	HWA GeoSciences	5/29/14	12:52pm
Received	Pat M[illegible]	@Speedy	5/29/14	12:55
Relinquished	Pat M[illegible]	Speedy	5/29/14	1:24
Received	[signature]	OnSite Env	5/29/14	1324
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Chromatograms with final report ☐

Data Package: Standard ☐ Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ________

OnSite
Environmental Inc.

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

June 12, 2014

Arnie Sugar
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-998
Laboratory Reference No. 1405-254

Dear Arnie:

Enclosed are the analytical results and associated quality control data for samples submitted on May 30, 2014.

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: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

Case Narrative

Samples were collected on May 29 and 30, 2014 and received by the laboratory on May 30, 2014. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

The presence of Tetrachloroethene in samples HZMW-15S, HZMW-15D, Dup 1, HZMW-14S and HZMW-14D was impacting the gasoline results. As per client's request, the Tetrachloroethene peak was subtracted from the gasoline range for these samples.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	05-254-01					
Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Toluene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Gasoline	**ND**	100	NWTPH-Gx	6-2-14	6-2-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*71-112*				
Client ID:	**HZMW-15D**					
Laboratory ID:	05-254-02					
Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Toluene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Gasoline	**ND**	100	NWTPH-Gx	6-2-14	6-2-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*71-112*				
Client ID:	**Dup 1**					
Laboratory ID:	05-254-03					
Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Toluene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Gasoline	**ND**	100	NWTPH-Gx	6-2-14	6-2-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*71-112*				

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	05-254-04					
Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Toluene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Gasoline	**ND**	100	NWTPH-Gx	6-2-14	6-2-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*71-112*				
Client ID:	**HZMW-14D**					
Laboratory ID:	05-254-05					
Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Toluene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Gasoline	**ND**	100	NWTPH-Gx	6-2-14	6-2-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*71-112*				
Client ID:	**HZMW-19**					
Laboratory ID:	05-254-06					
Benzene	**2.1**	1.0	EPA 8021B	6-2-14	6-2-14	
Toluene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Ethyl Benzene	**11**	1.0	EPA 8021B	6-2-14	6-2-14	
m,p-Xylene	**1.6**	1.0	EPA 8021B	6-2-14	6-2-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Gasoline	**1200**	100	NWTPH-Gx	6-2-14	6-2-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*71-112*				

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-1**					
Laboratory ID:	05-254-07					
Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Toluene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Gasoline	**ND**	100	NWTPH-Gx	6-2-14	6-2-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*71-112*				
Client ID:	**Trip Blank**					
Laboratory ID:	05-254-08					
Benzene	**ND**	1.0	EPA 8021B	6-3-14	6-3-14	
Toluene	**ND**	1.0	EPA 8021B	6-3-14	6-3-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-3-14	6-3-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-3-14	6-3-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-3-14	6-3-14	
Gasoline	**ND**	100	NWTPH-Gx	6-3-14	6-3-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*89*	*71-112*				

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0602W1					
Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Toluene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-2-14	6-2-14	
Gasoline	**ND**	100	NWTPH-Gx	6-2-14	6-2-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*71-112*				
Laboratory ID:	MB0603W1					
Benzene	**ND**	1.0	EPA 8021B	6-3-14	6-3-14	
Toluene	**ND**	1.0	EPA 8021B	6-3-14	6-3-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-3-14	6-3-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-3-14	6-3-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-3-14	6-3-14	
Gasoline	**ND**	100	NWTPH-Gx	6-3-14	6-3-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*71-112*				

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	05-254-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	Z
Surrogate:											
Fluorobenzene						*91*	*90*	*71-112*			
Laboratory ID:	05-195-31										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*88*	*89*	*71-112*			
MATRIX SPIKES											
Laboratory ID:	05-254-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**52.4**	**54.6**	50.0	50.0	ND	**105**	**109**	78-120	4	12	
Toluene	**53.8**	**54.9**	50.0	50.0	ND	**108**	**110**	80-121	2	12	
Ethyl Benzene	**53.1**	**55.3**	50.0	50.0	ND	**106**	**111**	81-120	4	13	
m,p-Xylene	**54.0**	**54.8**	50.0	50.0	ND	**108**	**110**	81-119	1	13	
o-Xylene	**52.9**	**55.0**	50.0	50.0	ND	**106**	**110**	79-117	4	13	
Surrogate:											
Fluorobenzene						*102*	*104*	*71-112*			
SPIKE BLANKS											
Laboratory ID:	SB0603W1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**48.9**	**48.7**	50.0	50.0		**98**	**97**	86-116	0	11	
Toluene	**50.4**	**51.4**	50.0	50.0		**101**	**103**	86-117	2	12	
Ethyl Benzene	**50.3**	**50.6**	50.0	50.0		**101**	**101**	86-118	1	13	
m,p-Xylene	**51.7**	**53.1**	50.0	50.0		**103**	**106**	86-118	3	14	
o-Xylene	**51.2**	**51.1**	50.0	50.0		**102**	**102**	85-117	0	14	
Surrogate:											
Fluorobenzene						*93*	*97*	*71-112*			

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	05-254-01					
Diesel Range Organics	**ND**	0.28	NWTPH-Dx	6-4-14	6-4-14	
Lube Oil Range Organics	**ND**	0.45	NWTPH-Dx	6-4-14	6-4-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				
Client ID:	**HZMW-15D**					
Laboratory ID:	05-254-02					
Diesel Range Organics	**ND**	0.28	NWTPH-Dx	6-4-14	6-4-14	
Lube Oil Range Organics	**ND**	0.46	NWTPH-Dx	6-4-14	6-4-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*103*	*50-150*				
Client ID:	**Dup 1**					
Laboratory ID:	05-254-03					
Diesel Range Organics	**ND**	0.28	NWTPH-Dx	6-4-14	6-4-14	
Lube Oil Range Organics	**ND**	0.44	NWTPH-Dx	6-4-14	6-4-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				
Client ID:	**HZMW-14S**					
Laboratory ID:	05-254-04					
Diesel Range Organics	**ND**	0.30	NWTPH-Dx	6-4-14	6-4-14	
Lube Oil Range Organics	**ND**	0.48	NWTPH-Dx	6-4-14	6-4-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*102*	*50-150*				
Client ID:	**HZMW-14D**					
Laboratory ID:	05-254-05					
Diesel Range Organics	**ND**	0.29	NWTPH-Dx	6-4-14	6-4-14	
Lube Oil Range Organics	**ND**	0.46	NWTPH-Dx	6-4-14	6-4-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**HZMW-19**					
Laboratory ID:	05-254-06					
Diesel Range Organics	**ND**	1.0	NWTPH-Dx	6-4-14	6-5-14	U1
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	6-4-14	6-5-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-1**					
Laboratory ID:	05-254-07					
Diesel Range Organics	**ND**	0.27	NWTPH-Dx	6-4-14	6-4-14	
Lube Oil Range Organics	**ND**	0.43	NWTPH-Dx	6-4-14	6-4-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*107*	*50-150*				

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0604W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	6-4-14	6-4-14	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	6-4-14	6-4-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*102*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	05-254-01										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*99*	*102*	*50-150*			

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	05-254-01					
Dichlorodifluoromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Chloromethane	ND	5.0	EPA 8260C	6-6-14	6-6-14	
Vinyl Chloride	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Bromomethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Chloroethane	ND	5.0	EPA 8260C	6-6-14	6-6-14	
Trichlorofluoromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Iodomethane	ND	7.5	EPA 8260C	6-6-14	6-6-14	
Methylene Chloride	ND	5.0	EPA 8260C	6-6-14	6-6-14	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
2,2-Dichloropropane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(cis) 1,2-Dichloroethene	3.6	1.0	EPA 8260C	6-6-14	6-6-14	
Bromochloromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Chloroform	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Carbon Tetrachloride	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloropropene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Trichloroethene	7.1	1.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloropropane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Dibromomethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Bromodichloromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
2-Chloroethyl Vinyl Ether	ND	5.0	EPA 8260C	6-6-14	6-6-14	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	6-6-14	6-6-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	05-254-01					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Tetrachloroethene	150	1.0	EPA 8260C	6-6-14	6-6-14	
1,3-Dichloropropane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Dibromochloromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromoethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Chlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Bromoform	ND	5.0	EPA 8260C	6-6-14	6-6-14	
Bromobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichloropropane	ND	1.4	EPA 8260C	6-6-14	6-6-14	
2-Chlorotoluene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
4-Chlorotoluene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromo-3-chloropropane	ND	5.0	EPA 8260C	6-6-14	6-6-14	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Hexachlorobutadiene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*105*	*62-122*				
Toluene-d8	*98*	*70-120*				
4-Bromofluorobenzene	*98*	*71-120*				

Date of Report: June 12, 2014
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15D**					
Laboratory ID:	05-254-02					
Dichlorodifluoromethane	ND	20	EPA 8260C	6-6-14	6-6-14	
Chloromethane	ND	100	EPA 8260C	6-6-14	6-6-14	
Vinyl Chloride	ND	20	EPA 8260C	6-6-14	6-6-14	
Bromomethane	ND	20	EPA 8260C	6-6-14	6-6-14	
Chloroethane	ND	100	EPA 8260C	6-6-14	6-6-14	
Trichlorofluoromethane	ND	20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethene	ND	20	EPA 8260C	6-6-14	6-6-14	
Iodomethane	ND	150	EPA 8260C	6-6-14	6-6-14	
Methylene Chloride	ND	100	EPA 8260C	6-6-14	6-6-14	
(trans) 1,2-Dichloroethene	ND	20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethane	ND	20	EPA 8260C	6-6-14	6-6-14	
2,2-Dichloropropane	ND	20	EPA 8260C	6-6-14	6-6-14	
(cis) 1,2-Dichloroethene	180	20	EPA 8260C	6-6-14	6-6-14	
Bromochloromethane	ND	20	EPA 8260C	6-6-14	6-6-14	
Chloroform	ND	20	EPA 8260C	6-6-14	6-6-14	
1,1,1-Trichloroethane	ND	20	EPA 8260C	6-6-14	6-6-14	
Carbon Tetrachloride	ND	20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloropropene	ND	20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloroethane	ND	20	EPA 8260C	6-6-14	6-6-14	
Trichloroethene	290	20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloropropane	ND	20	EPA 8260C	6-6-14	6-6-14	
Dibromomethane	ND	20	EPA 8260C	6-6-14	6-6-14	
Bromodichloromethane	ND	20	EPA 8260C	6-6-14	6-6-14	
2-Chloroethyl Vinyl Ether	ND	100	EPA 8260C	6-6-14	6-6-14	
(cis) 1,3-Dichloropropene	ND	20	EPA 8260C	6-6-14	6-6-14	
(trans) 1,3-Dichloropropene	ND	20	EPA 8260C	6-6-14	6-6-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15D**					
Laboratory ID:	05-254-02					
1,1,2-Trichloroethane	ND	20	EPA 8260C	6-6-14	6-6-14	
Tetrachloroethene	3700	20	EPA 8260C	6-6-14	6-6-14	
1,3-Dichloropropane	ND	20	EPA 8260C	6-6-14	6-6-14	
Dibromochloromethane	ND	20	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromoethane	ND	20	EPA 8260C	6-6-14	6-6-14	
Chlorobenzene	ND	20	EPA 8260C	6-6-14	6-6-14	
1,1,1,2-Tetrachloroethane	ND	20	EPA 8260C	6-6-14	6-6-14	
Bromoform	ND	100	EPA 8260C	6-6-14	6-6-14	
Bromobenzene	ND	20	EPA 8260C	6-6-14	6-6-14	
1,1,2,2-Tetrachloroethane	ND	20	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichloropropane	ND	28	EPA 8260C	6-6-14	6-6-14	
2-Chlorotoluene	ND	20	EPA 8260C	6-6-14	6-6-14	
4-Chlorotoluene	ND	20	EPA 8260C	6-6-14	6-6-14	
1,3-Dichlorobenzene	ND	20	EPA 8260C	6-6-14	6-6-14	
1,4-Dichlorobenzene	ND	20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichlorobenzene	ND	20	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromo-3-chloropropane	ND	100	EPA 8260C	6-6-14	6-6-14	
1,2,4-Trichlorobenzene	ND	20	EPA 8260C	6-6-14	6-6-14	
Hexachlorobutadiene	ND	20	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichlorobenzene	ND	20	EPA 8260C	6-6-14	6-6-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*62-122*				
Toluene-d8	*93*	*70-120*				
4-Bromofluorobenzene	*92*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Dup 1**					
Laboratory ID:	05-254-03					
Dichlorodifluoromethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Chloromethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Vinyl Chloride	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Bromomethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Chloroethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Trichlorofluoromethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Iodomethane	ND	15	EPA 8260C	6-6-14	6-6-14	
Methylene Chloride	ND	10	EPA 8260C	6-6-14	6-6-14	
(trans) 1,2-Dichloroethene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
2,2-Dichloropropane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
(cis) 1,2-Dichloroethene	3.8	2.0	EPA 8260C	6-6-14	6-6-14	
Bromochloromethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Chloroform	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,1,1-Trichloroethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Carbon Tetrachloride	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloropropene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloroethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Trichloroethene	8.3	2.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloropropane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Dibromomethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Bromodichloromethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
2-Chloroethyl Vinyl Ether	ND	10	EPA 8260C	6-6-14	6-6-14	
(cis) 1,3-Dichloropropene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
(trans) 1,3-Dichloropropene	ND	2.0	EPA 8260C	6-6-14	6-6-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Dup 1**					
Laboratory ID:	05-254-03					
1,1,2-Trichloroethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Tetrachloroethene	140	2.0	EPA 8260C	6-6-14	6-6-14	
1,3-Dichloropropane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Dibromochloromethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromoethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Chlorobenzene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,1,1,2-Tetrachloroethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Bromoform	ND	10	EPA 8260C	6-6-14	6-6-14	
Bromobenzene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,1,2,2-Tetrachloroethane	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichloropropane	ND	2.8	EPA 8260C	6-6-14	6-6-14	
2-Chlorotoluene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
4-Chlorotoluene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,3-Dichlorobenzene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,4-Dichlorobenzene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dichlorobenzene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromo-3-chloropropane	ND	10	EPA 8260C	6-6-14	6-6-14	
1,2,4-Trichlorobenzene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Hexachlorobutadiene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichlorobenzene	ND	2.0	EPA 8260C	6-6-14	6-6-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*105*	*62-122*				
Toluene-d8	*102*	*70-120*				
4-Bromofluorobenzene	*96*	*71-120*				

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
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Project: 2007-098-998

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	05-254-04					
Dichlorodifluoromethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Chloromethane	ND	50	EPA 8260C	6-6-14	6-6-14	
Vinyl Chloride	ND	10	EPA 8260C	6-6-14	6-6-14	
Bromomethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Chloroethane	ND	50	EPA 8260C	6-6-14	6-6-14	
Trichlorofluoromethane	ND	10	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethene	ND	10	EPA 8260C	6-6-14	6-6-14	
Iodomethane	ND	75	EPA 8260C	6-6-14	6-6-14	
Methylene Chloride	ND	50	EPA 8260C	6-6-14	6-6-14	
(trans) 1,2-Dichloroethene	ND	10	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethane	ND	10	EPA 8260C	6-6-14	6-6-14	
2,2-Dichloropropane	ND	10	EPA 8260C	6-6-14	6-6-14	
(cis) 1,2-Dichloroethene	11	10	EPA 8260C	6-6-14	6-6-14	
Bromochloromethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Chloroform	ND	10	EPA 8260C	6-6-14	6-6-14	
1,1,1-Trichloroethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Carbon Tetrachloride	ND	10	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloropropene	ND	10	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloroethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Trichloroethene	23	10	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloropropane	ND	10	EPA 8260C	6-6-14	6-6-14	
Dibromomethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Bromodichloromethane	ND	10	EPA 8260C	6-6-14	6-6-14	
2-Chloroethyl Vinyl Ether	ND	50	EPA 8260C	6-6-14	6-6-14	
(cis) 1,3-Dichloropropene	ND	10	EPA 8260C	6-6-14	6-6-14	
(trans) 1,3-Dichloropropene	ND	10	EPA 8260C	6-6-14	6-6-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	05-254-04					
1,1,2-Trichloroethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Tetrachloroethene	1000	10	EPA 8260C	6-6-14	6-6-14	
1,3-Dichloropropane	ND	10	EPA 8260C	6-6-14	6-6-14	
Dibromochloromethane	ND	10	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromoethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Chlorobenzene	ND	10	EPA 8260C	6-6-14	6-6-14	
1,1,1,2-Tetrachloroethane	ND	10	EPA 8260C	6-6-14	6-6-14	
Bromoform	ND	50	EPA 8260C	6-6-14	6-6-14	
Bromobenzene	ND	10	EPA 8260C	6-6-14	6-6-14	
1,1,2,2-Tetrachloroethane	ND	10	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichloropropane	ND	14	EPA 8260C	6-6-14	6-6-14	
2-Chlorotoluene	ND	10	EPA 8260C	6-6-14	6-6-14	
4-Chlorotoluene	ND	10	EPA 8260C	6-6-14	6-6-14	
1,3-Dichlorobenzene	ND	10	EPA 8260C	6-6-14	6-6-14	
1,4-Dichlorobenzene	ND	10	EPA 8260C	6-6-14	6-6-14	
1,2-Dichlorobenzene	ND	10	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromo-3-chloropropane	ND	50	EPA 8260C	6-6-14	6-6-14	
1,2,4-Trichlorobenzene	ND	10	EPA 8260C	6-6-14	6-6-14	
Hexachlorobutadiene	ND	10	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichlorobenzene	ND	10	EPA 8260C	6-6-14	6-6-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*62-122*				
Toluene-d8	*92*	*70-120*				
4-Bromofluorobenzene	*97*	*71-120*				

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14D**					
Laboratory ID:	05-254-05					
Dichlorodifluoromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Chloromethane	ND	5.0	EPA 8260C	6-6-14	6-6-14	
Vinyl Chloride	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Bromomethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Chloroethane	ND	5.0	EPA 8260C	6-6-14	6-6-14	
Trichlorofluoromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Iodomethane	ND	7.5	EPA 8260C	6-6-14	6-6-14	
Methylene Chloride	ND	5.0	EPA 8260C	6-6-14	6-6-14	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
2,2-Dichloropropane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(cis) 1,2-Dichloroethene	16	1.0	EPA 8260C	6-6-14	6-6-14	
Bromochloromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Chloroform	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Carbon Tetrachloride	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloropropene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Trichloroethene	3.7	1.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloropropane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Dibromomethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Bromodichloromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
2-Chloroethyl Vinyl Ether	ND	5.0	EPA 8260C	6-6-14	6-6-14	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	6-6-14	6-6-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14D**					
Laboratory ID:	05-254-05					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Tetrachloroethene	100	1.0	EPA 8260C	6-6-14	6-6-14	
1,3-Dichloropropane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Dibromochloromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromoethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Chlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Bromoform	ND	5.0	EPA 8260C	6-6-14	6-6-14	
Bromobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichloropropane	ND	1.4	EPA 8260C	6-6-14	6-6-14	
2-Chlorotoluene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
4-Chlorotoluene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromo-3-chloropropane	ND	5.0	EPA 8260C	6-6-14	6-6-14	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Hexachlorobutadiene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*107*	*62-122*				
Toluene-d8	*96*	*70-120*				
4-Bromofluorobenzene	*101*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	05-254-06					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromomethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Iodomethane	ND	1.5	EPA 8260C	6-6-14	6-6-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
(cis) 1,2-Dichloroethene	0.40	0.20	EPA 8260C	6-6-14	6-6-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloroform	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Trichloroethene	0.94	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Dibromomethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	05-254-06					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Tetrachloroethene	0.97	0.20	EPA 8260C	6-6-14	6-6-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromoform	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Bromobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichloropropane	ND	0.28	EPA 8260C	6-6-14	6-6-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*62-122*				
Toluene-d8	*112*	*70-120*				
4-Bromofluorobenzene	*100*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-1**					
Laboratory ID:	05-254-07					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromomethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Iodomethane	ND	1.5	EPA 8260C	6-6-14	6-6-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloroform	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Trichloroethene	0.22	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Dibromomethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-1**					
Laboratory ID:	05-254-07					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Tetrachloroethene	21	0.20	EPA 8260C	6-6-14	6-6-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromoform	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Bromobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichloropropane	ND	0.28	EPA 8260C	6-6-14	6-6-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*62-122*				
Toluene-d8	*99*	*70-120*				
4-Bromofluorobenzene	*98*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	05-254-08					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromomethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Iodomethane	ND	1.5	EPA 8260C	6-6-14	6-6-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloroform	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Trichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Dibromomethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	

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Samples Submitted: May 30, 2014
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	05-254-08					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromoform	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Bromobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichloropropane	ND	0.28	EPA 8260C	6-6-14	6-6-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*106*	*62-122*				
Toluene-d8	*103*	*70-120*				
4-Bromofluorobenzene	*107*	*71-120*				

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0606W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloromethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromomethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloroethane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Iodomethane	ND	1.5	EPA 8260C	6-6-14	6-6-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chloroform	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Trichloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Dibromomethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-6-14	6-6-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-6-14	6-6-14	

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
Page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0606W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Bromoform	ND	1.0	EPA 8260C	6-6-14	6-6-14	
Bromobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichloropropane	ND	0.28	EPA 8260C	6-6-14	6-6-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-6-14	6-6-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-6-14	6-6-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*62-122*				
Toluene-d8	*101*	*70-120*				
4-Bromofluorobenzene	*100*	*71-120*				

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	**Result**		**Spike Level**		**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
SPIKE BLANKS										
Laboratory ID:	SB0606W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.94**	**8.58**	10.0	10.0	99	86	63-142	15	17	
Benzene	**8.78**	**8.87**	10.0	10.0	88	89	78-125	1	15	
Trichloroethene	**9.35**	**8.85**	10.0	10.0	94	89	80-125	5	15	
Toluene	**9.56**	**9.05**	10.0	10.0	96	91	80-125	5	15	
Chlorobenzene	**9.38**	**9.21**	10.0	10.0	94	92	80-140	2	15	
Surrogate:										
Dibromofluoromethane					*100*	*101*	*62-122*			
Toluene-d8					*101*	*98*	*70-120*			
4-Bromofluorobenzene					*98*	*100*	*71-120*			

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	05-254-01					
Client ID:	**HZMW-15S**					
Arsenic	**ND**	3.3	200.8	6-5-14	6-5-14	
Lab ID:	05-254-02					
Client ID:	**HZMW-15D**					
Arsenic	**ND**	3.3	200.8	6-5-14	6-5-14	
Lab ID:	05-254-03					
Client ID:	**Dup 1**					
Arsenic	**ND**	3.3	200.8	6-5-14	6-5-14	
Lab ID:	05-254-04					
Client ID:	**HZMW-14S**					
Arsenic	**11**	3.3	200.8	6-5-14	6-5-14	
Lab ID:	05-254-05					
Client ID:	**HZMW-14D**					
Arsenic	**ND**	3.3	200.8	6-5-14	6-5-14	
Lab ID:	05-254-06					
Client ID:	**HZMW-19**					
Arsenic	**ND**	3.3	200.8	6-5-14	6-5-14	
Lab ID:	05-254-07					
Client ID:	**HZMW-1**					
Arsenic	**6.3**	3.3	200.8	6-5-14	6-5-14	

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted:	6-5-14
Date Analyzed:	6-5-14
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB0605WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 6-5-14
Date Analyzed: 6-5-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-236-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.3	

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 6-5-14
Date Analyzed: 6-5-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-236-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	**112**	102	**113**	103	1	

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	05-254-01					
Client ID:	**HZMW-15S**					
Arsenic	**ND**	3.0	200.8		6-5-14	
Lab ID:	05-254-02					
Client ID:	**HZMW-15D**					
Arsenic	**ND**	3.0	200.8		6-5-14	
Lab ID:	05-254-03					
Client ID:	**Dup 1**					
Arsenic	**ND**	3.0	200.8		6-5-14	
Lab ID:	05-254-04					
Client ID:	**HZMW-14S**					
Arsenic	**ND**	3.0	200.8		6-5-14	
Lab ID:	05-254-05					
Client ID:	**HZMW-14D**					
Arsenic	**ND**	3.0	200.8		6-5-14	
Lab ID:	05-254-06					
Client ID:	**HZMW-19**					
Arsenic	**ND**	3.0	200.8		6-5-14	
Lab ID:	05-254-07					
Client ID:	**HZMW-1**					
Arsenic	**ND**	3.0	200.8		6-5-14	

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed:	5-29-14
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB0529D1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 5-29-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-209-09

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	

Date of Report: June 12, 2014
Samples Submitted: May 30, 2014
Laboratory Reference: 1405-254
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 5-29-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-209-09

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**202**	101	**206**	103	2	

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-napthalene) 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 method 8260C, 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 - Tetrachloroethene was subtracted from the gasoline result.

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: 05-254

Company: HWA Geo Sciences
Project Number: 2007-098-998
Project Name: Area-Wide Monitoring, Hertz
Project Manager: Arnie Sugar
Sampled by: Norm Nielsen

Turnaround Request (in working days) (Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	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	Total Arsenic	Dissolved Arsenic				% Moisture
1	HZMW-15S	5/29/14	11:21	W	9		X		X		X											X	X				
2	HZMW-15D	5/29/14	13:44				X		X		X											X	X				
3	Dup 1	5/29/14	14:20				X		X		X											X	X				
4	HZ MW-14S	5/29/14	14:35				X		X		X											X	X				
5	HZMW-14D	5/29/14	15:53				X		X		X											X	X				
6	HZ MW-19	5/30/14	8:57				X		X		X											X	X				
7	HZ MW-~~#~~1	5/30/14	11:13				X		X		X											X	X				
8	Trip blank	5/30/14	13:05		2		X				X																

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	[illegible]	HWA GeoSciences	5/30/14	2:36pm	
Received	Pat Miller	SpeeDy	5/30/14	2:36	
Relinquished	Pat Miller	Speedy	5/30/14	3:07	
Received	[illegible]	OSE	5/30/14	1507	
Relinquished					
Received					
Reviewed/Date		Reviewed/Date			Chromatograms with final report ☐

Data Package: Standard ☐ Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

OnSite
Environmental Inc.

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June 17, 2014

Arnie Sugar
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-998
Laboratory Reference No. 1406-082

Dear Arnie:

Enclosed are the analytical results and associated quality control data for samples submitted on June 10, 2014.

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: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

Case Narrative

Samples were collected on June 9 and 10, 2014 and received by the laboratory on June 10, 2014. They were maintained at the laboratory at a temperature of 2^{o}C to 6^{o}C.

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: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	06-082-01					
Benzene	**ND**	4.0	EPA 8021B	6-13-14	6-13-14	
Toluene	**ND**	4.0	EPA 8021B	6-13-14	6-13-14	
Ethyl Benzene	**ND**	4.0	EPA 8021B	6-13-14	6-13-14	
m,p-Xylene	**4.5**	4.0	EPA 8021B	6-13-14	6-13-14	
o-Xylene	**ND**	4.0	EPA 8021B	6-13-14	6-13-14	
Gasoline	**720**	400	NWTPH-Gx	6-13-14	6-13-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*71-112*				
Client ID:	**HZMW-4**					
Laboratory ID:	06-082-02					
Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Toluene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Gasoline	**ND**	100	NWTPH-Gx	6-13-14	6-13-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*71-112*				
Client ID:	**HZMW-17**					
Laboratory ID:	06-082-03					
Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Toluene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Gasoline	**ND**	100	NWTPH-Gx	6-13-14	6-13-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*71-112*				

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-20**					
Laboratory ID:	06-082-04					
Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Toluene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Gasoline	**ND**	100	NWTPH-Gx	6-13-14	6-13-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*71-112*				

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0613W1					
Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Toluene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Gasoline	**ND**	100	NWTPH-Gx	6-13-14	6-13-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*110*	*71-112*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-073-05										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*93*	*103*	*71-112*			
MATRIX SPIKES											
Laboratory ID:	06-082-02										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**54.6**	**54.1**	50.0	50.0	ND	**109**	**108**	78-120	1	12	
Toluene	**56.1**	**55.8**	50.0	50.0	ND	**112**	**112**	80-121	1	12	
Ethyl Benzene	**55.6**	**54.8**	50.0	50.0	ND	**111**	**110**	81-120	1	13	
m,p-Xylene	**55.4**	**54.4**	50.0	50.0	ND	**111**	**109**	81-119	2	13	
o-Xylene	**54.6**	**52.3**	50.0	50.0	ND	**109**	**105**	79-117	4	13	
Surrogate:											
Fluorobenzene						*103*	*105*	*71-112*			

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	06-082-01					
Diesel Range Organics	**ND**	0.64	NWTPH-Dx	6-14-14	6-16-14	U1
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	6-14-14	6-16-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				
Client ID:	**HZMW-4**					
Laboratory ID:	06-082-02					
Diesel Range Organics	**ND**	0.27	NWTPH-Dx	6-14-14	6-16-14	
Lube Oil Range Organics	**ND**	0.43	NWTPH-Dx	6-14-14	6-16-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				
Client ID:	**HZMW-17**					
Laboratory ID:	06-082-03					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	6-14-14	6-16-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	6-14-14	6-16-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				
Client ID:	**HZMW-20**					
Laboratory ID:	06-082-04					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	6-14-14	6-16-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	6-14-14	6-16-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				

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NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
METHOD BLANK						
Laboratory ID:	MB0614W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	6-14-14	6-16-14	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	6-14-14	6-16-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*79*	*50-150*				

Analyte	**Result**		**Spike Level**		**Source Result**	**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
DUPLICATE											
Laboratory ID:	06-082-01										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	U1
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*85*	*89*	*50-150*			

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	06-082-01					
Dichlorodifluoromethane	ND	0.27	EPA 8260C	6-12-14	6-12-14	
Chloromethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromomethane	ND	0.54	EPA 8260C	6-12-14	6-12-14	
Chloroethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Iodomethane	ND	2.4	EPA 8260C	6-12-14	6-12-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(cis) 1,2-Dichloroethene	1.1	0.20	EPA 8260C	6-12-14	6-12-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chloroform	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Trichloroethene	0.67	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromomethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	06-082-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Tetrachloroethene	0.28	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromoform	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Bromobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*62-122*				
Toluene-d8	*116*	*70-120*				
4-Bromofluorobenzene	*108*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-4**					
Laboratory ID:	06-082-02					
Dichlorodifluoromethane	ND	0.27	EPA 8260C	6-12-14	6-12-14	
Chloromethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromomethane	ND	0.54	EPA 8260C	6-12-14	6-12-14	
Chloroethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Iodomethane	ND	2.4	EPA 8260C	6-12-14	6-12-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chloroform	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Trichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromomethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-4**					
Laboratory ID:	06-082-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromoform	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Bromobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*114*	*62-122*				
Toluene-d8	*112*	*70-120*				
4-Bromofluorobenzene	*109*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-17**					
Laboratory ID:	06-082-03					
Dichlorodifluoromethane	ND	0.27	EPA 8260C	6-12-14	6-12-14	
Chloromethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromomethane	ND	0.54	EPA 8260C	6-12-14	6-12-14	
Chloroethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Iodomethane	ND	2.4	EPA 8260C	6-12-14	6-12-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chloroform	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Trichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromomethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-17**					
Laboratory ID:	06-082-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromoform	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Bromobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*110*	*62-122*				
Toluene-d8	*109*	*70-120*				
4-Bromofluorobenzene	*105*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-20**					
Laboratory ID:	06-082-04					
Dichlorodifluoromethane	ND	0.27	EPA 8260C	6-12-14	6-12-14	
Chloromethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromomethane	ND	0.54	EPA 8260C	6-12-14	6-12-14	
Chloroethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Iodomethane	ND	2.4	EPA 8260C	6-12-14	6-12-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chloroform	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Trichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromomethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-20**					
Laboratory ID:	06-082-04					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromoform	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Bromobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*110*	*62-122*				
Toluene-d8	*111*	*70-120*				
4-Bromofluorobenzene	*108*	*71-120*				

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Laboratory Reference: 1406-082
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	06-082-05					
Dichlorodifluoromethane	ND	0.27	EPA 8260C	6-12-14	6-12-14	
Chloromethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromomethane	ND	0.54	EPA 8260C	6-12-14	6-12-14	
Chloroethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Iodomethane	ND	2.4	EPA 8260C	6-12-14	6-12-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chloroform	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Trichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromomethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	06-082-05					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromoform	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Bromobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*113*	*62-122*				
Toluene-d8	*114*	*70-120*				
4-Bromofluorobenzene	*111*	*71-120*				

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
Page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0612W1					
Dichlorodifluoromethane	ND	0.27	EPA 8260C	6-12-14	6-12-14	
Chloromethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromomethane	ND	0.54	EPA 8260C	6-12-14	6-12-14	
Chloroethane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Iodomethane	ND	2.4	EPA 8260C	6-12-14	6-12-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chloroform	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Trichloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromomethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-12-14	6-12-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-12-14	6-12-14	

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0612W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Bromoform	ND	1.0	EPA 8260C	6-12-14	6-12-14	
Bromobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	6-12-14	6-12-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-12-14	6-12-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-12-14	6-12-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*108*	*62-122*				
Toluene-d8	*107*	*70-120*				
4-Bromofluorobenzene	*106*	*71-120*				

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0612W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**8.00**	**8.05**	10.0	10.0	80	81	63-142	1	17	
Benzene	**9.43**	**9.52**	10.0	10.0	94	95	78-125	1	15	
Trichloroethene	**8.80**	**8.72**	10.0	10.0	88	87	80-125	1	15	
Toluene	**10.0**	**10.0**	10.0	10.0	100	100	80-125	0	15	
Chlorobenzene	**9.39**	**9.69**	10.0	10.0	94	97	80-140	3	15	
Surrogate:										
Dibromofluoromethane					*110*	*109*	*62-122*			
Toluene-d8					*108*	*110*	*70-120*			
4-Bromofluorobenzene					*106*	*108*	*71-120*			

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	06-082-01					
Client ID:	**HZMW-19**					
Arsenic	**ND**	3.3	200.8	6-11-14	6-11-14	
Lab ID:	06-082-02					
Client ID:	**HZMW-4**					
Arsenic	**17**	3.3	200.8	6-11-14	6-11-14	
Lab ID:	06-082-03					
Client ID:	**HZMW-17**					
Arsenic	**ND**	3.3	200.8	6-11-14	6-11-14	
Lab ID:	06-082-04					
Client ID:	**HZMW-20**					
Arsenic	**ND**	3.3	200.8	6-11-14	6-11-14	

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 6-11-14
Date Analyzed: 6-11-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0611WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 6-11-14
Date Analyzed: 6-11-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 06-039-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.3	

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 6-11-14
Date Analyzed: 6-11-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 06-039-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	**113**	103	**113**	103	0	

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	06-082-01					
Client ID:	**HZMW-19**					
Arsenic	**ND**	3.0	200.8		6-11-14	
Lab ID:	06-082-02					
Client ID:	**HZMW-4**					
Arsenic	**ND**	3.0	200.8		6-11-14	
Lab ID:	06-082-03					
Client ID:	**HZMW-17**					
Arsenic	**ND**	3.0	200.8		6-11-14	
Lab ID:	06-082-04					
Client ID:	**HZMW-20**					
Arsenic	**ND**	3.0	200.8		6-11-14	

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed:	6-11-14
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB0605F1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 6-11-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 06-039-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	

Date of Report: June 17, 2014
Samples Submitted: June 10, 2014
Laboratory Reference: 1406-082
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 6-11-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 06-039-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**207**	103	**204**	102	1	

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-napthalene) 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 method 8260C, 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

Page 1 of 1

Laboratory Number: 06-082

Company: HWA GeoSciences
Project Number: 2007-098-998
Project Name: Area Wide Monitoring, Hertz
Project Manager: Arnie Sugar
Sampled by: Norm Nielsen

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	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	Total Arsenic	Dissolved Arsenic				% Moisture
1	HZMW-19	6/9/14	11:21	W	9		X		X		X											X	X				
2	HZMW-4	6/9/14	12:58	W	9		X		X		X											X	X				
3	HZMW-17	6/9/14	14:24	W	9		X		X		X											X	X				
4	HZMW-20	6/9/14	15:43	W	9		X		X		X											X	X				
5	Trip Blank	6/10/14	10:05	W	2						X																

	Signature	Company	Date	Time
Relinquished	[signature]	HWA GeoSciences	6/10/14	1:34pm
Received	[signature]	SPEEDY MSG	6/10/14	1:34
Relinquished	[signature]	SPEEDY MSG	6/10/14	2:01
Received	[signature]	OSE	6/10/14	1401
Relinquished				
Received				

Comments/Special Instructions:

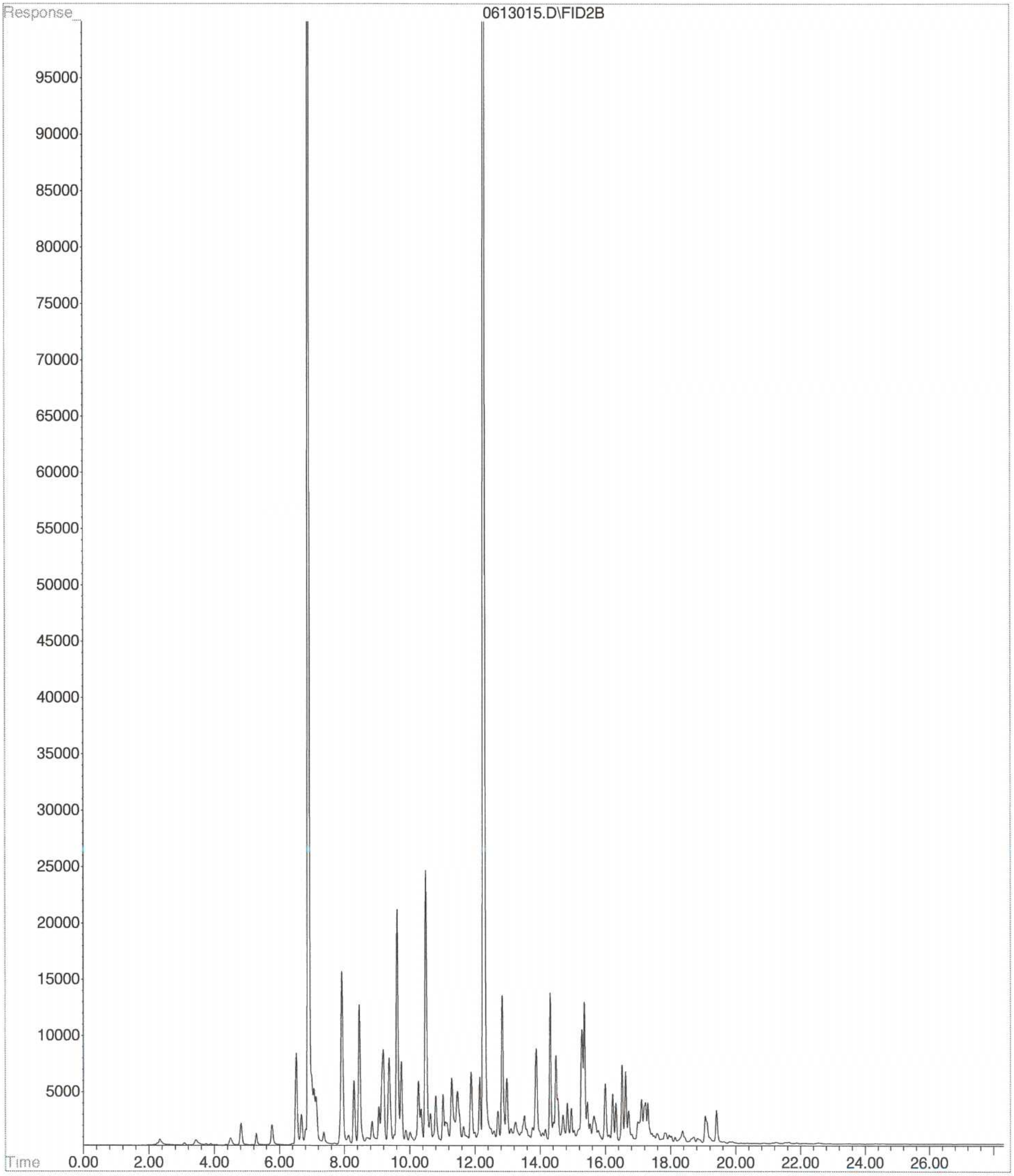
Reviewed/Date

Reviewed/Date

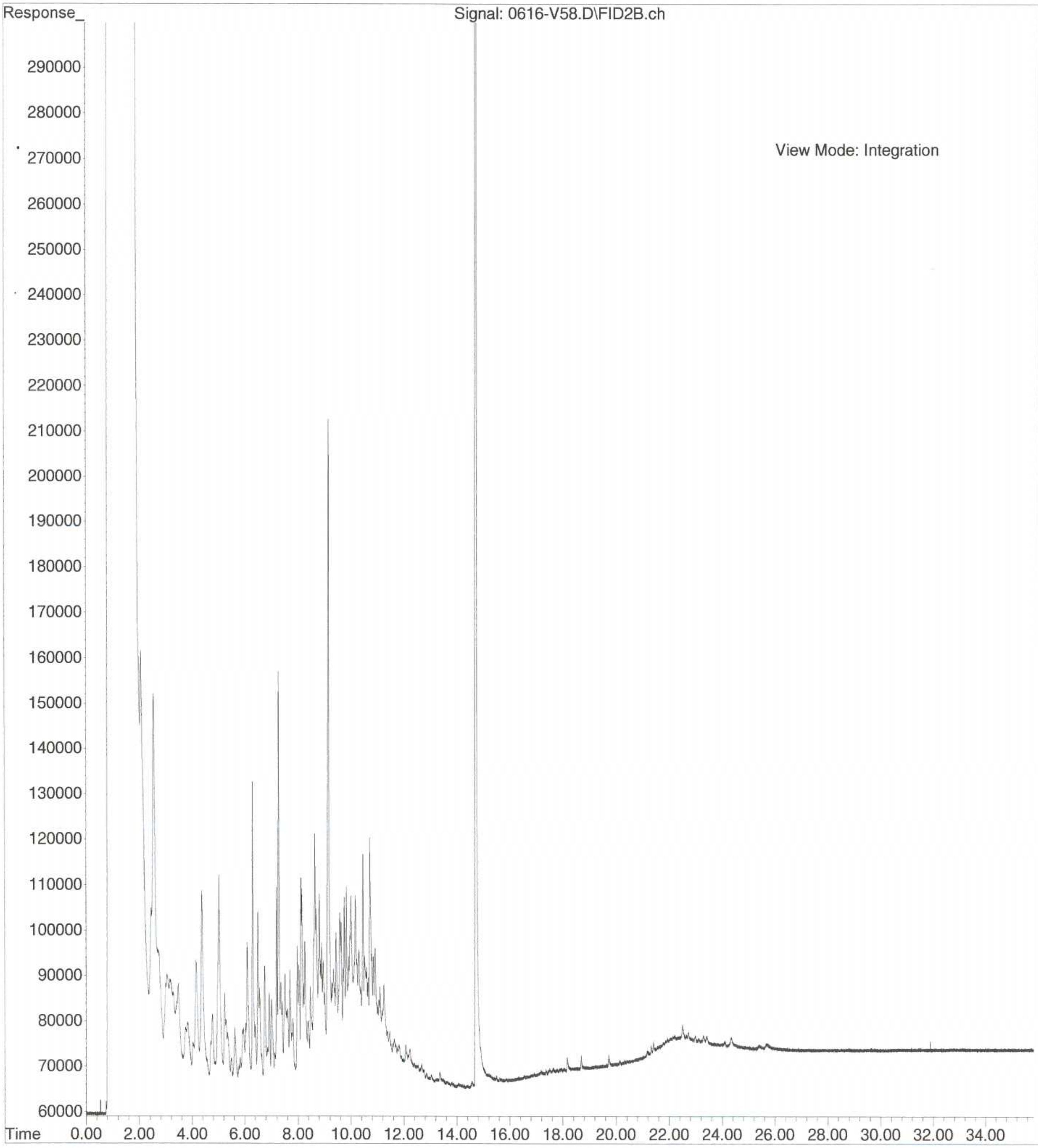
Chromatograms with final report ☐

Data Package: Standard ☐ Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

File   : X:\BTEX\DARYL\DATA\D140613\0613015.D
Operator   :
Acquired   : 13 Jun 2014 20:35   using AcqMethod 140519B.M
Instrument :   Daryl
Sample Name: 06-082-01g 1:4
Misc Info   : V2-34-18
Vial Number: 15



File   :X:\DIESELS\VIGO\DATA\V140616.SEC\0616-V58.D
Operator   :
Acquired   : 16 Jun 2014   18:07   using AcqMethod V140210F.M
Instrument :   Vigo
Sample Name: 06-082-01
Misc Info   :
Vial Number: 58



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

June 18, 2014

Arnie Sugar
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-998
Laboratory Reference No. 1406-117

Dear Arnie:

Enclosed are the analytical results and associated quality control data for samples submitted on June 12, 2014.

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: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

Case Narrative

Samples were collected on June 10, 2014 and received by the laboratory on June 12, 2014. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH-Gx/BTEX and Halogenated Volatiles EPA 8260C Analysis

All of the VOA vials provided for sample HZMW-18 contained headspace. Some loss of volatiles may have occurred.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-18**					
Laboratory ID:	06-117-01					
Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Toluene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Gasoline	**ND**	100	NWTPH-Gx	6-13-14	6-13-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*71-112*				
Client ID:	**BC-16**					
Laboratory ID:	06-117-02					
Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Toluene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Gasoline	**ND**	100	NWTPH-Gx	6-13-14	6-13-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*71-112*				
Client ID:	**HZMW-12**					
Laboratory ID:	06-117-03					
Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Toluene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Gasoline	**ND**	100	NWTPH-Gx	6-13-14	6-13-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*71-112*				

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NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0613W2					
Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Toluene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
o-Xylene	**ND**	1.0	EPA 8021B	6-13-14	6-13-14	
Gasoline	**ND**	100	NWTPH-Gx	6-13-14	6-13-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*71-112*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-082-02										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*103*	*110*	*71-112*			
MATRIX SPIKES											
Laboratory ID:	06-082-02										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**54.6**	**54.1**	50.0	50.0	ND	**109**	**108**	78-120	1	12	
Toluene	**56.1**	**55.8**	50.0	50.0	ND	**112**	**112**	80-121	1	12	
Ethyl Benzene	**55.6**	**54.8**	50.0	50.0	ND	**111**	**110**	81-120	1	13	
m,p-Xylene	**55.4**	**54.4**	50.0	50.0	ND	**111**	**109**	81-119	2	13	
o-Xylene	**54.6**	**52.3**	50.0	50.0	ND	**109**	**105**	79-117	4	13	
Surrogate:											
Fluorobenzene						*103*	*105*	*71-112*			

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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-18**					
Laboratory ID:	06-117-01					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	6-14-14	6-16-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	6-14-14	6-16-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				
Client ID:	**BC-16**					
Laboratory ID:	06-117-02					
Diesel Range Organics	**0.47**	0.28	NWTPH-Dx	6-14-14	6-17-14	
Lube Oil	**0.51**	0.44	NWTPH-Dx	6-14-14	6-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				
Client ID:	**HZMW-12**					
Laboratory ID:	06-117-03					
Diesel Range Organics	**0.43**	0.25	NWTPH-Dx	6-14-14	6-17-14	
Lube Oil	**0.55**	0.41	NWTPH-Dx	6-14-14	6-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				

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NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0614W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	6-14-14	6-16-14	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	6-14-14	6-16-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*79*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-102-11										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*91*	*94*	*50-150*			

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-18**					
Laboratory ID:	06-117-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chloromethane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromomethane	ND	0.35	EPA 8260C	6-17-14	6-17-14	
Chloroethane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Iodomethane	ND	2.1	EPA 8260C	6-17-14	6-17-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-17-14	6-17-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chloroform	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Trichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Dibromomethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-17-14	6-17-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-18**					
Laboratory ID:	06-117-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromoform	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Bromobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*62-122*				
Toluene-d8	*94*	*70-120*				
4-Bromofluorobenzene	*93*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-16**					
Laboratory ID:	06-117-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chloromethane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromomethane	ND	0.35	EPA 8260C	6-17-14	6-17-14	
Chloroethane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Iodomethane	ND	2.1	EPA 8260C	6-17-14	6-17-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-17-14	6-17-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chloroform	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Trichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Dibromomethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-17-14	6-17-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-16**					
Laboratory ID:	06-117-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromoform	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Bromobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*62-122*				
Toluene-d8	*98*	*70-120*				
4-Bromofluorobenzene	*95*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-12**					
Laboratory ID:	06-117-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chloromethane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromomethane	ND	0.35	EPA 8260C	6-17-14	6-17-14	
Chloroethane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Iodomethane	ND	2.1	EPA 8260C	6-17-14	6-17-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-17-14	6-17-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chloroform	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Trichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Dibromomethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-17-14	6-17-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-12**					
Laboratory ID:	06-117-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromoform	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Bromobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*62-122*				
Toluene-d8	*97*	*70-120*				
4-Bromofluorobenzene	*98*	*71-120*				

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METHOD BLANK QUALITY CONTROL
Page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0617W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chloromethane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Vinyl Chloride	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromomethane	ND	0.35	EPA 8260C	6-17-14	6-17-14	
Chloroethane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Iodomethane	ND	2.1	EPA 8260C	6-17-14	6-17-14	
Methylene Chloride	ND	1.0	EPA 8260C	6-17-14	6-17-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromochloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chloroform	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Trichloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Dibromomethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromodichloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	6-17-14	6-17-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	6-17-14	6-17-14	

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
Page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0617W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Tetrachloroethene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Dibromochloromethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Chlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Bromoform	ND	1.0	EPA 8260C	6-17-14	6-17-14	
Bromobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	6-17-14	6-17-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	6-17-14	6-17-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	6-17-14	6-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*62-122*				
Toluene-d8	*96*	*70-120*				
4-Bromofluorobenzene	*100*	*71-120*				

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0617W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.29**	**8.84**	10.0	10.0	93	88	63-142	5	17	
Benzene	**9.10**	**8.60**	10.0	10.0	91	86	78-125	6	15	
Trichloroethene	**8.02**	**7.55**	10.0	10.0	80	76	75-125	6	15	
Toluene	**9.38**	**8.81**	10.0	10.0	94	88	80-125	6	15	
Chlorobenzene	**9.07**	**8.63**	10.0	10.0	91	86	80-140	5	15	
Surrogate:										
Dibromofluoromethane					*92*	*92*	*62-122*			
Toluene-d8					*95*	*94*	*70-120*			
4-Bromofluorobenzene					*95*	*95*	*71-120*			

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	06-117-01					
Client ID:	**HZMW-18**					
Arsenic	**8.5**	3.3	200.8	6-13-14	6-16-14	
Lab ID:	06-117-02					
Client ID:	**BC-16**					
Arsenic	**60**	3.3	200.8	6-13-14	6-16-14	
Lab ID:	06-117-03					
Client ID:	**HZMW-12**					
Arsenic	**14**	3.3	200.8	6-13-14	6-16-14	

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 6-13-14
Date Analyzed: 6-16-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0613WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 6-13-14
Date Analyzed: 6-16-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 06-117-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**8.51**	**8.30**	3	3.3	

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 6-13-14
Date Analyzed: 6-16-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 06-117-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	**126**	106	**126**	107	1	

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	06-117-01					
Client ID:	**HZMW-18**					
Arsenic	**8.1**	3.0	200.8		6-16-14	
Lab ID:	06-117-02					
Client ID:	**BC-16**					
Arsenic	**18**	3.0	200.8		6-16-14	
Lab ID:	06-117-03					
Client ID:	**HZMW-12**					
Arsenic	**13**	3.0	200.8		6-16-14	

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed: 6-16-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0611F1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 6-16-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 06-117-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**8.05**	**8.35**	4	3.0	

Date of Report: June 18, 2014
Samples Submitted: June 12, 2014
Laboratory Reference: 1406-117
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 6-16-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 06-117-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**220**	106	**224**	108	2	

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-napthalene) 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 method 8260C, 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: 06-117

Company: HWA GeoSciences
Project Number: 2007-098-998
Project Name: AreaWide Monitoring, Hertz
Project Manager: Arnie Sagar
Sampled by: Norm Nielsen

Turnaround Request (in working days) (Check One)

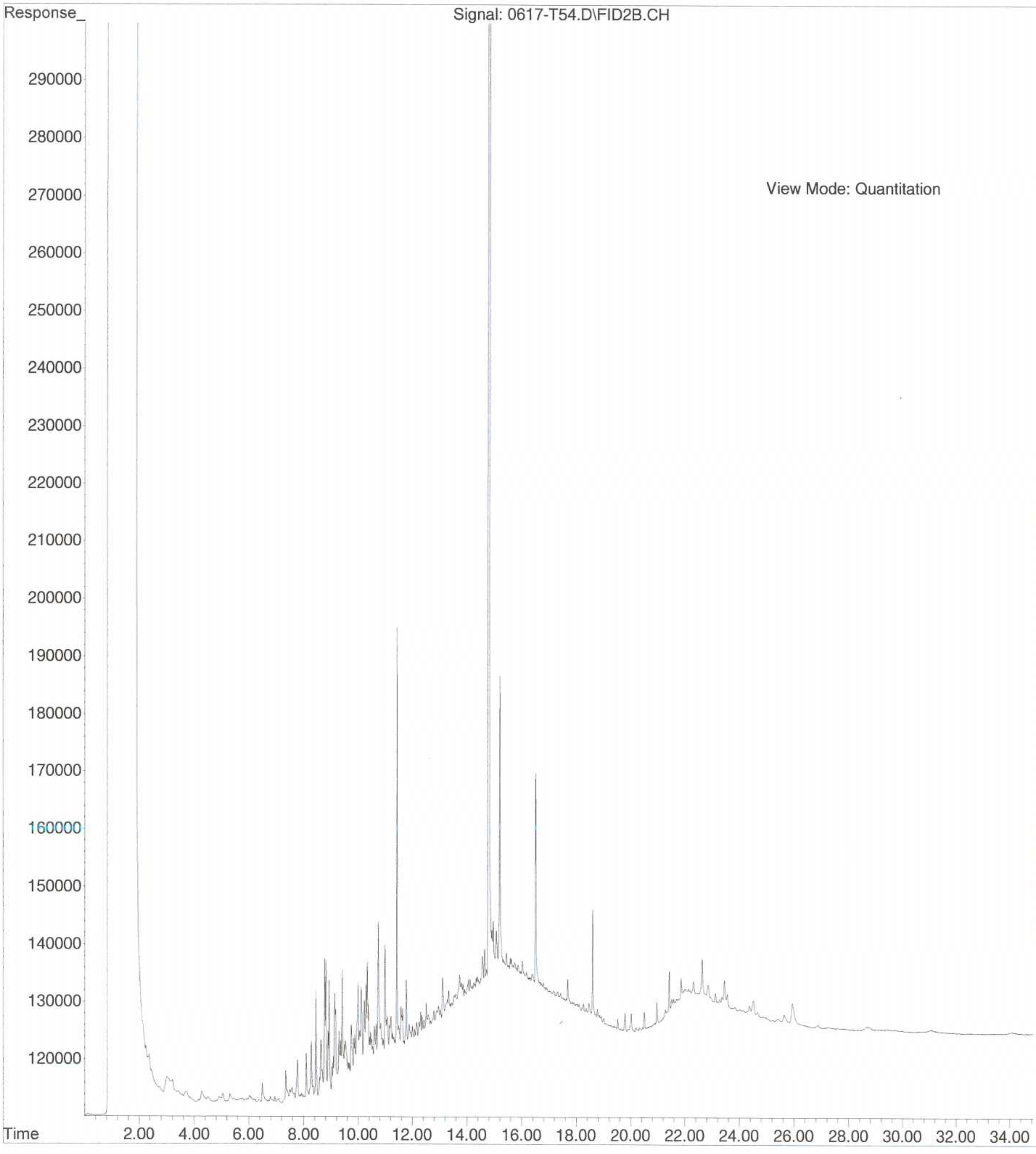
- ☐ Same Day ☐ 1 Day
- ☐ 2 Days ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	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	Total Arsenic	Dissolved Arsenic				% Moisture
1	HZMW-18	6/10/14	11:02	W	9		X		X		X											X	X				
2	BC-16	6/10/14	13:57	↓	↓		X		X		X											X	X				
3	HZ MW-12	6/10/14	15:29	↓	↓		X		X		X											X	X				

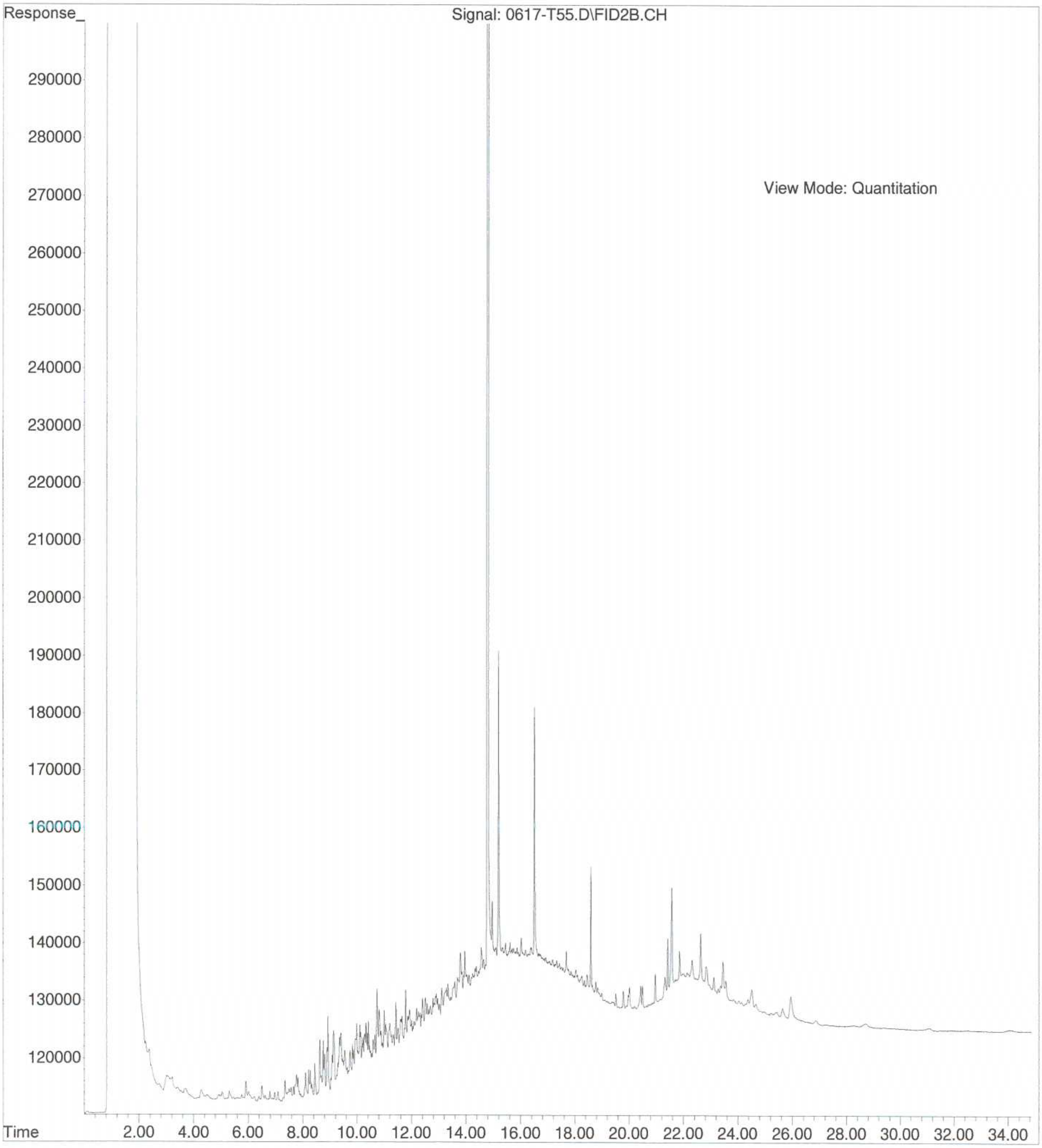
	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	[signature]	HWA GeoSciences	6/12/14	1:53pm	
Received	Pat Miller	Speedy	6-12-14	1:55	
Relinquished	Pat Miller	Speedy	6-12-14	2:35	
Received	[signature]	OSE	6/12/14	1435	
Relinquished					
Received					
Reviewed/Date		Reviewed/Date			Chromatograms with final report ☐

Data Package: Standard ☐ Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

```
File         :X:\DIESELS\TERI\DATA\T140617.SEC\0617-T54.D
Operator     : ZT
Acquired     : 17 Jun 2014  12:45     using AcqMethod T140401F.M
Instrument :   Teri
Sample Name: 06-117-02 RC
Misc Info  :
Vial Number: 54
```



File   :X:\DIESELS\TERI\DATA\T140617.SEC\0617-T55.D
Operator   : ZT
Acquired   : 17 Jun 2014 13:28   using AcqMethod T140401F.M
Instrument :   Teri
Sample Name: 06-117-03 RC
Misc Info :
Vial Number: 55



OnSite Environmental Inc.

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

October 6, 2014

Arnie Sugar
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-998
Laboratory Reference No. 1409-149B

Dear Arnie:

Enclosed are the analytical results and associated quality control data for samples submitted on September 15, 2014.

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 6, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149B
Project: 2007-098-998

Case Narrative

Samples were collected on September 12, and 13, 2014 and received by the laboratory on September 15, 2014. They were maintained at the laboratory at a temperature of 2^{o}C to 6^{o}C.

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 6, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149B
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-149-04					
Client ID:	**HZMW-12**					
Arsenic	**12**	3.3	200.8	10-2-14	10-2-14	
Lab ID:	09-149-12					
Client ID:	**BC-16**					
Arsenic	**64**	3.3	200.8	10-2-14	10-2-14	

Date of Report: October 6, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149B
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 10-2-14
Date Analyzed: 10-2-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB1002WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3

Date of Report: October 6, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149B
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 10-2-14
Date Analyzed: 10-2-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 09-148-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**6.27**	**6.07**	3	3.3	

Date of Report: October 6, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149B
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 10-2-14
Date Analyzed: 10-2-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 09-148-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	111	**130**	112	**129**	111	1	

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-napthalene) 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 method 8260C, 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 - The gasoline result is attributed to a single peak (Tetrachloroethene).

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

HWA GEOSCIENCES INC.
21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

09-149

Chain of Custody and Laboratory Anaylsis Request

DATE: ______
PAGE: 1 of 1

PROJECT NAME: Bothell Hertz #: ~~2007082008~~ 1998
SAMPLERS NAME: Kstilson PHONE:
SAMPLERS SIGNATURE: KAtt DATE: 9/13/14
HWA CONTACT: Arnie Sugar PHONE:

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCs	TPH-G	Dx	BTEX	Total Met AS	Diss Met AS	Arsenic DA	Total Met*	Diss Met*	As, Cd, Cr, Pb					EDD	REMARKS
~~BC-16~~					(KS)																Run Diss Metal
HZMW-14S	9/11/14	200	W	1	9	\	\	\	\				\	\	\						Archive total
HZMW-14D	9/11/14	1245		2	9	\	\	\	\				\	\	\						
HZMW-16	9/12/14	1000		3	9	\	\	\	\	\	\	\									HZMW14S
HZMW-12		1045		4	9	\	\	\	\	(X)	\	\									HZMW14D
HZMW-19		1215		5	9	\	\	\	\	\	\	\									HZMW15S
HZMW-1		115		6	9	\	\	\	\	\	\	\									HZMW15D
HZMW-4		245		7	9	\	\	\	\	\	\	\									*metals include
HZ MW-17		400		8	9	\	\	\	\	\	\	\									As, Cd, Cr, Pb
HZMW-20	9/13/14	1100		9	9	\	\	\	\	\	\	\									
HZMW-15S		1230		10	9	\	\	\	\				\	\	\						
HZMW15D		115		11	9	\	\	\	\				\	\	\						All other
BC-16		230		12	9	\	\	\	\	(X)	\										samples
																					just run
																					Arsenic

TURNAROUND TIME
☐ DAYS
☒ STANDARD

(X) Added 9/29 ~~JC~~ STA

PRINT NAME		SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	KAtile	KAt	HWA	9/15	1200	
Received by:	Van	Spdy Van	Spdy	11	345	
Relinquished by:	11	11	11	11	1615	
Received by:	M.VOUN		OSE	9/15/14	1615	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 26, 2014

Arnie Sugar
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-998
Laboratory Reference No. 1409-149

Dear Arnie:

Enclosed are the analytical results and associated quality control data for samples submitted on September 15, 2014.

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: September 26, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149
Project: 2007-098-998

Case Narrative

Samples were collected on September 11, 12, and 13, 2014 and received by the laboratory on September 15, 2014. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

As per client's request, the Tetrachloroethene peak was subtracted from the gasoline results for samples HZMW-14S, HZMW-14D, HZMW-15S and HZMW-15D.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

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Samples Submitted: September 15, 2014
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	09-149-01					
Dichlorodifluoromethane	ND	20	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	100	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	20	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	31	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	100	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	20	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	180	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	100	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	20	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	20	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	78	20	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	20	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	20	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	20	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	20	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	96	20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	20	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	20	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	20	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	100	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	20	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	20	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	09-149-01					
1,1,2-Trichloroethane	ND	20	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	4900	20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	20	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	20	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	20	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	20	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	100	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	20	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	20	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	20	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	20	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	100	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	20	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	20	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*62-122*				
Toluene-d8	*104*	*70-120*				
4-Bromofluorobenzene	*100*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14D**					
Laboratory ID:	09-149-02					
Dichlorodifluoromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	5.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	1.6	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	5.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	9.0	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	5.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	17	1.0	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	3.2	1.0	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	5.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14D**					
Laboratory ID:	09-149-02					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	100	1.0	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	5.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	5.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*62-122*				
Toluene-d8	*100*	*70-120*				
4-Bromofluorobenzene	*98*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	09-149-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	0.31	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	1.8	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	09-149-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	4.2	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*62-122*				
Toluene-d8	*101*	*70-120*				
4-Bromofluorobenzene	*98*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-12**					
Laboratory ID:	09-149-04					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	0.31	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	1.8	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-12**					
Laboratory ID:	09-149-04					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	2.6	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*62-122*				
Toluene-d8	*100*	*70-120*				
4-Bromofluorobenzene	*96*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
Client ID:	**HZMW-19**					
Laboratory ID:	09-149-05					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	0.31	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	1.8	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	0.67	0.20	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	0.76	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	09-149-05					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	3.3	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*62-122*				
Toluene-d8	*103*	*70-120*				
4-Bromofluorobenzene	*97*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-1**					
Laboratory ID:	09-149-06					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	0.31	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	1.8	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	0.33	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-1**					
Laboratory ID:	09-149-06					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	33	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*62-122*				
Toluene-d8	*103*	*70-120*				
4-Bromofluorobenzene	*101*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-4**					
Laboratory ID:	09-149-07					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	0.31	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	1.8	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-4**					
Laboratory ID:	09-149-07					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	2.6	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*62-122*				
Toluene-d8	*99*	*70-120*				
4-Bromofluorobenzene	*97*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-17**					
Laboratory ID:	09-149-08					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	0.31	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	1.8	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-17**					
Laboratory ID:	09-149-08					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	2.0	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*62-122*				
Toluene-d8	*99*	*70-120*				
4-Bromofluorobenzene	*97*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-20**					
Laboratory ID:	09-149-09					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	0.31	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	1.8	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-20**					
Laboratory ID:	09-149-09					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	1.3	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*62-122*				
Toluene-d8	*99*	*70-120*				
4-Bromofluorobenzene	*94*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	09-149-10					
Dichlorodifluoromethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	10	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	3.1	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	10	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	18	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	10	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	12	2.0	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	19	2.0	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	10	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	2.0	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	09-149-10					
1,1,2-Trichloroethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	400	2.0	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	10	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	10	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*62-122*				
Toluene-d8	*103*	*70-120*				
4-Bromofluorobenzene	*97*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15D**					
Laboratory ID:	09-149-11					
Dichlorodifluoromethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	0.62	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	3.6	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	2.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	4.5	0.40	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	6.9	0.40	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	2.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	0.40	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15D**					
Laboratory ID:	09-149-11					
1,1,2-Trichloroethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	93	0.40	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	2.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	0.40	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	2.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	0.40	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*108*	*62-122*				
Toluene-d8	*107*	*70-120*				
4-Bromofluorobenzene	*100*	*71-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-16**					
Laboratory ID:	09-149-12					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	0.31	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	1.8	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-16**					
Laboratory ID:	09-149-12					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	1.4	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*106*	*62-122*				
Toluene-d8	*99*	*70-120*				
4-Bromofluorobenzene	*95*	*71-120*				

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HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0919W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloromethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Vinyl Chloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromomethane	ND	0.31	EPA 8260C	9-19-14	9-19-14	
Chloroethane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Iodomethane	ND	1.8	EPA 8260C	9-19-14	9-19-14	
Methylene Chloride	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chloroform	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Trichloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromomethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromodichloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	9-19-14	9-19-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	9-19-14	9-19-14	

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Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0919W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Tetrachloroethene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Dibromochloromethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Chlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Bromoform	ND	1.0	EPA 8260C	9-19-14	9-19-14	
Bromobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	9-19-14	9-19-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	9-19-14	9-19-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*62-122*				
Toluene-d8	*102*	*70-120*				
4-Bromofluorobenzene	*99*	*71-120*				

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HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	Spike Level	Percent Recovery	Recovery Limits	Flags
SPIKE BLANK					
Laboratory ID:	SB0919W1				
1,1-Dichloroethene	**8.98**	10.0	90	63-142	
Benzene	**9.09**	10.0	91	78-125	
Trichloroethene	**8.33**	10.0	83	74-125	
Toluene	**8.69**	10.0	87	80-125	
Chlorobenzene	**9.30**	10.0	93	80-140	
Surrogate:					
Dibromofluoromethane			*99*	*62-122*	
Toluene-d8			*98*	*70-120*	
4-Bromofluorobenzene			*96*	*71-120*	

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Project: 2007-098-998

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	09-149-01					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*88*	*71-112*				
Client ID:	**HZMW-14D**					
Laboratory ID:	09-149-02					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*71-112*				
Client ID:	**HZMW-16**					
Laboratory ID:	09-149-03					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*89*	*71-112*				

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-12**					
Laboratory ID:	09-149-04					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*83*	*71-112*				
Client ID:	**HZMW-19**					
Laboratory ID:	09-149-05					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**5.8**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**1.2**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**510**	100	NWTPH-Gx	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*82*	*71-112*				
Client ID:	**HZMW-1**					
Laboratory ID:	09-149-06					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*71-112*				

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-4**					
Laboratory ID:	09-149-07					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*71-112*				
Client ID:	**HZMW-17**					
Laboratory ID:	09-149-08					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*83*	*71-112*				
Client ID:	**HZMW-20**					
Laboratory ID:	09-149-09					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*85*	*71-112*				

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	09-149-10					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*87*	*71-112*				
Client ID:	**HZMW-15D**					
Laboratory ID:	09-149-11					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*89*	*71-112*				
Client ID:	**BC-16**					
Laboratory ID:	09-149-12					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*83*	*71-112*				

Date of Report: September 26, 2014
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Project: 2007-098-998

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0919W1					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*89*	*71-112*				
Laboratory ID:	MB0919W2					
Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Toluene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
o-Xylene	**ND**	1.0	EPA 8021B	9-19-14	9-19-14	
Gasoline	**ND**	100	NWTPH-Gx	9-19-14	9-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*89*	*71-112*				

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NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-149-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**1610**	**1600**	NA	NA		NA		NA	1	30	
Surrogate:											
Fluorobenzene						*88*	*92*	*71-112*			
DUPLICATE											
Laboratory ID:	09-149-02										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**198**	**161**	NA	NA		NA		NA	21	30	
Surrogate:											
Fluorobenzene						*91*	*89*	*71-112*			
MATRIX SPIKES											
Laboratory ID:	09-149-02										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**56.4**	**54.2**	50.0	50.0	ND	**113**	**108**	78-120	4	12	
Toluene	**55.8**	**53.6**	50.0	50.0	ND	**112**	**107**	80-121	4	12	
Ethyl Benzene	**55.0**	**52.9**	50.0	50.0	ND	**110**	**106**	81-120	4	13	
m,p-Xylene	**54.5**	**52.4**	50.0	50.0	ND	**109**	**105**	81-119	4	13	
o-Xylene	**54.6**	**52.7**	50.0	50.0	ND	**109**	**105**	79-117	4	13	
Surrogate:											
Fluorobenzene						*100*	*100*	*71-112*			

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Project: 2007-098-998

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	09-149-01					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*78*	*50-150*				
Client ID:	**HZMW-14D**					
Laboratory ID:	09-149-02					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*94*	*50-150*				
Client ID:	**HZMW-16**					
Laboratory ID:	09-149-03					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				
Client ID:	**HZMW-12**					
Laboratory ID:	09-149-04					
Diesel Range Organics	**0.38**	0.26	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*80*	*50-150*				
Client ID:	**HZMW-19**					
Laboratory ID:	09-149-05					
Diesel Range Organics	**0.68**	0.25	NWTPH-Dx	9-18-14	9-18-14	M
Lube Oil Range Organics	**0.43**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*102*	*50-150*				
Client ID:	**HZMW-1**					
Laboratory ID:	09-149-06					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*106*	*50-150*				

Date of Report: September 26, 2014
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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-4**					
Laboratory ID:	09-149-07					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**HZMW-17**					
Laboratory ID:	09-149-08					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				
Client ID:	**HZMW-20**					
Laboratory ID:	09-149-09					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				
Client ID:	**HZMW-15S**					
Laboratory ID:	09-149-10					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**HZMW-15D**					
Laboratory ID:	09-149-11					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*91*	*50-150*				
Client ID:	**BC-16**					
Laboratory ID:	09-149-12					
Diesel Range Organics	**0.47**	0.26	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.42	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*91*	*50-150*				

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NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0918W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	9-18-14	9-18-14	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	9-18-14	9-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*90*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-148-01										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*88*	*90*	*50-150*			
DUPLICATE											
Laboratory ID:	09-149-01										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*78*	*93*	*50-150*			

Date of Report: September 26, 2014
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DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-149-01					
Client ID:	**HZMW-14S**					
Arsenic	**ND**	3.0	200.8		9-22-14	
Cadmium	**ND**	4.0	200.8		9-22-14	
Chromium	**ND**	10	200.8		9-22-14	
Lead	**ND**	1.0	200.8		9-22-14	
Lab ID:	09-149-02					
Client ID:	**HZMW-14D**					
Arsenic	**ND**	3.0	200.8		9-22-14	
Cadmium	**ND**	4.0	200.8		9-22-14	
Chromium	**ND**	10	200.8		9-22-14	
Lead	**ND**	1.0	200.8		9-22-14	

Date of Report: September 26, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-149-03					
Client ID:	**HZMW-16**					
Arsenic	**ND**	3.0	200.8		9-22-14	
Lab ID:	09-149-04					
Client ID:	**HZMW-12**					
Arsenic	**12**	3.0	200.8		9-22-14	
Lab ID:	09-149-05					
Client ID:	**HZMW-19**					
Arsenic	**ND**	3.0	200.8		9-22-14	
Lab ID:	09-149-06					
Client ID:	**HZMW-1**					
Arsenic	**ND**	3.0	200.8		9-22-14	
Lab ID:	09-149-07					
Client ID:	**HZMW-4**					
Arsenic	**ND**	3.0	200.8		9-22-14	
Lab ID:	09-149-08					
Client ID:	**HZMW-17**					
Arsenic	**ND**	3.0	200.8		9-22-14	

Date of Report: September 26, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-149-09					
Client ID:	**HZMW-20**					
Arsenic	**ND**	3.0	200.8		9-22-14	
Lab ID:	09-149-10					
Client ID:	**HZMW-15S**					
Arsenic	**ND**	3.0	200.8		9-22-14	
Cadmium	**ND**	4.0	200.8		9-25-14	
Chromium	**ND**	10	200.8		9-22-14	
Lead	**ND**	1.0	200.8		9-22-14	
Lab ID:	09-149-11					
Client ID:	**HZMW-15D**					
Arsenic	**ND**	3.0	200.8		9-22-14	
Cadmium	**ND**	4.0	200.8		9-22-14	
Chromium	**ND**	10	200.8		9-22-14	
Lead	**ND**	1.0	200.8		9-22-14	
Lab ID:	09-149-12					
Client ID:	**BC-16**					
Arsenic	**31**	3.0	200.8		9-22-14	

Date of Report: September 26, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Filtered: 1-0-00
Date Analyzed: 9-22-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0922D1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0
Cadmium	200.8	**ND**	4.0
Chromium	200.8	**ND**	10
Lead	200.8	**ND**	1.0

Date of Report: September 26, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Filtered: 1-0-00
Date Analyzed: 9-22-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 09-149-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	
Cadmium	**ND**	**ND**	NA	4.0	
Chromium	**ND**	**ND**	NA	10	
Lead	**ND**	**ND**	NA	1.0	

Date of Report: September 26, 2014
Samples Submitted: September 15, 2014
Laboratory Reference: 1409-149
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Filtered: 1-0-00
Date Analyzed: 9-22-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 09-149-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**216**	108	**216**	108	0	
Cadmium	200	**222**	111	**221**	111	0	
Chromium	200	**197**	98	**202**	101	3	
Lead	200	**198**	99	**204**	102	3	

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-napthalene) 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 method 8260C, 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 - The Tetrachloroethene peak was subtracted from the gasoline result.

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

HWA GEOSCIENCES INC.
21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

09-149

Chain of Custody and Laboratory Anaylsis Request

DATE: ______ PAGE: 1 of 1

PROJECT NAME: Bothell Hertz #: ~~2007018208~~ 998
SAMPLERS NAME: Kstilson PHONE:
SAMPLERS SIGNATURE: K Atl DATE: 9/13/14
HWA CONTACT: Arnie Sugar PHONE:

TURNAROUND TIME
☐ DAYS
☒ STANDARD

ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCs	TPH-G	Dx	BTEX	Total Met	Diss Met	Arsenic	Total Met*	Diss Met*	As, Cd, Cr, Pb					EDD	REMARKS
~~BC-16~~					KS																Run Diss Metal Archive total
HZMW-14S	9/11/14	200	W	1	9	\	\	\	\				\	\	\						
HZMW-14D	9/11/14	1245		2	9	\	\	\	\				\	\	\						
HZMW-16	9/12/14	1000		3	9	\	\	\	\	\	\	\									HZMW14S
HZMW-12		1045		4	9	\	\	\	\	\	\	\									HZMW14D
HZMW-19		1215		5	9	\	\	\	\	\	\	\									HZMW15S
HZMW-1		115		6	9	\	\	\	\	\	\	\									HZMW15D
HZMW-4		245		7	9	\	\	\	\	\	\	\									*metals include
HZ MW-17		400		8	9	\	\	\	\	\	\	\									As, Cd, Cr, Pb
HZMW-20	9/13/14	1100		9	9	\	\	\	\	\	\	\									
HZMW-15S		1230		10	9	\	\	\	\				\	\	\						
HZMW15D		115		11	9	\	\	\	\				\	\	\						All other
BC-16		230		12	9	\	\	\	\	\	\										samples
																					just run Arsenic

PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by: K Atl	K Atl	HWA	9/15	1200	
Received by: Van	Spdy Van	Spdy	"	345	
Relinquished by: "	"	"	"	1615	
Received by: M. Vouw		OSE	9/15/14	1615	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

December 30, 2014

Kim Stilson
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-998
Laboratory Reference No. 1412-180

Dear Kim:

Enclosed are the analytical results and associated quality control data for samples submitted on December 16, 2014.

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: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

Case Narrative

Samples were collected on December 15, 2014 and received by the laboratory on December 16, 2014. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

As per client's request, the Tetrachloroethene peak was subtracted from the gasoline results for samples HZMW 15D, HZMW 15S, HZMW 14S and HZMW 14D.

Halogenated Volatiles EPA 8260C Analysis

The compound 2-Chloroethyl Vinyl Ether did not yield a satisfactory calibration curve on December 24, 2014, due to instrument reactivity. Any results for this analyte from December 24, 2014, data should be considered screening values.

Please note that any other QA/QC issues associated with these extractions and analyses will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	12-180-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloromethane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromomethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloroethane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Iodomethane	ND	1.6	EPA 8260C	12-22-14	12-22-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-22-14	12-22-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloroform	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Trichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Dibromomethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2-Chloroethyl Vinyl Ether	ND	6.2	EPA 8260C	12-22-14	12-22-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
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Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	12-180-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Tetrachloroethene	0.38	0.20	EPA 8260C	12-22-14	12-22-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromoform	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Bromobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*91*	*79-122*				
Toluene-d8	*100*	*80-120*				
4-Bromofluorobenzene	*98*	*80-120*				

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP121514**					
Laboratory ID:	12-180-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloromethane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromomethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloroethane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Iodomethane	ND	1.6	EPA 8260C	12-22-14	12-22-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-22-14	12-22-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloroform	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Trichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Dibromomethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2-Chloroethyl Vinyl Ether	ND	6.2	EPA 8260C	12-22-14	12-22-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP121514**					
Laboratory ID:	12-180-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Tetrachloroethene	0.40	0.20	EPA 8260C	12-22-14	12-22-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromoform	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Bromobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*94*	*79-122*				
Toluene-d8	*91*	*80-120*				
4-Bromofluorobenzene	*92*	*80-120*				

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 15D**					
Laboratory ID:	12-180-03					
Dichlorodifluoromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Chloromethane	ND	5.0	EPA 8260C	12-24-14	12-24-14	
Vinyl Chloride	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Bromomethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Chloroethane	ND	5.0	EPA 8260C	12-24-14	12-24-14	
Trichlorofluoromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloroethene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Iodomethane	ND	5.0	EPA 8260C	12-24-14	12-24-14	
Methylene Chloride	ND	5.0	EPA 8260C	12-24-14	12-24-14	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
2,2-Dichloropropane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
(cis) 1,2-Dichloroethene	4.3	1.0	EPA 8260C	12-24-14	12-24-14	
Bromochloromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Chloroform	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Carbon Tetrachloride	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloropropene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dichloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Trichloroethene	9.2	1.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dichloropropane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Dibromomethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Bromodichloromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
2-Chloroethyl Vinyl Ether	ND	5.0	EPA 8260C	12-24-14	12-24-14	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	12-24-14	12-24-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 15D**					
Laboratory ID:	12-180-03					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Tetrachloroethene	130	1.0	EPA 8260C	12-24-14	12-24-14	
1,3-Dichloropropane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Dibromochloromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dibromoethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Chlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Bromoform	ND	5.0	EPA 8260C	12-24-14	12-24-14	
Bromobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
2-Chlorotoluene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
4-Chlorotoluene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dibromo-3-chloropropane	ND	5.0	EPA 8260C	12-24-14	12-24-14	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*79-122*				
Toluene-d8	*101*	*80-120*				
4-Bromofluorobenzene	*100*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 15S**					
Laboratory ID:	12-180-04					
Dichlorodifluoromethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Chloromethane	ND	10	EPA 8260C	12-24-14	12-24-14	
Vinyl Chloride	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Bromomethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Chloroethane	ND	10	EPA 8260C	12-24-14	12-24-14	
Trichlorofluoromethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloroethene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Iodomethane	ND	10	EPA 8260C	12-24-14	12-24-14	
Methylene Chloride	ND	10	EPA 8260C	12-24-14	12-24-14	
(trans) 1,2-Dichloroethene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloroethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
2,2-Dichloropropane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
(cis) 1,2-Dichloroethene	12	2.0	EPA 8260C	12-24-14	12-24-14	
Bromochloromethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Chloroform	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,1,1-Trichloroethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Carbon Tetrachloride	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloropropene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dichloroethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Trichloroethene	14	2.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dichloropropane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Dibromomethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Bromodichloromethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
2-Chloroethyl Vinyl Ether	ND	10	EPA 8260C	12-24-14	12-24-14	
(cis) 1,3-Dichloropropene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
(trans) 1,3-Dichloropropene	ND	2.0	EPA 8260C	12-24-14	12-24-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 15S**					
Laboratory ID:	12-180-04					
1,1,2-Trichloroethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Tetrachloroethene	300	2.0	EPA 8260C	12-24-14	12-24-14	
1,3-Dichloropropane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Dibromochloromethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dibromoethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Chlorobenzene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,1,1,2-Tetrachloroethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Bromoform	ND	10	EPA 8260C	12-24-14	12-24-14	
Bromobenzene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,1,2,2-Tetrachloroethane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,2,3-Trichloropropane	ND	2.0	EPA 8260C	12-24-14	12-24-14	
2-Chlorotoluene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
4-Chlorotoluene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,3-Dichlorobenzene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,4-Dichlorobenzene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dichlorobenzene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dibromo-3-chloropropane	ND	10	EPA 8260C	12-24-14	12-24-14	
1,2,4-Trichlorobenzene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Hexachlorobutadiene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
1,2,3-Trichlorobenzene	ND	2.0	EPA 8260C	12-24-14	12-24-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*113*	*79-122*				
Toluene-d8	*101*	*80-120*				
4-Bromofluorobenzene	*99*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 14S**					
Laboratory ID:	12-180-05					
Dichlorodifluoromethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Chloromethane	ND	20	EPA 8260C	12-24-14	12-25-14	
Vinyl Chloride	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Bromomethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Chloroethane	ND	20	EPA 8260C	12-24-14	12-25-14	
Trichlorofluoromethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,1-Dichloroethene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Iodomethane	ND	20	EPA 8260C	12-24-14	12-25-14	
Methylene Chloride	ND	20	EPA 8260C	12-24-14	12-25-14	
(trans) 1,2-Dichloroethene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,1-Dichloroethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
2,2-Dichloropropane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
(cis) 1,2-Dichloroethene	13	4.0	EPA 8260C	12-24-14	12-25-14	
Bromochloromethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Chloroform	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,1,1-Trichloroethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Carbon Tetrachloride	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,1-Dichloropropene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,2-Dichloroethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Trichloroethene	16	4.0	EPA 8260C	12-24-14	12-25-14	
1,2-Dichloropropane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Dibromomethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Bromodichloromethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
2-Chloroethyl Vinyl Ether	ND	20	EPA 8260C	12-24-14	12-25-14	
(cis) 1,3-Dichloropropene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
(trans) 1,3-Dichloropropene	ND	4.0	EPA 8260C	12-24-14	12-25-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 14S**					
Laboratory ID:	12-180-05					
1,1,2-Trichloroethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Tetrachloroethene	790	4.0	EPA 8260C	12-24-14	12-25-14	
1,3-Dichloropropane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Dibromochloromethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,2-Dibromoethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Chlorobenzene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,1,1,2-Tetrachloroethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Bromoform	ND	20	EPA 8260C	12-24-14	12-25-14	
Bromobenzene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,1,2,2-Tetrachloroethane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,2,3-Trichloropropane	ND	4.0	EPA 8260C	12-24-14	12-25-14	
2-Chlorotoluene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
4-Chlorotoluene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,3-Dichlorobenzene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,4-Dichlorobenzene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,2-Dichlorobenzene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,2-Dibromo-3-chloropropane	ND	20	EPA 8260C	12-24-14	12-25-14	
1,2,4-Trichlorobenzene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Hexachlorobutadiene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
1,2,3-Trichlorobenzene	ND	4.0	EPA 8260C	12-24-14	12-25-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*107*	*79-122*				
Toluene-d8	*103*	*80-120*				
4-Bromofluorobenzene	*98*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 14D**					
Laboratory ID:	12-180-06					
Dichlorodifluoromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Chloromethane	ND	5.0	EPA 8260C	12-24-14	12-24-14	
Vinyl Chloride	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Bromomethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Chloroethane	ND	5.0	EPA 8260C	12-24-14	12-24-14	
Trichlorofluoromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloroethene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Iodomethane	ND	5.0	EPA 8260C	12-24-14	12-24-14	
Methylene Chloride	ND	5.0	EPA 8260C	12-24-14	12-24-14	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
2,2-Dichloropropane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
(cis) 1,2-Dichloroethene	15	1.0	EPA 8260C	12-24-14	12-24-14	
Bromochloromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Chloroform	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Carbon Tetrachloride	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloropropene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dichloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Trichloroethene	2.8	1.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dichloropropane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Dibromomethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Bromodichloromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
2-Chloroethyl Vinyl Ether	ND	5.0	EPA 8260C	12-24-14	12-24-14	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	12-24-14	12-24-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 14D**					
Laboratory ID:	12-180-06					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Tetrachloroethene	100	1.0	EPA 8260C	12-24-14	12-24-14	
1,3-Dichloropropane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Dibromochloromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dibromoethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Chlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Bromoform	ND	5.0	EPA 8260C	12-24-14	12-24-14	
Bromobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
2-Chlorotoluene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
4-Chlorotoluene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2-Dibromo-3-chloropropane	ND	5.0	EPA 8260C	12-24-14	12-24-14	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*110*	*79-122*				
Toluene-d8	*104*	*80-120*				
4-Bromofluorobenzene	*102*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 1**					
Laboratory ID:	12-180-07					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloromethane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromomethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloroethane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Iodomethane	ND	1.6	EPA 8260C	12-22-14	12-22-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-22-14	12-22-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloroform	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Trichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Dibromomethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2-Chloroethyl Vinyl Ether	ND	6.2	EPA 8260C	12-22-14	12-22-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 1**					
Laboratory ID:	12-180-07					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Tetrachloroethene	15	0.20	EPA 8260C	12-22-14	12-22-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromoform	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Bromobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*79-122*				
Toluene-d8	*97*	*80-120*				
4-Bromofluorobenzene	*95*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1222W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloromethane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromomethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloroethane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Iodomethane	ND	1.6	EPA 8260C	12-22-14	12-22-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-22-14	12-22-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chloroform	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Trichloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Dibromomethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2-Chloroethyl Vinyl Ether	ND	6.2	EPA 8260C	12-22-14	12-22-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-22-14	12-22-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1222W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Tetrachloroethene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Bromoform	ND	1.0	EPA 8260C	12-22-14	12-22-14	
Bromobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-22-14	12-22-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-22-14	12-22-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-22-14	12-22-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*79-122*				
Toluene-d8	*101*	*80-120*				
4-Bromofluorobenzene	*100*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1224W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Chloromethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Bromomethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Chloroethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Iodomethane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-24-14	12-24-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Chloroform	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Trichloroethene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Dibromomethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-24-14	12-24-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-24-14	12-24-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1224W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Tetrachloroethene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Bromoform	ND	1.0	EPA 8260C	12-24-14	12-24-14	
Bromobenzene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-24-14	12-24-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-24-14	12-24-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-24-14	12-24-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*114*	*79-122*				
Toluene-d8	*103*	*80-120*				
4-Bromofluorobenzene	*101*	*80-120*				

Date of Report: December 30, 2014
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HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1224W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.42**	**9.19**	10.0	10.0	94	92	64-138	2	16	
Benzene	**10.9**	**9.68**	10.0	10.0	109	97	76-125	12	14	
Trichloroethene	**8.34**	**7.74**	10.0	10.0	83	77	75-125	7	16	
Toluene	**10.3**	**9.70**	10.0	10.0	103	97	75-125	6	15	
Chlorobenzene	**10.0**	**9.54**	10.0	10.0	100	95	80-140	4	15	
Surrogate:										
Dibromofluoromethane					*107*	*98*	*79-122*			
Toluene-d8					*104*	*102*	*80-120*			
4-Bromofluorobenzene					*103*	*104*	*80-120*			

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Samples Submitted: December 16, 2014
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HALOGENATED VOLATILES EPA 8260C
MS/MSD 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:	12-180-01										
	MS	MSD	MS	MSD		MS	MSD				
1,1-Dichloroethene	**9.88**	**10.3**	10.0	10.0	ND	99	103	69-133	4	15	
Benzene	**10.3**	**10.5**	10.0	10.0	ND	103	105	75-119	2	15	
Trichloroethene	**9.16**	**9.59**	10.0	10.0	ND	92	96	75-120	5	15	
Toluene	**10.1**	**10.7**	10.0	10.0	ND	101	107	75-115	6	15	
Chlorobenzene	**9.50**	**10.3**	10.0	10.0	ND	95	103	75-120	8	15	
Surrogate:											
Dibromofluoromethane						*98*	*105*	*79-122*			
Toluene-d8						*92*	*99*	*80-120*			
4-Bromofluorobenzene						*92*	*102*	*80-120*			

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	12-180-01					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*71-113*				
Client ID:	**DUP121514**					
Laboratory ID:	12-180-02					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*71-113*				
Client ID:	**HZMW 15D**					
Laboratory ID:	12-180-03					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*71-113*				

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 15S**					
Laboratory ID:	12-180-04					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*71-113*				
Client ID:	**HZMW 14S**					
Laboratory ID:	12-180-05					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*71-113*				
Client ID:	**HZMW 14D**					
Laboratory ID:	12-180-06					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*71-113*				

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 1**					
Laboratory ID:	12-180-07					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*71-113*				

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NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1217W1					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*71-113*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-180-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*94*	*100*	*71-113*			
MATRIX SPIKES											
Laboratory ID:	12-180-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**52.6**	**53.5**	50.0	50.0	ND	**105**	**107**	82-120	2	14	
Toluene	**52.6**	**53.4**	50.0	50.0	ND	**105**	**107**	83-120	2	14	
Ethyl Benzene	**51.9**	**52.9**	50.0	50.0	ND	**104**	**106**	83-120	2	15	
m,p-Xylene	**52.7**	**53.5**	50.0	50.0	ND	**105**	**107**	81-123	2	15	
o-Xylene	**51.3**	**52.5**	50.0	50.0	ND	**103**	**105**	80-120	2	16	
Surrogate:											
Fluorobenzene						*98*	*97*	*71-113*			

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-16**					
Laboratory ID:	12-180-01					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-18-14	12-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*84*	*50-150*				
Client ID:	**DUP121514**					
Laboratory ID:	12-180-02					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-18-14	12-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**HZMW 15D**					
Laboratory ID:	12-180-03					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	12-18-14	12-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*81*	*50-150*				
Client ID:	**HZMW 15S**					
Laboratory ID:	12-180-04					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-18-14	12-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				
Client ID:	**HZMW 14S**					
Laboratory ID:	12-180-05					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-18-14	12-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**HZMW 14D**					
Laboratory ID:	12-180-06					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-18-14	12-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*91*	*50-150*				

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW 1**					
Laboratory ID:	12-180-07					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-18-14	12-18-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1218W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	12-18-14	12-18-14	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*84*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-180-04										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*85*	*84*	*50-150*			

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

TOTAL METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-180-01					
Client ID:	**HZMW-16**					
Arsenic	**ND**	3.3	200.8	12-18-14	12-18-14	
Lab ID:	12-180-02					
Client ID:	**DUP121514**					
Arsenic	**ND**	3.3	200.8	12-18-14	12-18-14	
Lab ID:	12-180-03					
Client ID:	**HZMW 15D**					
Arsenic	**ND**	3.3	200.8	12-18-14	12-18-14	
Cadmium	**ND**	4.4	200.8	12-18-14	12-18-14	
Chromium	**ND**	11	200.8	12-18-14	12-18-14	
Lead	**ND**	1.1	200.8	12-18-14	12-18-14	
Lab ID:	12-180-04					
Client ID:	**HZMW 15S**					
Arsenic	**ND**	3.3	200.8	12-18-14	12-18-14	
Cadmium	**ND**	4.4	200.8	12-18-14	12-18-14	
Chromium	**ND**	11	200.8	12-18-14	12-18-14	
Lead	**ND**	1.1	200.8	12-18-14	12-18-14	

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

TOTAL METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-180-05					
Client ID:	**HZMW 14S**					
Arsenic	**ND**	3.3	200.8	12-18-14	12-18-14	
Cadmium	**ND**	4.4	200.8	12-18-14	12-18-14	
Chromium	**ND**	11	200.8	12-18-14	12-18-14	
Lead	**ND**	1.1	200.8	12-18-14	12-18-14	
Lab ID:	12-180-06					
Client ID:	**HZMW 14D**					
Arsenic	**ND**	3.3	200.8	12-18-14	12-18-14	
Cadmium	**ND**	4.4	200.8	12-18-14	12-18-14	
Chromium	**ND**	11	200.8	12-18-14	12-18-14	
Lead	**ND**	1.1	200.8	12-18-14	12-18-14	
Lab ID:	12-180-07					
Client ID:	**HZMW 1**					
Arsenic	**23**	3.3	200.8	12-18-14	12-18-14	

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

TOTAL METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 12-18-14
Date Analyzed: 12-18-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB1218WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3
Cadmium	200.8	**ND**	4.4
Chromium	200.8	**ND**	11
Lead	200.8	**ND**	1.1

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

TOTAL METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 12-18-14
Date Analyzed: 12-18-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-133-04

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**19.5**	**20.0**	3	3.3	
Cadmium	**ND**	**ND**	NA	4.4	
Chromium	**ND**	**ND**	NA	11	
Lead	**3.49**	**2.47**	34	1.1	C

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

TOTAL METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 12-18-14
Date Analyzed: 12-18-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-133-04

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	111	**134**	103	**131**	100	3	
Cadmium	111	**115**	103	**112**	101	3	
Chromium	111	**124**	111	**119**	108	4	
Lead	111	**115**	101	**114**	99	2	

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-180-01					
Client ID:	**HZMW-16**					
Arsenic	**ND**	3.0	200.8		12-22-14	
Lab ID:	12-180-02					
Client ID:	**DUP121514**					
Arsenic	**ND**	3.0	200.8		12-22-14	
Lab ID:	12-180-03					
Client ID:	**HZMW 15D**					
Arsenic	**ND**	3.0	200.8		12-22-14	
Cadmium	**ND**	4.0	200.8		12-22-14	
Chromium	**ND**	10	200.8		12-22-14	
Lead	**ND**	1.0	200.8		12-22-14	
Lab ID:	12-180-04					
Client ID:	**HZMW 15S**					
Arsenic	**ND**	3.0	200.8		12-22-14	
Cadmium	**ND**	4.0	200.8		12-22-14	
Chromium	**ND**	10	200.8		12-22-14	
Lead	**ND**	1.0	200.8		12-22-14	

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-180-05					
Client ID:	**HZMW 14S**					
Arsenic	**ND**	3.0	200.8		12-22-14	
Cadmium	**ND**	4.0	200.8		12-22-14	
Chromium	**ND**	10	200.8		12-22-14	
Lead	**ND**	1.0	200.8		12-22-14	
Lab ID:	12-180-06					
Client ID:	**HZMW 14D**					
Arsenic	**ND**	3.0	200.8		12-22-14	
Cadmium	**ND**	4.0	200.8		12-22-14	
Chromium	**ND**	10	200.8		12-22-14	
Lead	**ND**	1.0	200.8		12-22-14	
Lab ID:	12-180-07					
Client ID:	**HZMW 1**					
Arsenic	**ND**	3.0	200.8		12-22-14	

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed: 12-22-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB1222D1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0
Cadmium	200.8	**ND**	4.0
Chromium	200.8	**ND**	10
Lead	200.8	**ND**	1.0

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 12-22-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-180-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	
Cadmium	**ND**	**ND**	NA	4.0	
Chromium	**ND**	**ND**	NA	10	
Lead	**ND**	**ND**	NA	1.0	

Date of Report: December 30, 2014
Samples Submitted: December 16, 2014
Laboratory Reference: 1412-180
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 12-22-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-180-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**203**	102	**202**	101	1	
Cadmium	200	**207**	103	**206**	103	1	
Chromium	200	**201**	100	**200**	100	0	
Lead	200	**194**	97	**195**	97	0	

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-napthalene) 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 method 8260C, 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 - The Tetrachloroethene peak was subtracted from the gasoline result.

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

12-180

HWA GEOSCIENCES INC.

21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

Chain of Custody and Laboratory Anaylsis Request

DATE: 12/15/14
PAGE: 1 of 1

PROJECT NAME: Bothell Hertz #: 2007-098-998
SAMPLERS NAME: KStilson PHONE:
SAMPLERS SIGNATURE: KAtir DATE: 12/15/14
HWA CONTACT: KStilson PHONE:

TURNAROUND TIME
☐ DAYS
☒ STANDARD

ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCs	TPH-G	BTEX	Dx	Total Metals Arsenic	Diss Metals Arsenic	Total Metals ☆	Diss Metals ☆	EDD
HZMW-16	12/15/14	900	W	1	10	\	\	\	\	\	\			
DUP121514		930		2	10	\	\	\	\	\	\			
HZMW15D		1000		3	10	\	\	\	\			\	\	
HZMW15S		1045		4	10	\	\	\	\			\	\	
HZMW14S		230		5	10	\	\	\	\			\	\	
HZMW14D		300		6	10	\	\	\	\			\	\	
HZMW1		345		7	10	\	\	\	\	\	\			

REMARKS

All Dissolved Metals Field Filtered

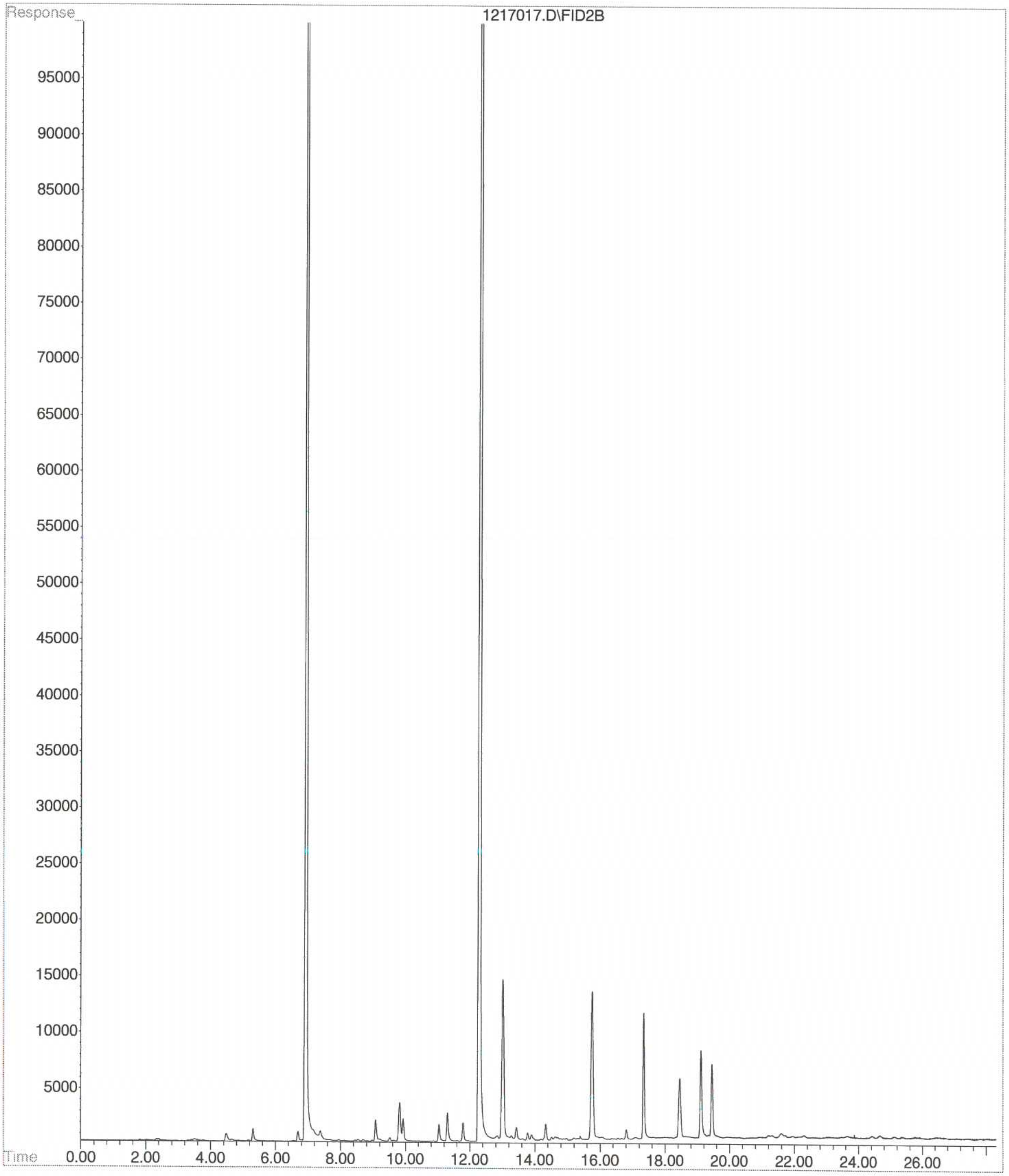
Total Metals ☆ As, Cd, Cr, Pb

Diss Metals ☆ As, Cd, Cr, Pb

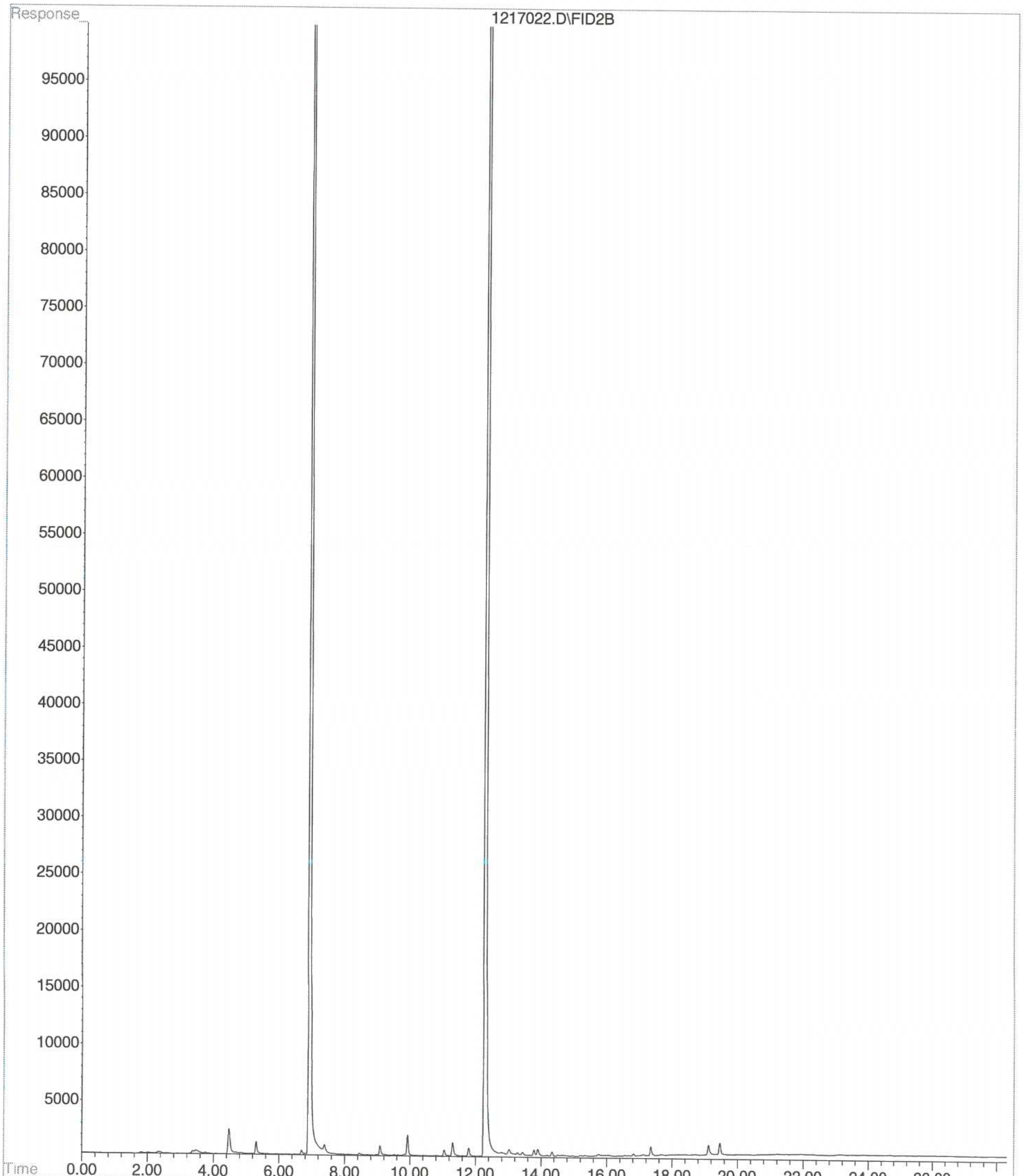
PRINT NAME		SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	KStilson	KAtir	HWA Geo	12/16/14	800	
Received by:	JR Jacob Hanson	JH	SPEEDY	12/16/14	1004	
Relinquished by:	Jacob Hanson	[illegible]	SPEEDY	12/16/14	1023	
Received by:	Blair Goodrow	[illegible]	OnSite Env	12/16/14	1023	

DISTRIBUTION: ~~WHITE - Return to HWA GeoSciences;~~ YELLOW - Retain by Lab; PINK - Retain by Sampler

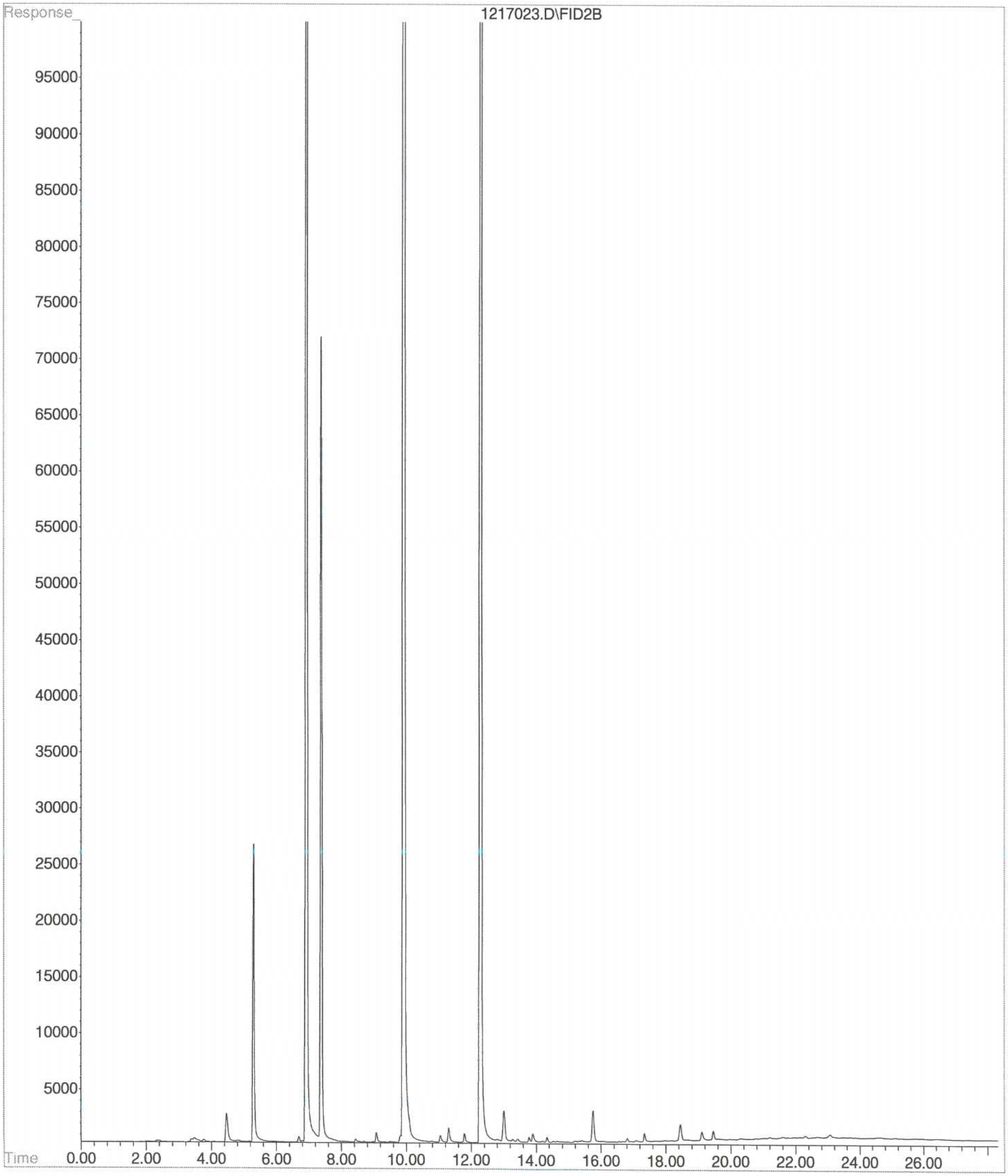
File : X:\BTEX\DARYL\DATA\D141217\1217017.D
Operator :
Acquired : 17 Dec 2014 21:17 using AcqMethod 141012DB.M
Instrument : Daryl
Sample Name: 12-180-01b
Misc Info : V2-36-23
Vial Number: 17



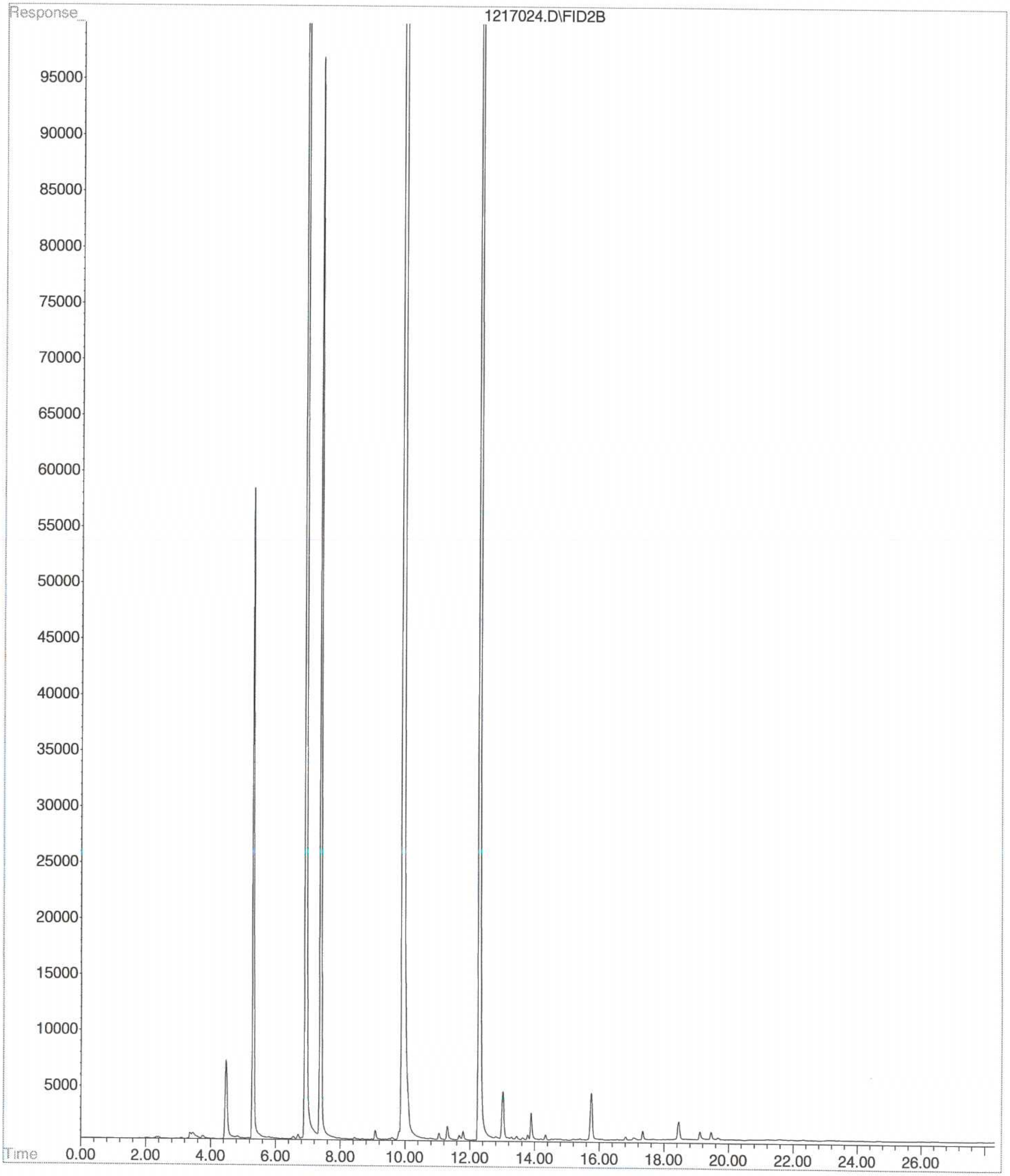
File   : X:\BTEX\DARYL\DATA\D141217\1217022.D
Operator   :
Acquired   : 18 Dec 2014 00:03   using AcqMethod 141012DB.M
Instrument :   Daryl
Sample Name: 12-180-02b
Misc Info : V2-36-23
Vial Number: 22



File   : X:\BTEX\DARYL\DATA\D141217\1217023.D
Operator   :
Acquired   : 18 Dec 2014 00:36   using AcqMethod 141012DB.M
Instrument :   Daryl
Sample Name: 12-180-03b
Misc Info : V2-36-23
Vial Number: 23



File   : X:\BTEX\DARYL\DATA\D141217\1217024.D
Operator   :
Acquired   : 18 Dec 2014   1:09   using AcqMethod 141012DB.M
Instrument :   Daryl
Sample Name: 12-180-04b
Misc Info : V2-36-23
Vial Number: 24



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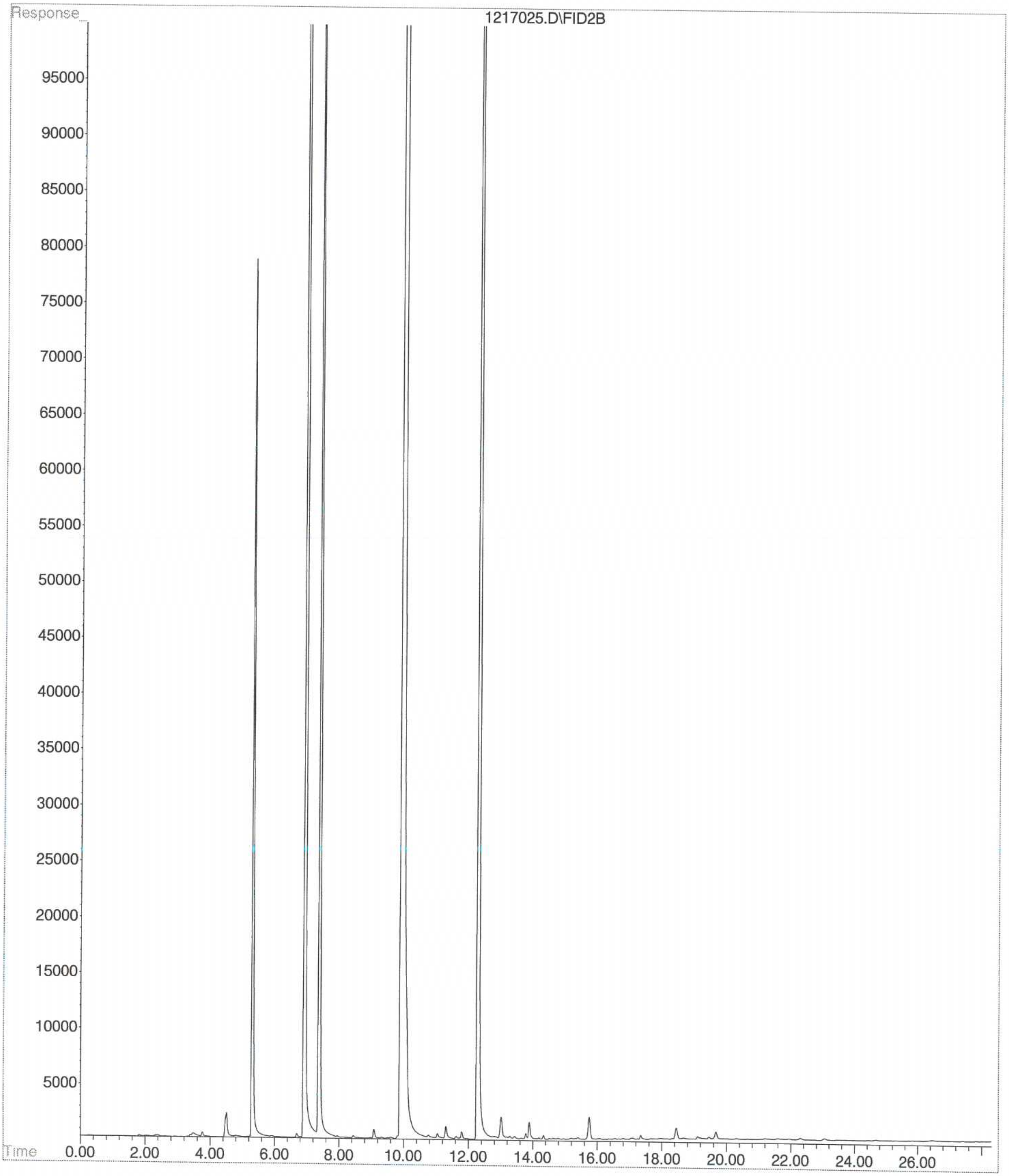
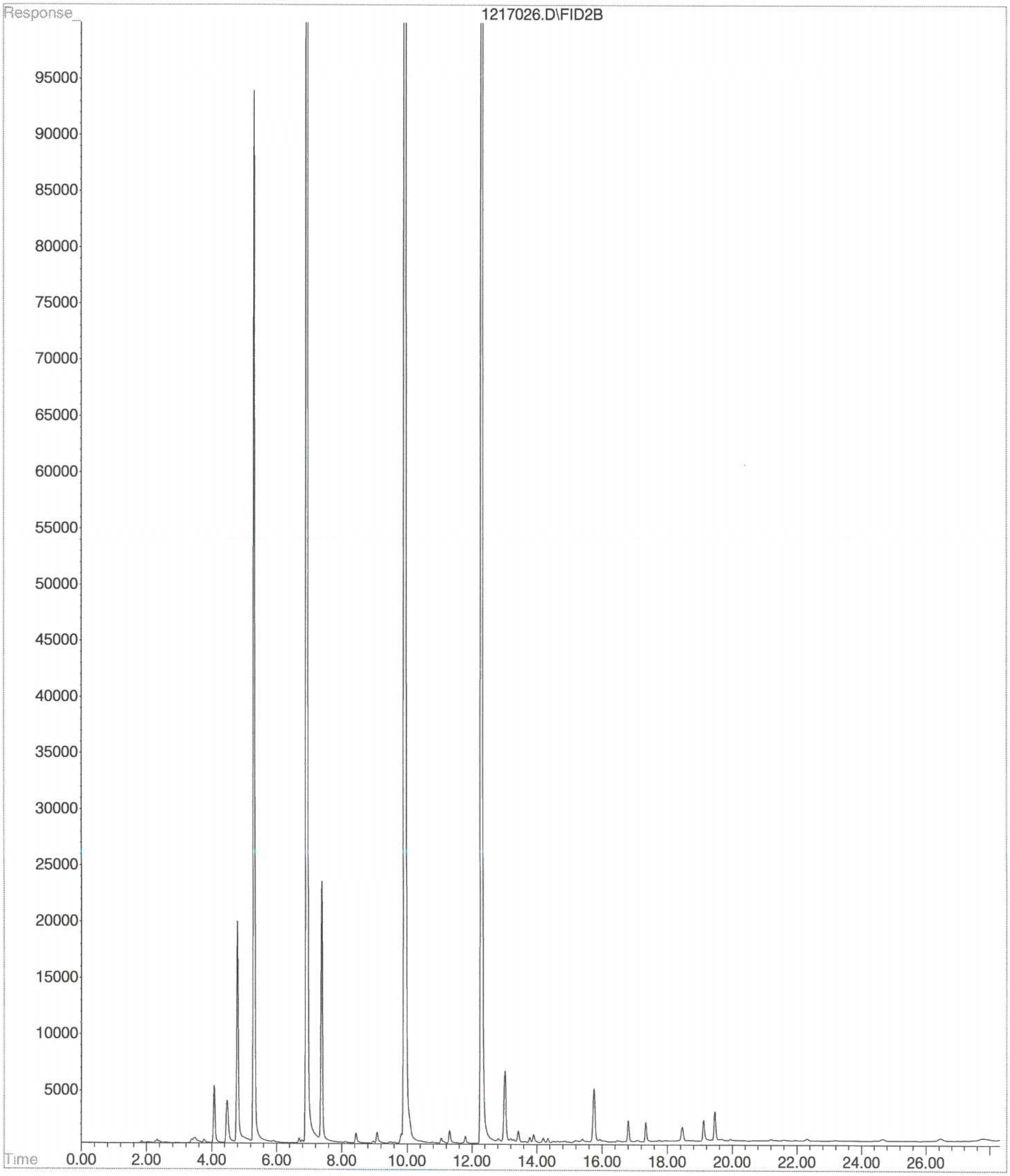
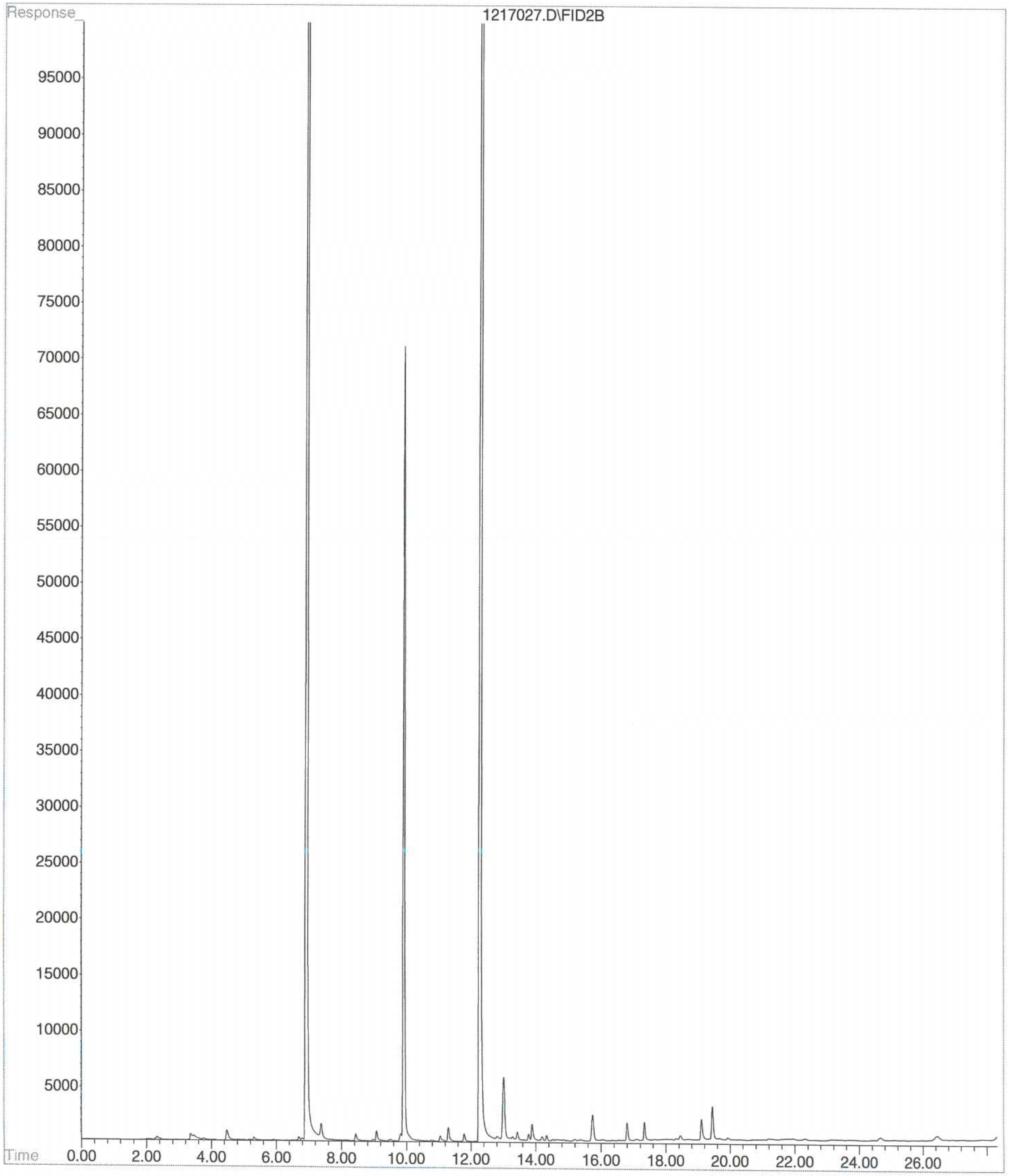
File        : X:\BTEX\DARYL\DATA\D141217\1217025.D
Operator    :
Acquired    : 18 Dec 2014   1:42     using AcqMethod 141012DB.M
Instrument :   Daryl
Sample Name: 12-180-05b
Misc Info  : V2-36-23
Vial Number: 25
```



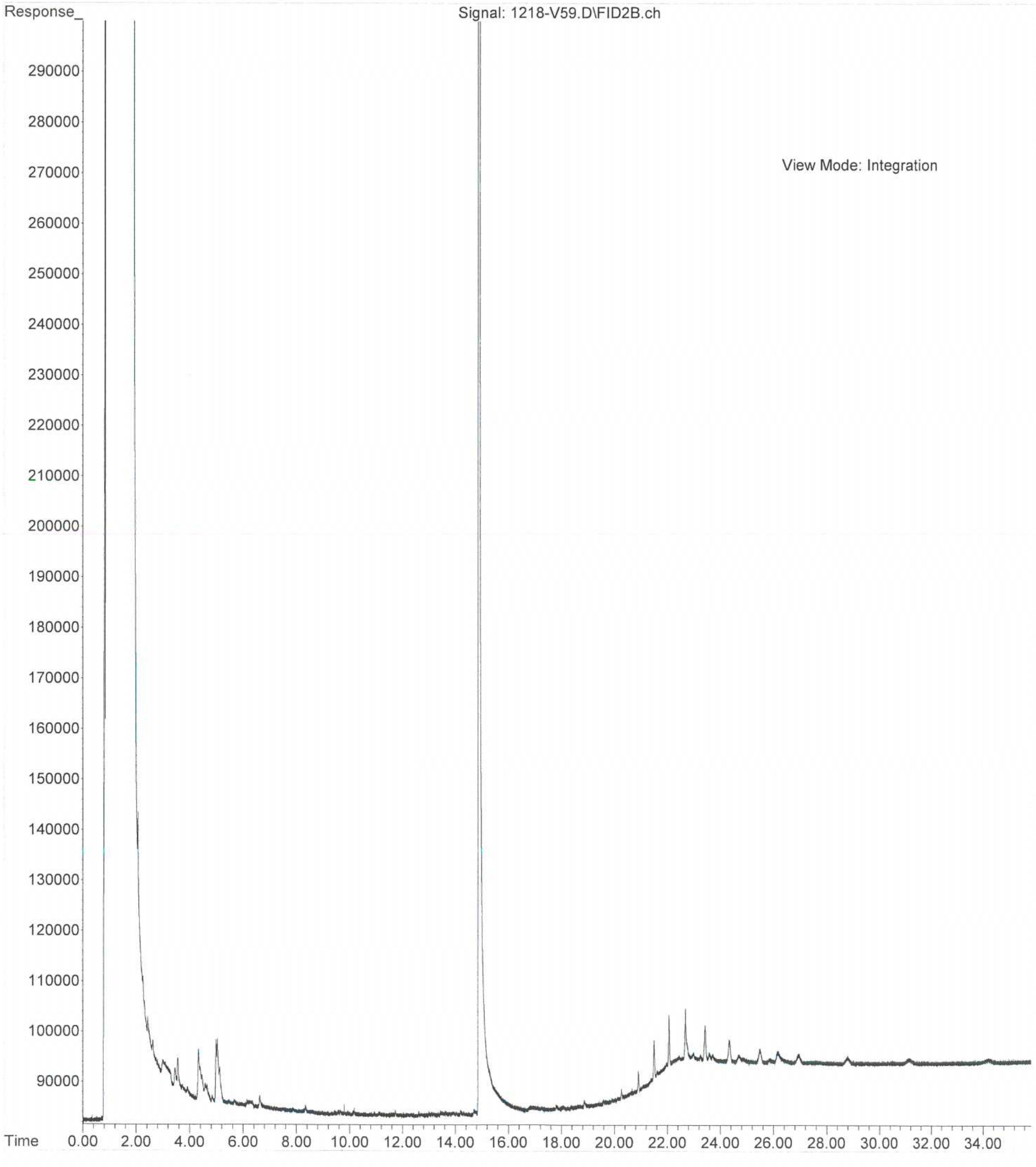
File : X:\BTEX\DARYL\DATA\D141217\1217026.D
Operator :
Acquired : 18 Dec 2014 2:15 using AcqMethod 141012DB.M
Instrument : Daryl
Sample Name: 12-180-06b
Misc Info : V2-36-23
Vial Number: 26



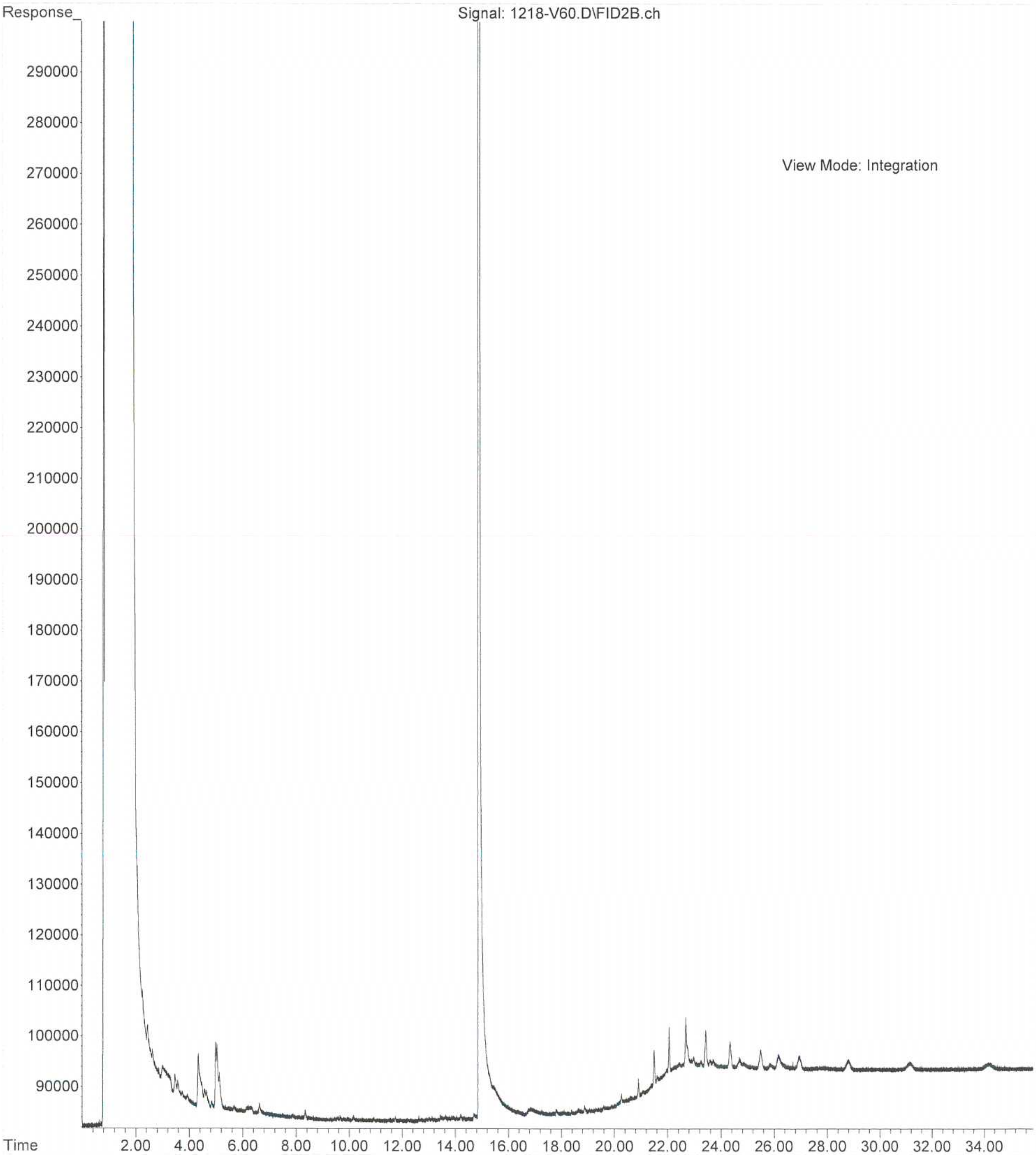
File   : X:\BTEX\DARYL\DATA\D141217\1217027.D
Operator   :
Acquired   : 18 Dec 2014   2:49   using AcqMethod 141012DB.M
Instrument :   Daryl
Sample Name: 12-180-07b
Misc Info : V2-36-23
Vial Number: 27



File   :X:\DIESELS\VIGO\DATA\V141218.SEC\1218-V59.D
Operator   :
Acquired   : 18 Dec 2014 16:58   using AcqMethod V140210F.M
Instrument :   Vigo
Sample Name: 12-180-01
Misc Info   :
Vial Number: 59



File   :X:\DIESELS\VIGO\DATA\V141218.SEC\1218-V60.D
Operator   :
Acquired   : 18 Dec 2014 17:38   using AcqMethod V140210F.M
Instrument :   Vigo
Sample Name: 12-180-02
Misc Info   :
Vial Number: 60



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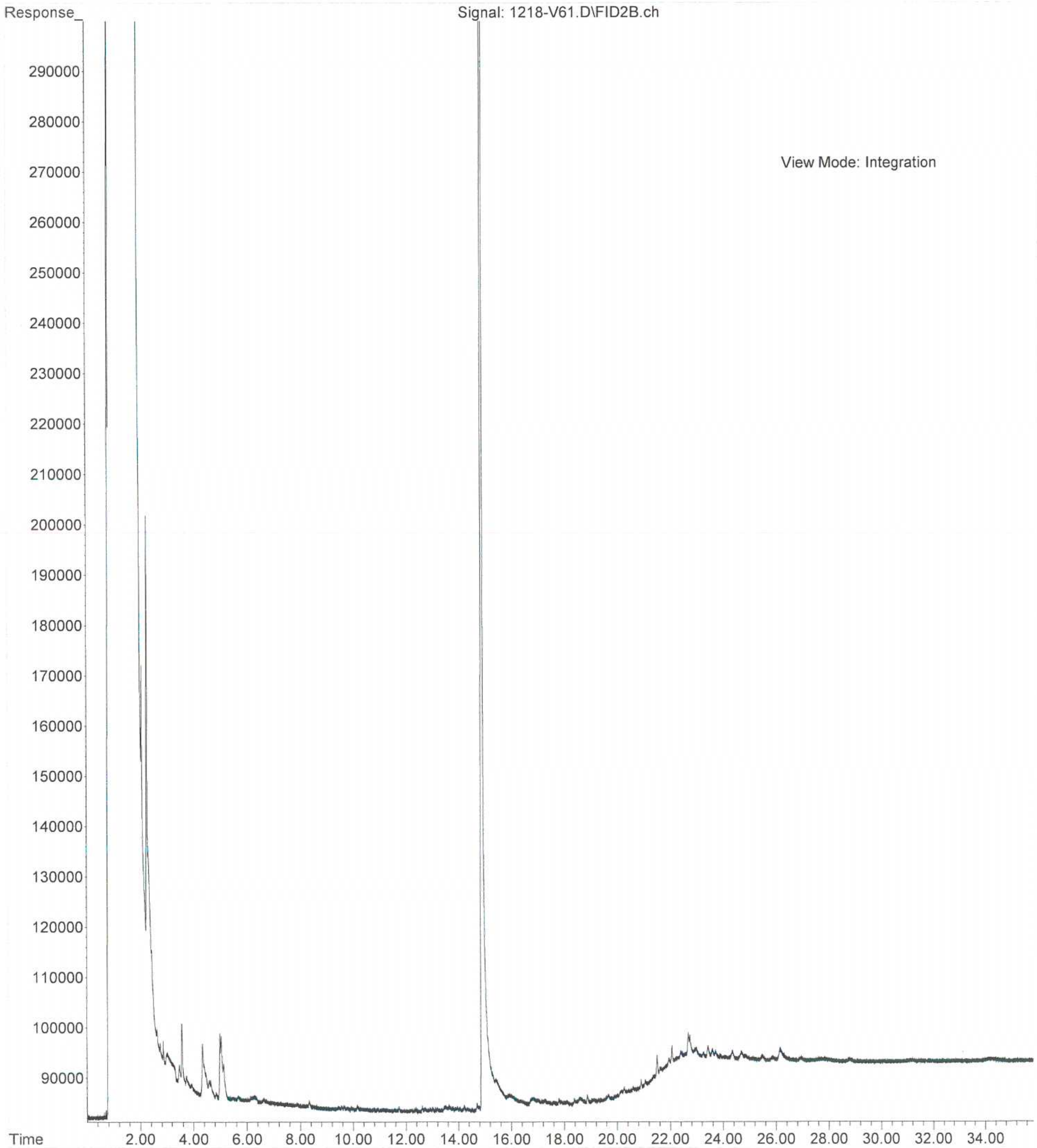
Operator   :
Acquired   : 18 Dec 2014 18:19   using AcqMethod V141218F.M
Instrument :   Vigo
Sample Name: 12-180-03
Misc Info   :
Vial Number: 61



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File        :X:\DIESELS\VIGO\DATA\V141218.SEC\1218-V68.D
Operator    :
Acquired    : 18 Dec 2014  23:04     using AcqMethod V141218F.M
Instrument :   Vigo
Sample Name: 12-180-04
Misc Info   :
Vial Number: 68
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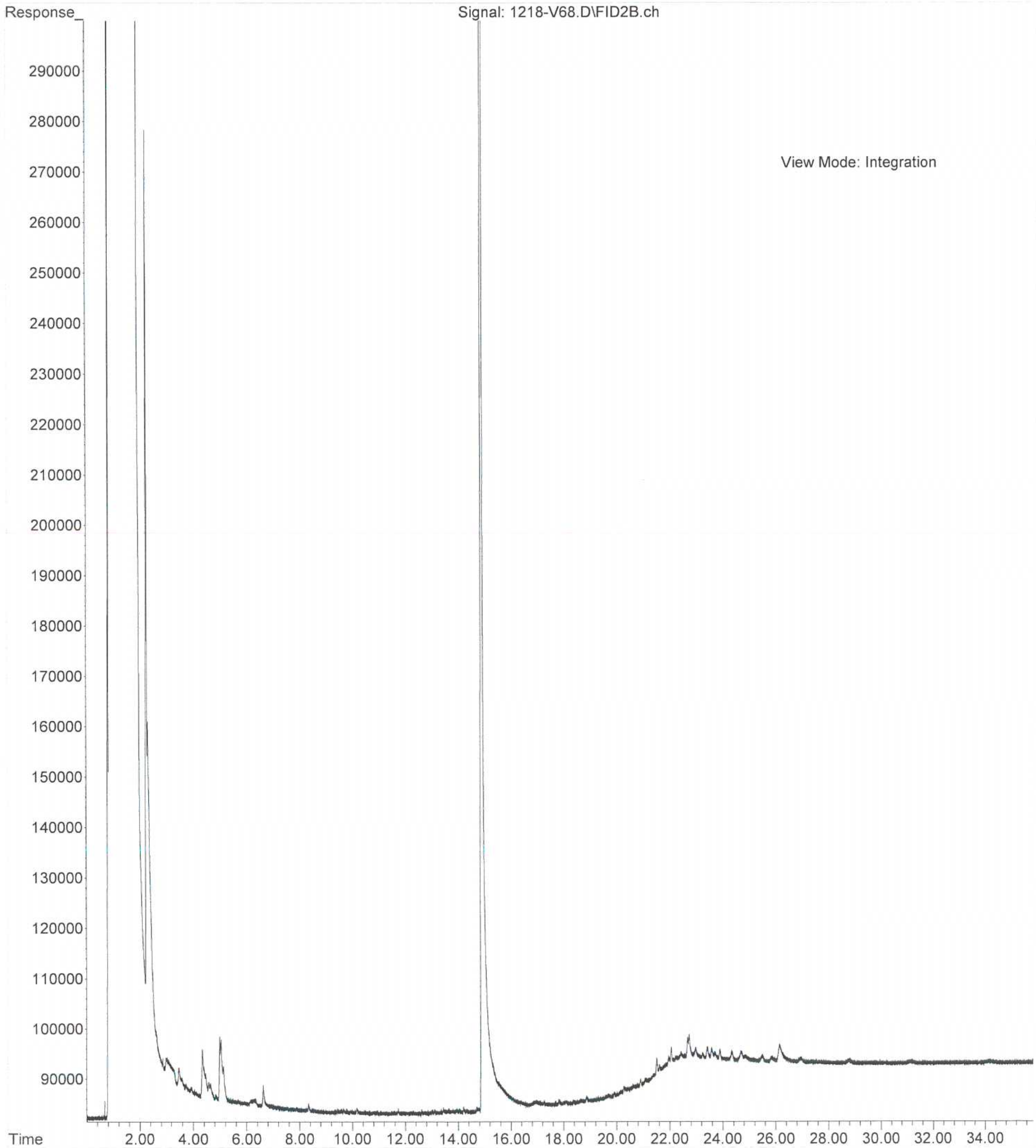

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Acquired    : 19 Dec 2014  00:25     using AcqMethod V141218F.M
Instrument  :   Vigo
Sample Name: 12-180-05
Misc Info   :
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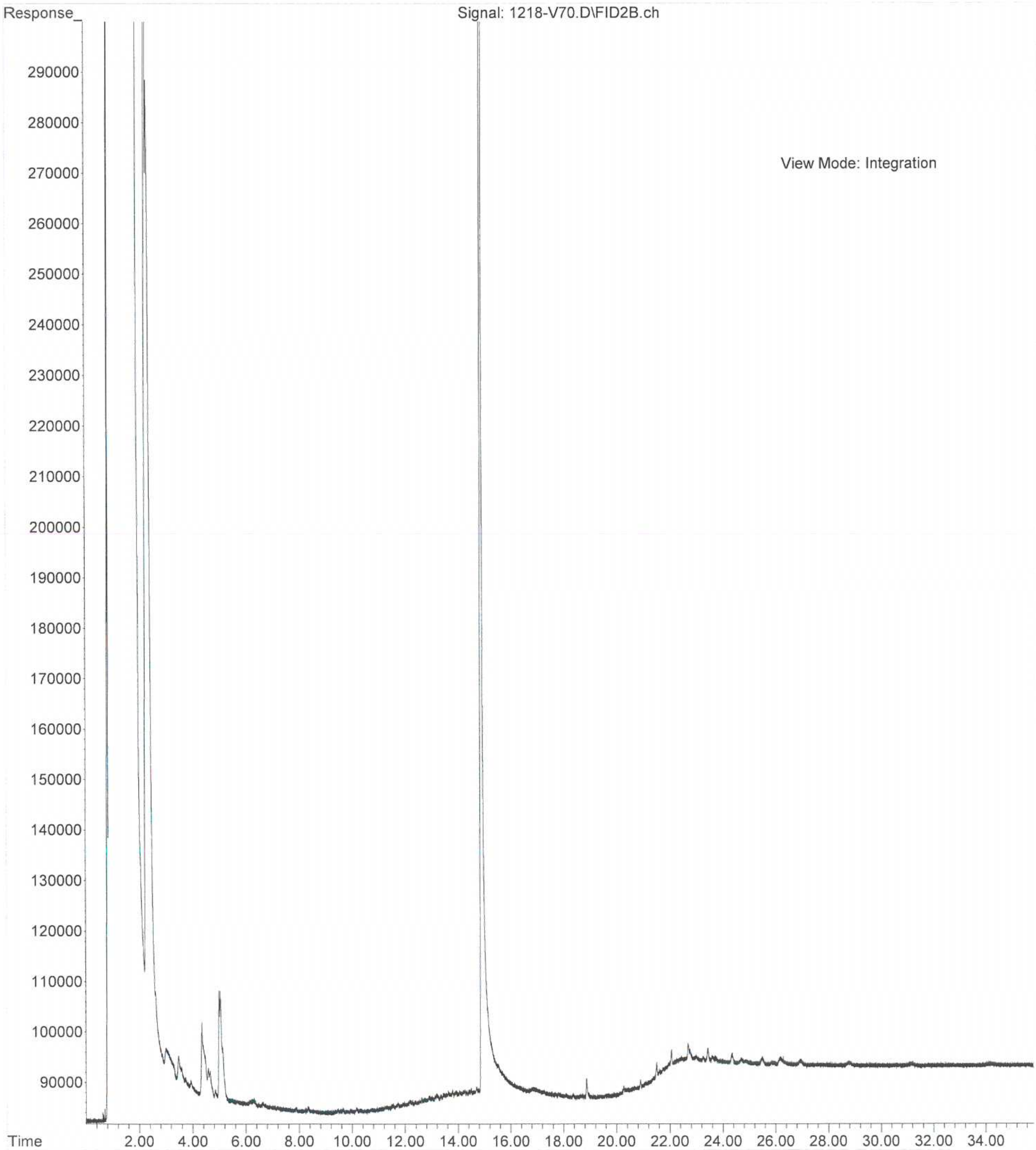

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Instrument :   Vigo
Sample Name: 12-180-06
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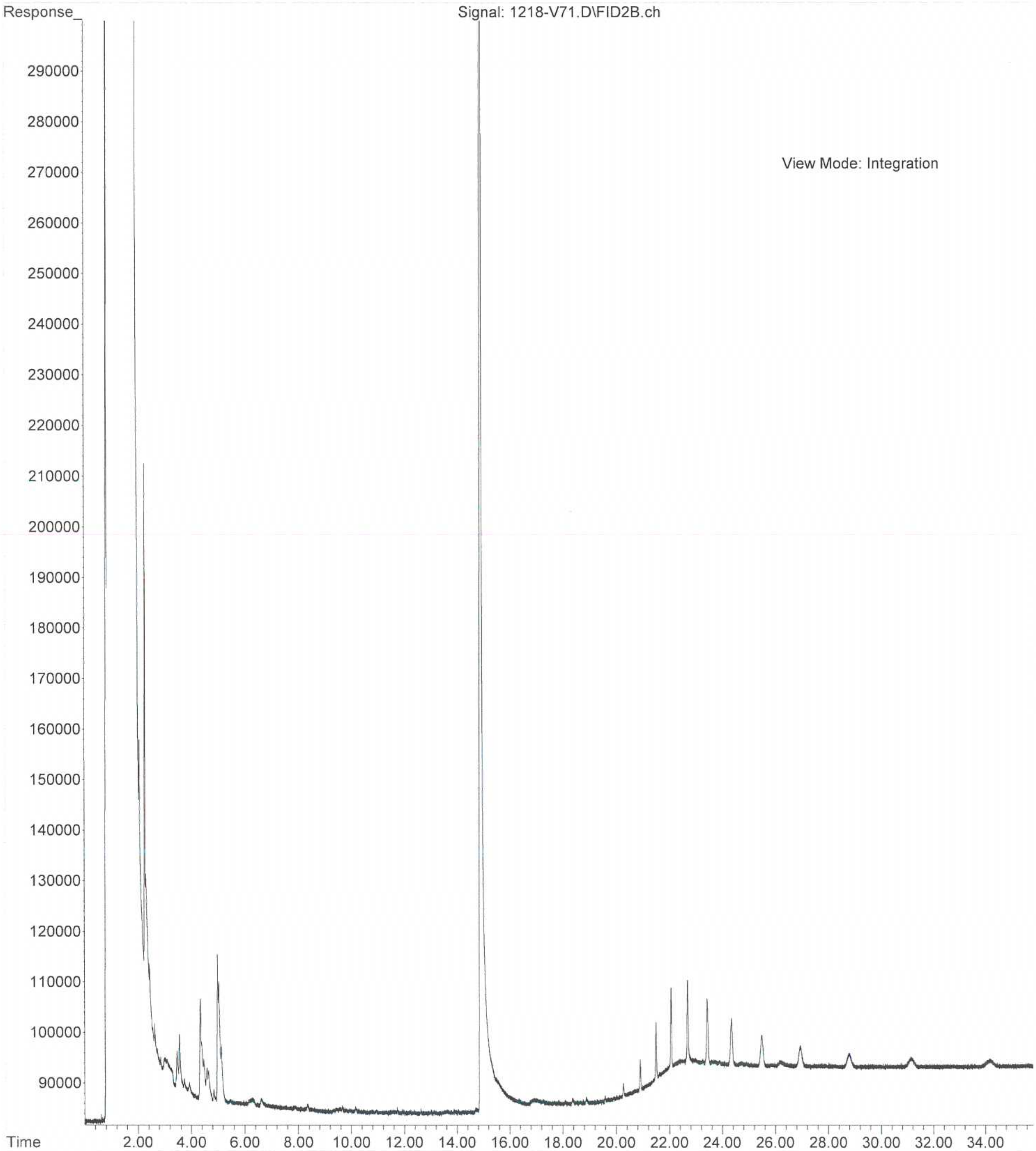

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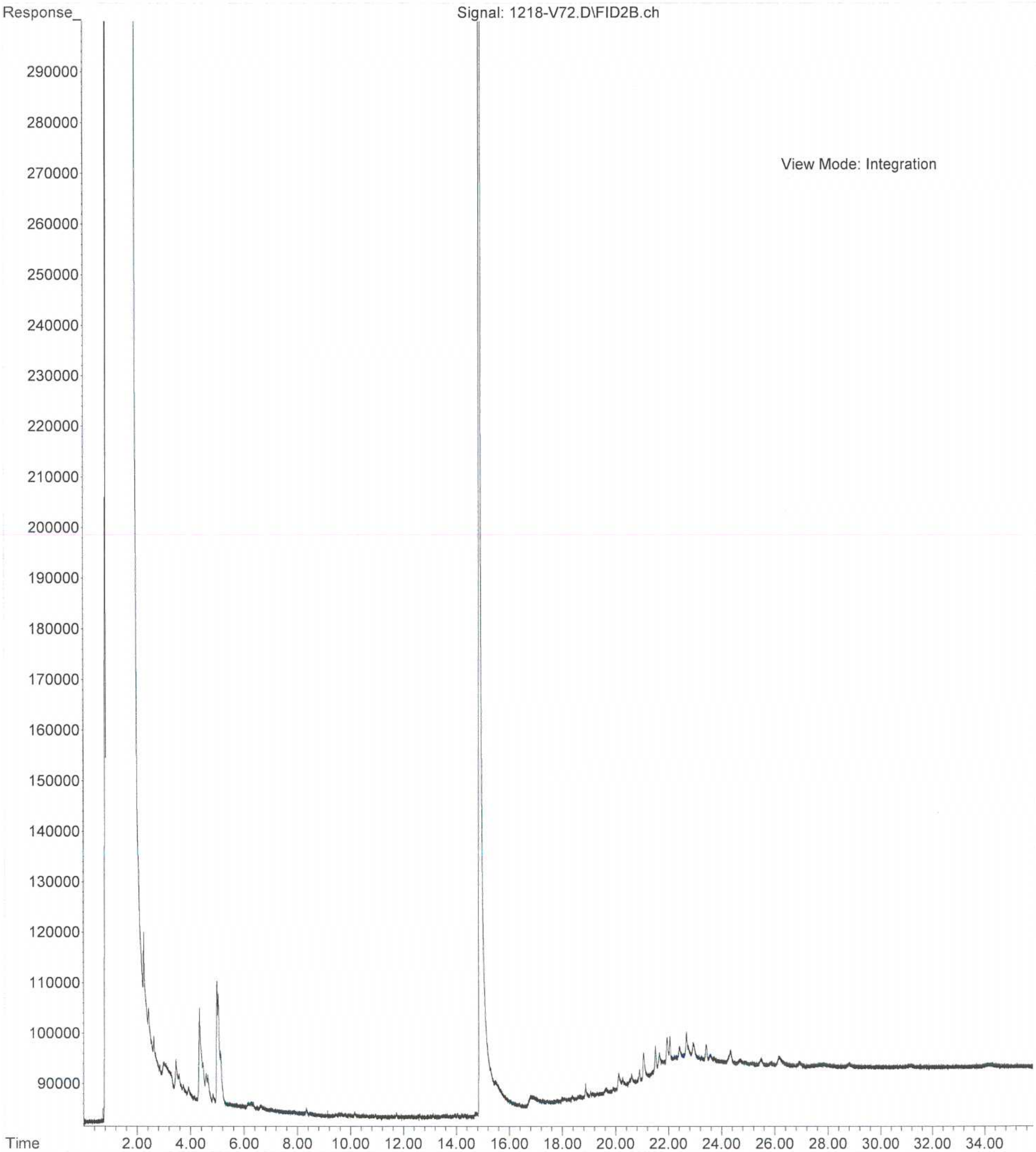
Instrument :   Vigo
Sample Name: 12-180-07
Misc Info   :
Vial Number: 72



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

December 29, 2014

Kim Stilson
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-998
Laboratory Reference No. 1412-191

Dear Kim:

Enclosed are the analytical results and associated quality control data for samples submitted on December 17, 2014.

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: December 29, 2014
Samples Submitted: December 17, 2014
Laboratory Reference: 1412-191
Project: 2007-098-998

Case Narrative

Samples were collected on December 16, 2014 and received by the laboratory on December 17, 2014. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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: December 29, 2014
Samples Submitted: December 17, 2014
Laboratory Reference: 1412-191
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	12-191-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloromethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Iodomethane	ND	1.9	EPA 8260C	12-18-14	12-18-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-18-14	12-18-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroform	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Trichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	12-18-14	12-18-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	

Date of Report: December 29, 2014
Samples Submitted: December 17, 2014
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HALOGENATED VOLATILES EPA 8260C
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	12-191-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Tetrachloroethene	1.0	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromoform	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Bromobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*91*	*79-122*				
Toluene-d8	*100*	*80-120*				
4-Bromofluorobenzene	*103*	*80-120*				

Date of Report: December 29, 2014
Samples Submitted: December 17, 2014
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HALOGENATED VOLATILES EPA 8260C
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BLMW-8**					
Laboratory ID:	12-191-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloromethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Iodomethane	ND	1.9	EPA 8260C	12-18-14	12-18-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-18-14	12-18-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroform	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Trichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	12-18-14	12-18-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	

Date of Report: December 29, 2014
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BLMW-8**					
Laboratory ID:	12-191-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Tetrachloroethene	0.69	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromoform	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Bromobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*94*	*79-122*				
Toluene-d8	*100*	*80-120*				
4-Bromofluorobenzene	*99*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-4**					
Laboratory ID:	12-191-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloromethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Iodomethane	ND	1.9	EPA 8260C	12-18-14	12-18-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-18-14	12-18-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroform	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Trichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	12-18-14	12-18-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-4**					
Laboratory ID:	12-191-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Tetrachloroethene	0.54	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromoform	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Bromobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*86*	*79-122*				
Toluene-d8	*97*	*80-120*				
4-Bromofluorobenzene	*96*	*80-120*				

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HALOGENATED VOLATILES EPA 8260C
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-17**					
Laboratory ID:	12-191-04					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloromethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Iodomethane	ND	1.9	EPA 8260C	12-18-14	12-18-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-18-14	12-18-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroform	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Trichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	12-18-14	12-18-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-17**					
Laboratory ID:	12-191-04					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Tetrachloroethene	0.52	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromoform	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Bromobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*79-122*				
Toluene-d8	*99*	*80-120*				
4-Bromofluorobenzene	*100*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW20**					
Laboratory ID:	12-191-05					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloromethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Iodomethane	ND	1.9	EPA 8260C	12-18-14	12-18-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-18-14	12-18-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroform	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Trichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	12-18-14	12-18-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW20**					
Laboratory ID:	12-191-05					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Tetrachloroethene	0.41	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromoform	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Bromobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*88*	*79-122*				
Toluene-d8	*97*	*80-120*				
4-Bromofluorobenzene	*100*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW12**					
Laboratory ID:	12-191-06					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloromethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Iodomethane	ND	1.9	EPA 8260C	12-18-14	12-18-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-18-14	12-18-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroform	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Trichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	12-18-14	12-18-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW12**					
Laboratory ID:	12-191-06					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Tetrachloroethene	0.44	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromoform	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Bromobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*92*	*79-122*				
Toluene-d8	*96*	*80-120*				
4-Bromofluorobenzene	*98*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TB**					
Laboratory ID:	12-191-07					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloromethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Iodomethane	ND	1.9	EPA 8260C	12-18-14	12-18-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-18-14	12-18-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroform	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Trichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	12-18-14	12-18-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TB**					
Laboratory ID:	12-191-07					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Tetrachloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromoform	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Bromobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*91*	*79-122*				
Toluene-d8	*95*	*80-120*				
4-Bromofluorobenzene	*95*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-16**					
Laboratory ID:	12-191-08					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloromethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Iodomethane	ND	1.9	EPA 8260C	12-18-14	12-18-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-18-14	12-18-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroform	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Trichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	12-18-14	12-18-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-16**					
Laboratory ID:	12-191-08					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Tetrachloroethene	0.39	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromoform	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Bromobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*95*	*79-122*				
Toluene-d8	*95*	*80-120*				
4-Bromofluorobenzene	*95*	*80-120*				

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HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1218W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloromethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Vinyl Chloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroethane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Iodomethane	ND	1.9	EPA 8260C	12-18-14	12-18-14	
Methylene Chloride	ND	1.0	EPA 8260C	12-18-14	12-18-14	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chloroform	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Trichloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromomethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromodichloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	12-18-14	12-18-14	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-18-14	12-18-14	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1218W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Tetrachloroethene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Dibromochloromethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Chlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Bromoform	ND	1.0	EPA 8260C	12-18-14	12-18-14	
Bromobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-18-14	12-18-14	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-18-14	12-18-14	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Hexachlorobutadiene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-18-14	12-18-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*85*	*79-122*				
Toluene-d8	*98*	*80-120*				
4-Bromofluorobenzene	*99*	*80-120*				

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HALOGENATED VOLATILES EPA 8260C
MS/MSD 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:	12-191-02										
	MS	MSD	MS	MSD		MS	MSD				
1,1-Dichloroethene	**9.46**	**9.71**	10.0	10.0	ND	95	97	69-133	3	15	
Benzene	**8.89**	**9.62**	10.0	10.0	ND	89	96	75-119	8	15	
Trichloroethene	**8.52**	**8.99**	10.0	10.0	ND	85	90	75-120	5	15	
Toluene	**9.77**	**10.1**	10.0	10.0	ND	98	101	75-115	3	15	
Chlorobenzene	**9.15**	**9.72**	10.0	10.0	ND	92	97	75-120	6	15	
Surrogate:											
Dibromofluoromethane						*93*	*92*	*79-122*			
Toluene-d8						*98*	*98*	*80-120*			
4-Bromofluorobenzene						*99*	*99*	*80-120*			

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	12-191-01					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**4.0**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**2.0**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**330**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*71-113*				
Client ID:	**BLMW-8**					
Laboratory ID:	12-191-02					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*71-113*				
Client ID:	**HZMW-4**					
Laboratory ID:	12-191-03					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*71-113*				

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-17**					
Laboratory ID:	12-191-04					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*71-113*				
Client ID:	**HZMW20**					
Laboratory ID:	12-191-05					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*71-113*				
Client ID:	**HZMW12**					
Laboratory ID:	12-191-06					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*71-113*				

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TB**					
Laboratory ID:	12-191-07					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*71-113*				
Client ID:	**BC-16**					
Laboratory ID:	12-191-08					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*80*	*71-113*				

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NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1217W2					
Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Toluene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Ethyl Benzene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
m,p-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
o-Xylene	**ND**	1.0	EPA 8021B	12-17-14	12-17-14	
Gasoline	**ND**	100	NWTPH-Gx	12-17-14	12-17-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*71-113*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-191-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**4.01**	**3.30**	NA	NA		NA		NA	19	30	
m,p-Xylene	**1.95**	**1.50**	NA	NA		NA		NA	26	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**325**	**301**	NA	NA		NA		NA	8	30	
Surrogate:											
Fluorobenzene						*90*	*83*	*71-113*			
MATRIX SPIKES											
Laboratory ID:	12-180-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**52.6**	**53.5**	50.0	50.0	ND	**105**	**107**	82-120	2	14	
Toluene	**52.6**	**53.4**	50.0	50.0	ND	**105**	**107**	83-120	2	14	
Ethyl Benzene	**51.9**	**52.9**	50.0	50.0	ND	**104**	**106**	83-120	2	15	
m,p-Xylene	**52.7**	**53.5**	50.0	50.0	ND	**105**	**107**	81-123	2	15	
o-Xylene	**51.3**	**52.5**	50.0	50.0	ND	**103**	**105**	80-120	2	16	
Surrogate:											
Fluorobenzene						*98*	*97*	*71-113*			

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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-19**					
Laboratory ID:	12-191-01					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-19-14	12-19-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-19-14	12-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*73*	*50-150*				
Client ID:	**BLMW-8**					
Laboratory ID:	12-191-02					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-19-14	12-19-14	
Lube Oil Range Organics	**0.63**	0.41	NWTPH-Dx	12-19-14	12-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*68*	*50-150*				
Client ID:	**HZMW-4**					
Laboratory ID:	12-191-03					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-19-14	12-19-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-19-14	12-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*76*	*50-150*				
Client ID:	**HZMW-17**					
Laboratory ID:	12-191-04					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-19-14	12-19-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-19-14	12-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**HZMW20**					
Laboratory ID:	12-191-05					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	12-19-14	12-19-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-19-14	12-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*69*	*50-150*				
Client ID:	**HZMW12**					
Laboratory ID:	12-191-06					
Diesel Range Organics	**0.46**	0.26	NWTPH-Dx	12-19-14	12-19-14	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	12-19-14	12-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*72*	*50-150*				

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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC-16**					
Laboratory ID:	12-191-08					
Diesel Range Organics	**0.55**	0.27	NWTPH-Dx	12-19-14	12-19-14	
Lube Oil Range Organics	**0.54**	0.43	NWTPH-Dx	12-19-14	12-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*72*	*50-150*				

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NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
METHOD BLANK						
Laboratory ID:	MB1219W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	12-19-14	12-19-14	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	12-19-14	12-19-14	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*65*	*50-150*				

Analyte	**Result**		**Spike Level**		**Source Result**	**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
DUPLICATE											
Laboratory ID:	12-191-01										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*73*	*79*	*50-150*			

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TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-191-01					
Client ID:	**HZMW-19**					
Arsenic	**ND**	3.3	200.8	12-24-14	12-24-14	
Lab ID:	12-191-02					
Client ID:	**BLMW-8**					
Arsenic	**ND**	3.3	200.8	12-24-14	12-24-14	
Lab ID:	12-191-03					
Client ID:	**HZMW-4**					
Arsenic	**ND**	3.3	200.8	12-24-14	12-24-14	
Lab ID:	12-191-04					
Client ID:	**HZMW-17**					
Arsenic	**5.1**	3.3	200.8	12-24-14	12-24-14	
Lab ID:	12-191-05					
Client ID:	**HZMW20**					
Arsenic	**ND**	3.3	200.8	12-24-14	12-24-14	
Lab ID:	12-191-06					
Client ID:	**HZMW12**					
Arsenic	**14**	3.3	200.8	12-24-14	12-24-14	
Lab ID:	12-191-08					
Client ID:	**BC-16**					
Arsenic	**23**	3.3	200.8	12-24-14	12-24-14	

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TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-24-14
Date Analyzed:	12-24-14
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1224WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3

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Samples Submitted: December 17, 2014
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Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 12-24-14
Date Analyzed: 12-24-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-191-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.3	

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TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 12-24-14
Date Analyzed: 12-24-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-191-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	111	**115**	104	**113**	102	2	

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DISSOLVED ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-191-01					
Client ID:	**HZMW-19**					
Arsenic	**ND**	3.0	200.8		12-23-14	
Lab ID:	12-191-02					
Client ID:	**BLMW-8**					
Arsenic	**ND**	3.0	200.8		12-23-14	
Lab ID:	12-191-03					
Client ID:	**HZMW-4**					
Arsenic	**ND**	3.0	200.8		12-23-14	
Lab ID:	12-191-04					
Client ID:	**HZMW-17**					
Arsenic	**ND**	3.0	200.8		12-23-14	
Lab ID:	12-191-05					
Client ID:	**HZMW20**					
Arsenic	**ND**	3.0	200.8		12-23-14	
Lab ID:	12-191-06					
Client ID:	**HZMW12**					
Arsenic	**15**	3.0	200.8		12-23-14	
Lab ID:	12-191-08					
Client ID:	**BC-16**					
Arsenic	**11**	3.0	200.8		12-23-14	

Date of Report: December 29, 2014
Samples Submitted: December 17, 2014
Laboratory Reference: 1412-191
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed:	12-23-14
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1223D1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0

Date of Report: December 29, 2014
Samples Submitted: December 17, 2014
Laboratory Reference: 1412-191
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 12-23-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-191-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	

Date of Report: December 29, 2014
Samples Submitted: December 17, 2014
Laboratory Reference: 1412-191
Project: 2007-098-998

DISSOLVED ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 12-23-14

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-191-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**207**	104	**212**	106	2	

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-napthalene) 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.

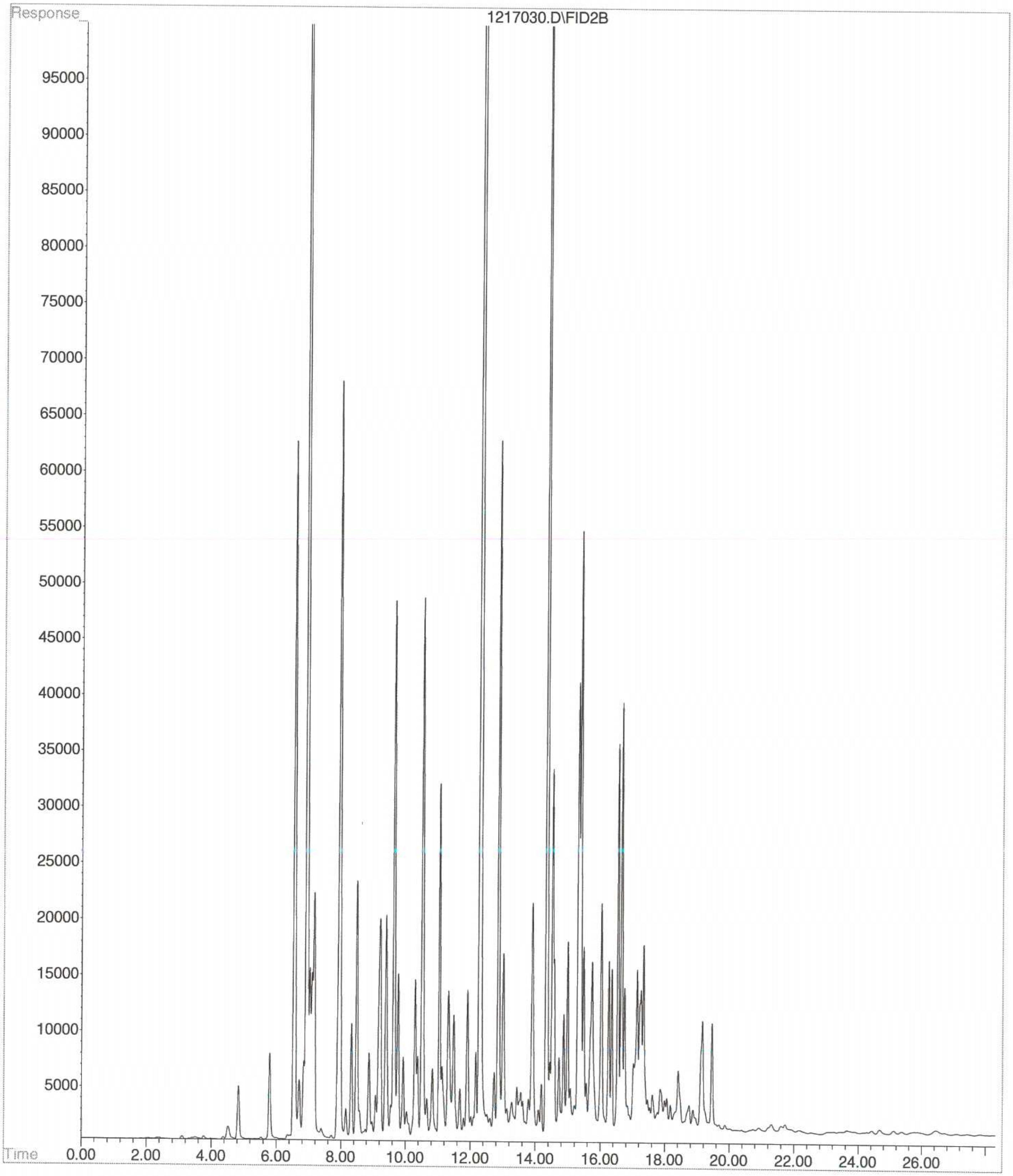
X1- Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, 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.

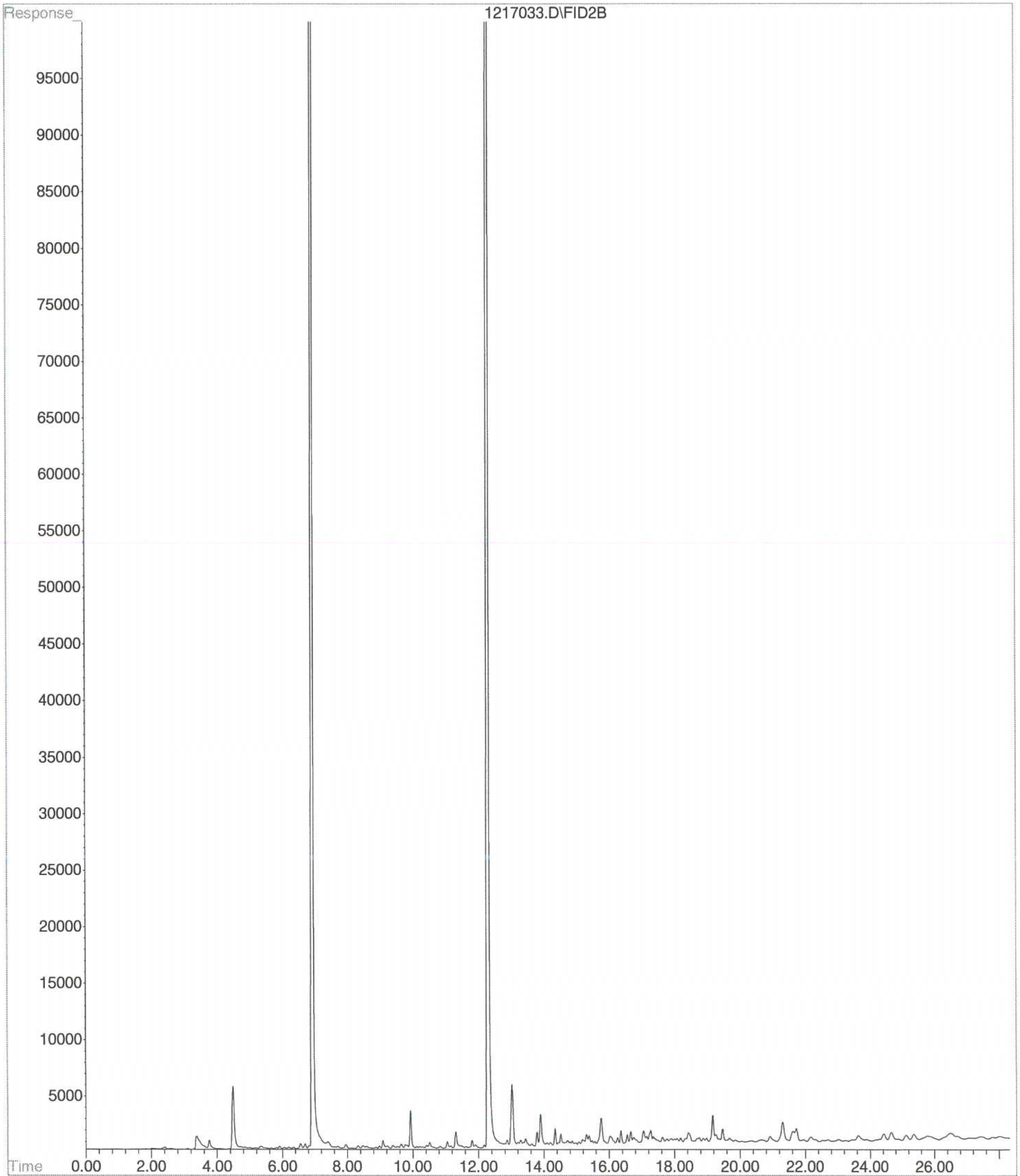
Z -

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

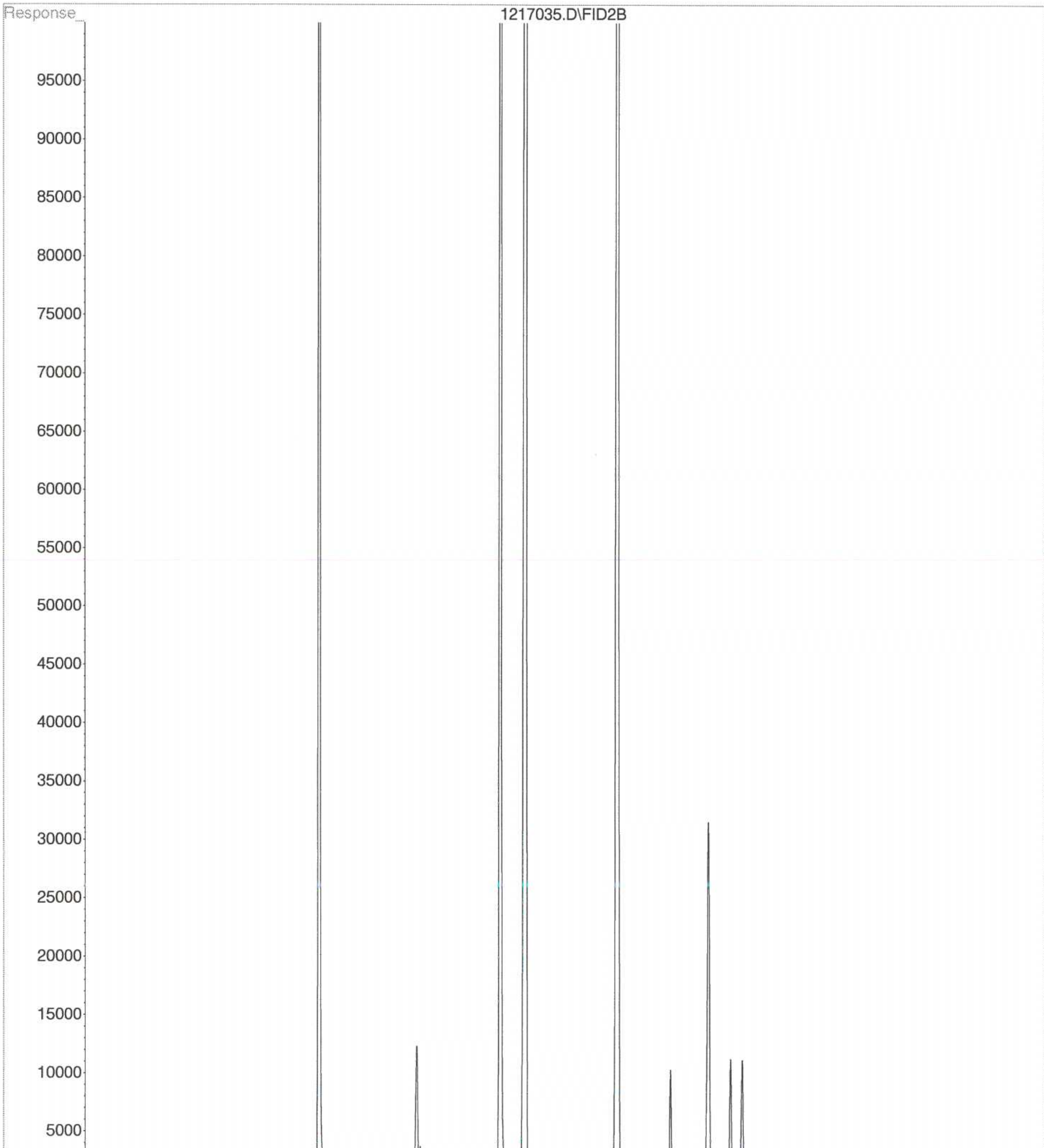
File : X:\BTEX\DARYL\DATA\D141217\1217030.D
Operator :
Acquired : 18 Dec 2014 4:28 using AcqMethod 141012DB.M
Instrument : Daryl
Sample Name: 12-191-01b
Misc Info : V2-36-23
Vial Number: 30



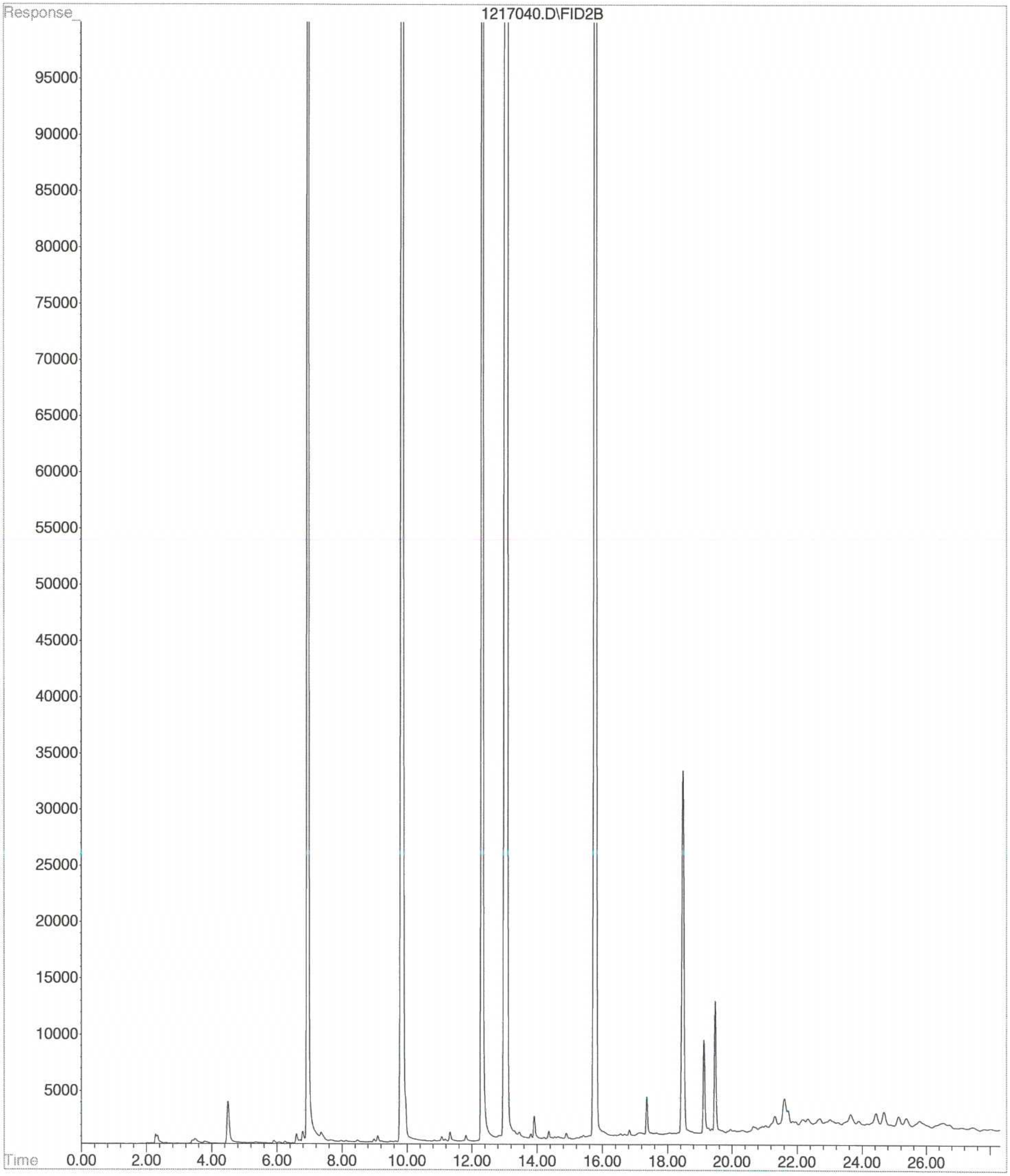
```
File       : X:\BTEX\DARYL\DATA\D141217\1217033.D
Operator   :
Acquired   : 18 Dec 2014   6:07     using AcqMethod 141012DB.M
Instrument :   Daryl
Sample Name: 12-191-02b
Misc Info  : V2-36-23
Vial Number: 33
```



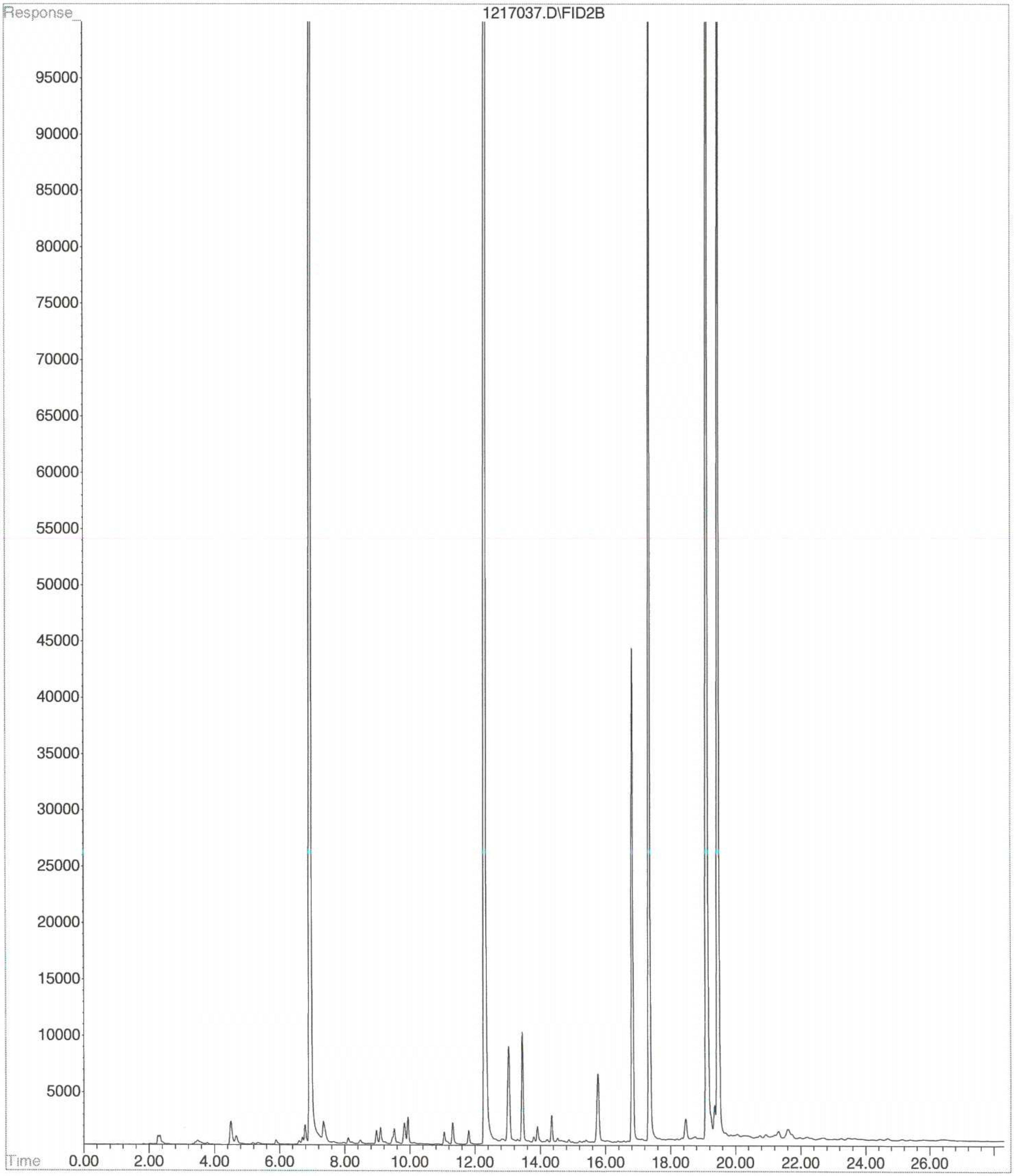
File   : X:\BTEX\DARYL\DATA\D141217\1217035.D
Operator   :
Acquired   : 18 Dec 2014   7:14   using AcqMethod 141012DB.M
Instrument :   Daryl
Sample Name: 12-191-03b
Misc Info : V2-36-23
Vial Number: 35



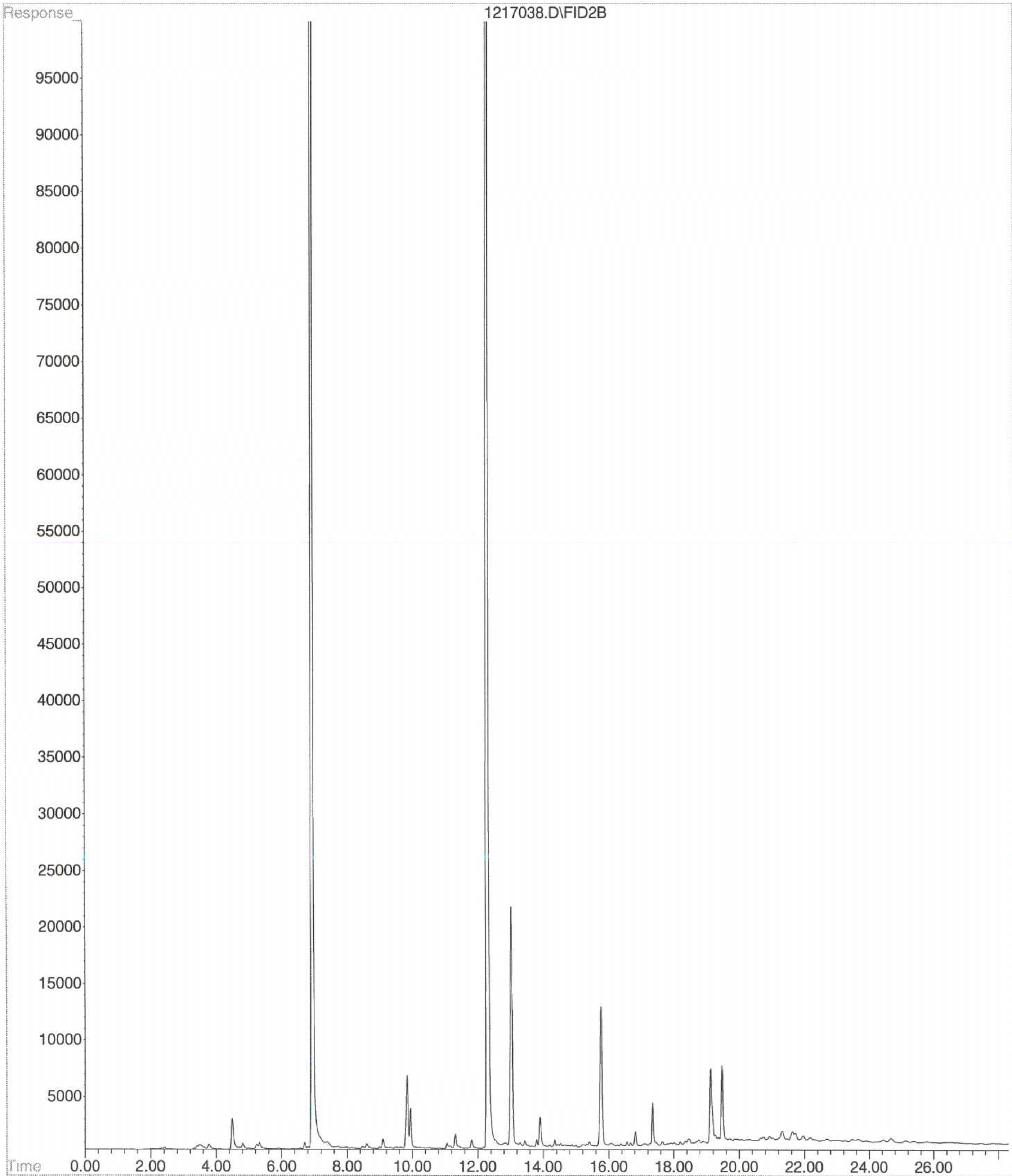
File : X:\BTEX\DARYL\DATA\D141217\1217040.D
Operator :
Acquired : 18 Dec 2014 10:04 using AcqMethod 141012DB.M
Instrument : Daryl
Sample Name: 12-191-04b RR
Misc Info : V2-36-23
Vial Number: 40



File   : X:\BTEX\DARYL\DATA\D141217\1217037.D
Operator   :
Acquired   : 18 Dec 2014   8:21   using AcqMethod 141012DB.M
Instrument :   Daryl
Sample Name: 12-191-05b
Misc Info : V2-36-23
Vial Number: 37



File : X:\BTEX\DARYL\DATA\D141217\1217038.D
Operator :
Acquired : 18 Dec 2014 8:55 using AcqMethod 141012DB.M
Instrument : Daryl
Sample Name: 12-191-06b
Misc Info : V2-36-23
Vial Number: 38



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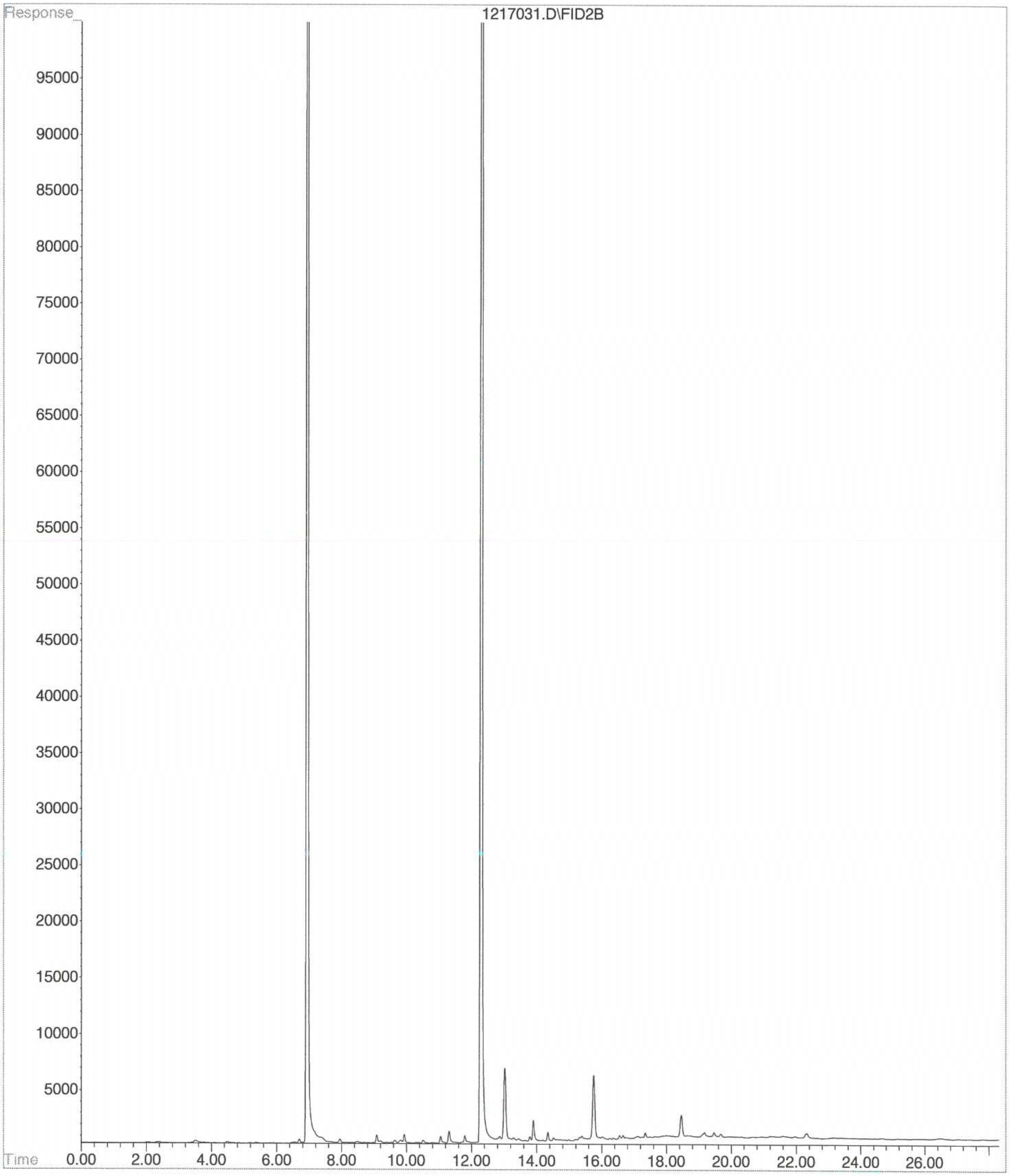
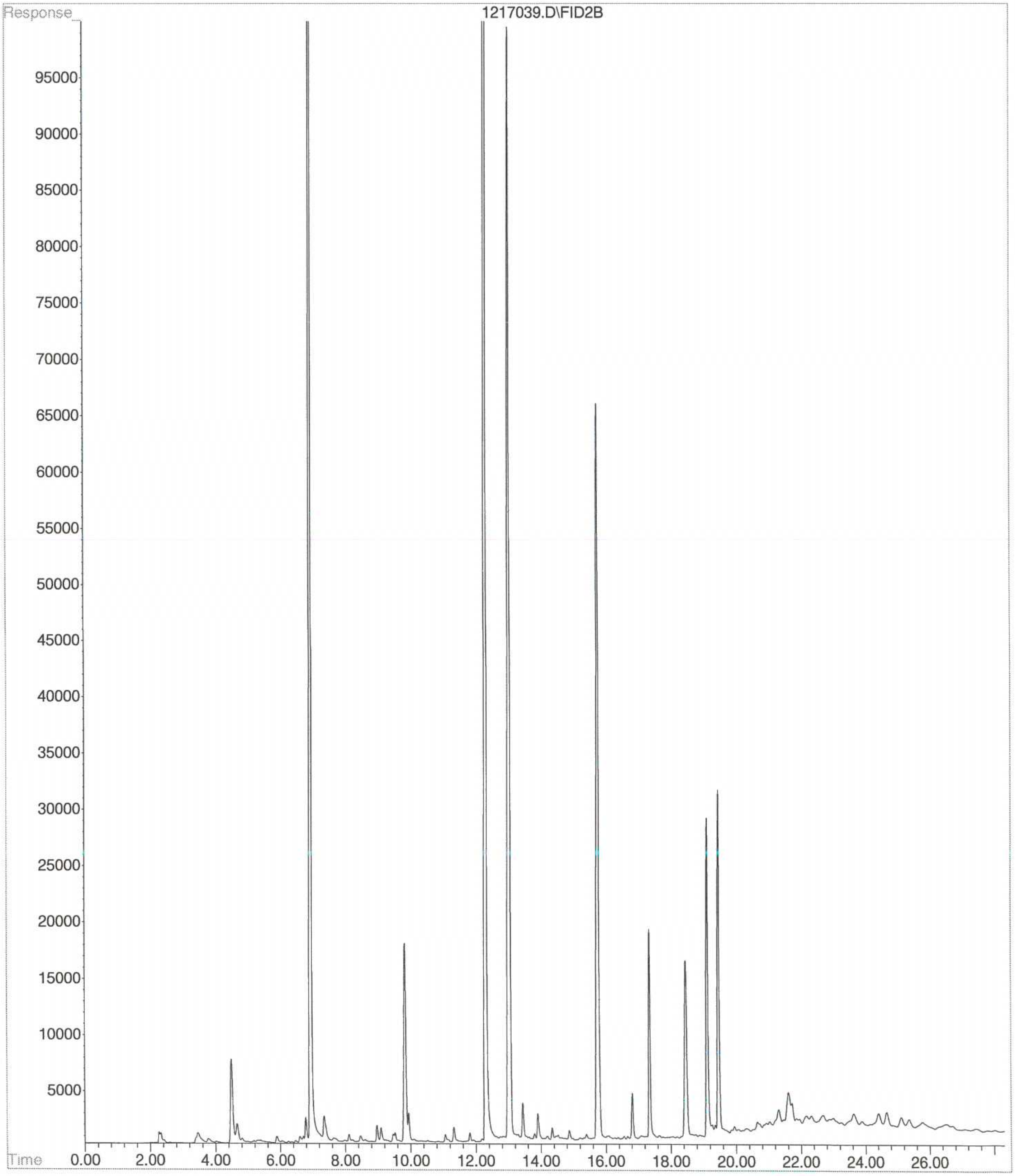
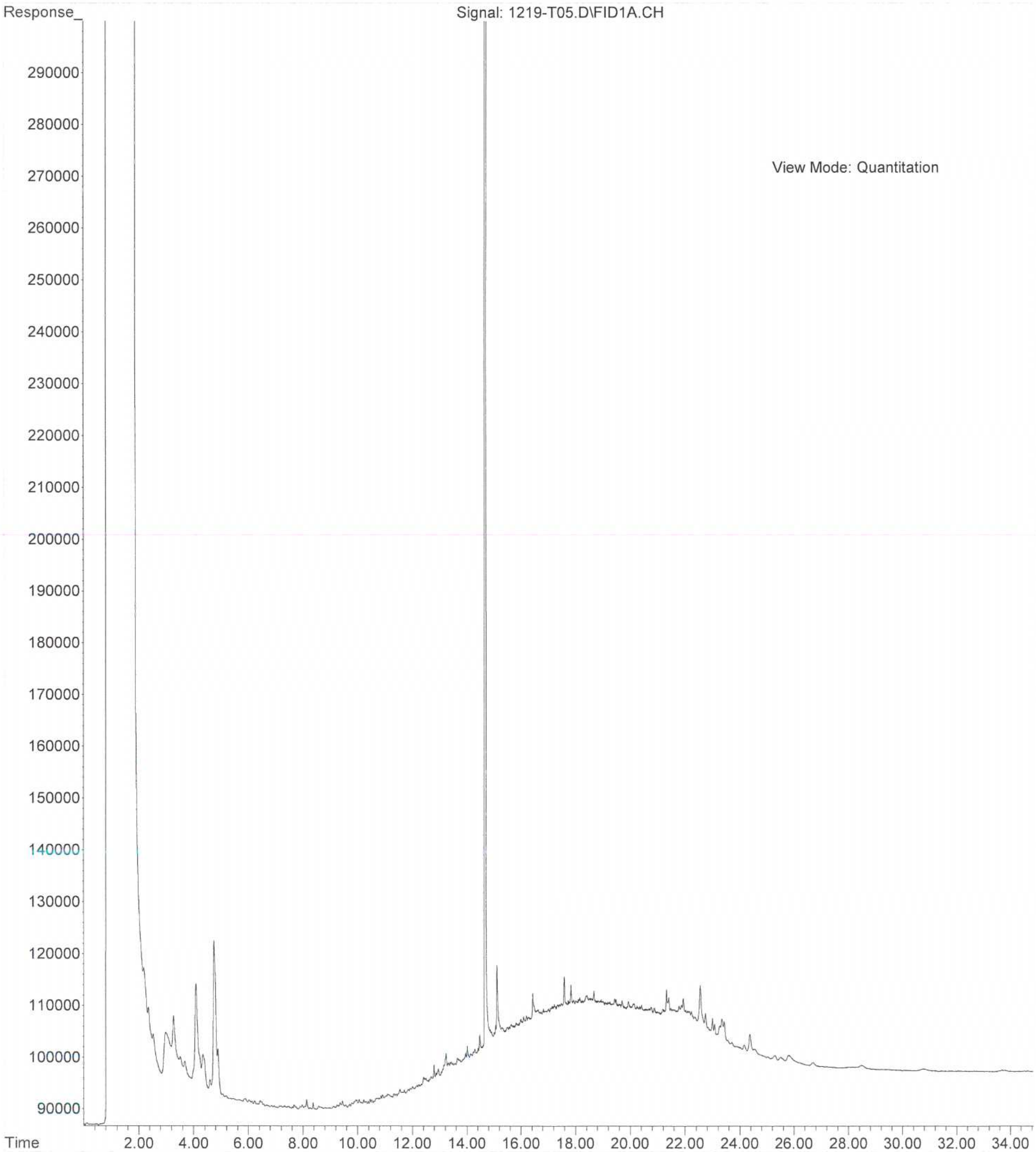
File        : X:\BTEX\DARYL\DATA\D141217\1217031.D
Operator    :
Acquired    : 18 Dec 2014   5:01     using AcqMethod 141012DB.M
Instrument :   Daryl
Sample Name: 12-191-07a
Misc Info  : V2-36-23
Vial Number: 31
```



File   : X:\BTEX\DARYL\DATA\D141217\1217039.D
Operator   :
Acquired   : 18 Dec 2014   9:28   using AcqMethod 141012DB.M
Instrument :   Daryl
Sample Name: 12-191-08b
Misc Info : V2-36-23
Vial Number: 39



File   :X:\DIESELS\TERI\DATA\T141219\1219-T05.D
Operator   : ZT
Acquired   : 19 Dec 2014 14:12   using AcqMethod T141208F.M
Instrument :   Teri
Sample Name: 12-191-02
Misc Info :
Vial Number: 5



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File        :X:\DIESELS\VIGO\DATA\V141219.SEC\1219-V67.D
Operator    :
Acquired    : 19 Dec 2014  23:37     using AcqMethod V141218F.M
Instrument :   Vigo
Sample Name: 12-191-06
Misc Info   :
Vial Number: 67
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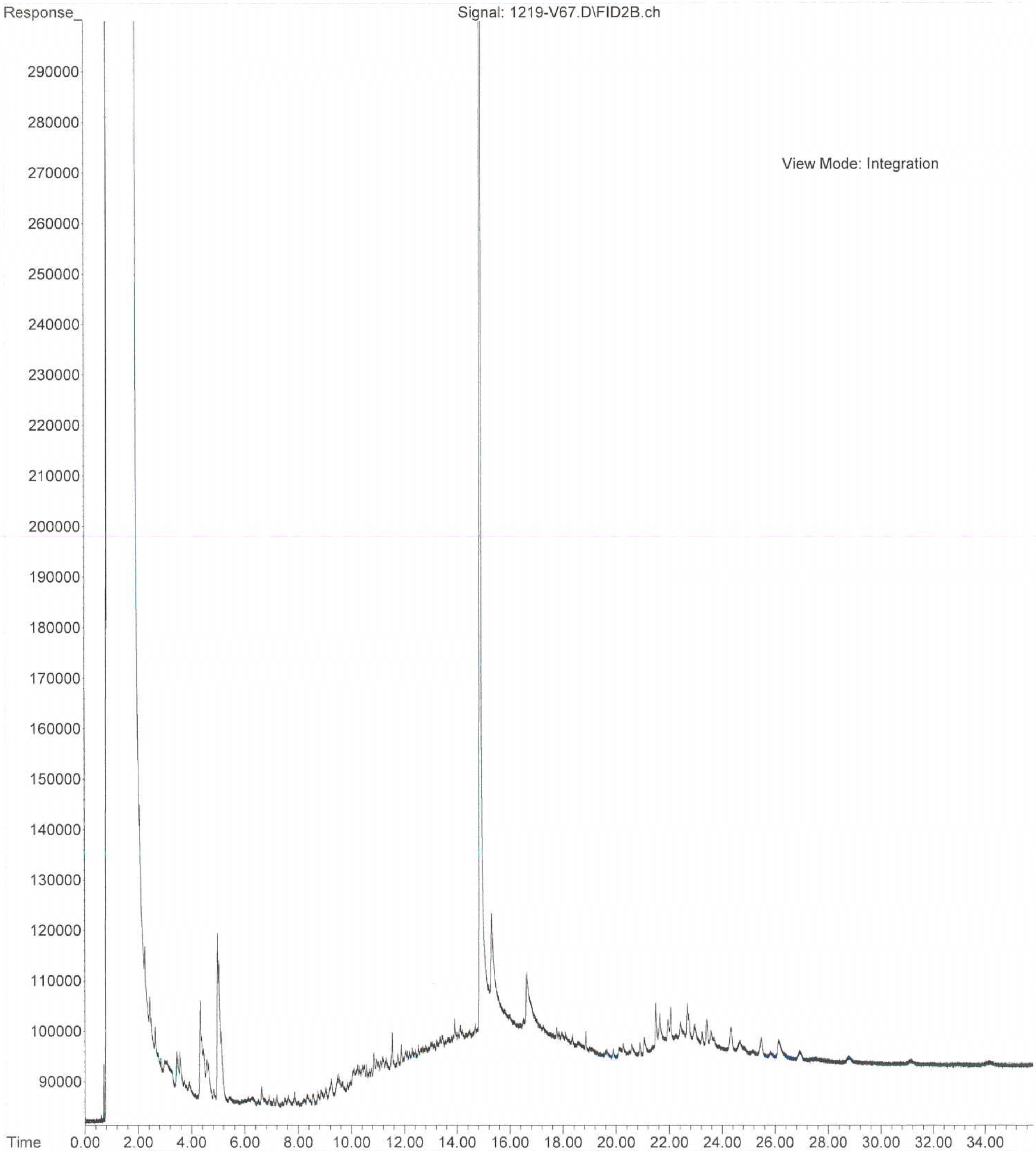

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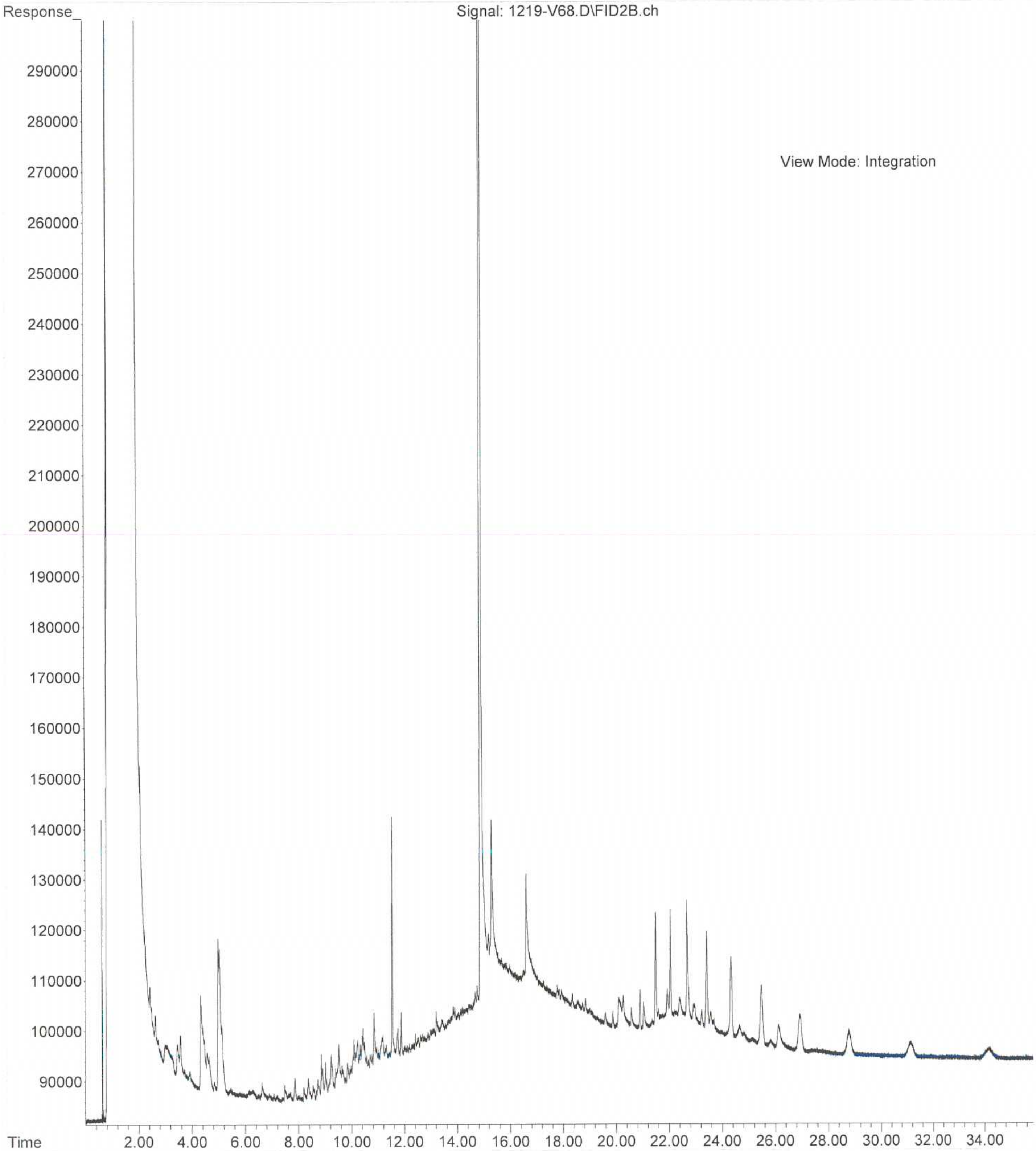
File        :X:\DIESELS\VIGO\DATA\V141219.SEC\1219-V68.D
Operator    :
Acquired    : 20 Dec 2014  00:18     using AcqMethod V141218F.M
Instrument  :   Vigo
Sample Name: 12-191-08
Misc Info   :
Vial Number: 68
```



HWA GEOSCIENCES INC.

21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

12-191

Chain of Custody and Laboratory Anaylsis Request

DATE: 12/16/14
PAGE: 1 of 1

PROJECT NAME: Bothell Hertz #: 2007-098-998
SAMPLERS NAME: KStilson PHONE:
SAMPLERS SIGNATURE: KStil DATE: 12/16/14
HWA CONTACT: KStilson PHONE:

TURNAROUND TIME
☐ DAYS
☒ STANDARD

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCs	TPH-G	BTEX	Dx	Total Metal	Diss Metal								EDD	REMARKS
HZMW-19	12/16/14	830	W	1	10	/	/	/	/	/	/									
BLMW-8		930	W	2	10	/	/	/	/	/	/									
HZMW-4		1015	W	3	10	/	/	/	/	/	/									All Diss Metal
HZMW-17		1045	W	4	10	/	/	/	/	/	/									field filtered
HZMW20		1145	W	5	10	/	/	/	/	/	/									
HZMW12		200	W	6	10	/	/	/	/	/	/									
TB	12/16/14	~~230~~	W	7	3	/	/	/												Total &
BC-16			W	8	10	/	/	/	/	/	/									Dissolved
																				Metals:
																				Arsenic

PRINT NAME		SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	KStilson	[illegible]	HWAGeo	12/16/14	9:09	
Received by:	Pat Miller	Pat Miller	Speedy	12/17/14	9:09	
Relinquished by:	Pat Miller	[illegible]	Speedy	12-17-14	10:02	
Received by:	Blair Goodrow	[illegible]	Friedman & Bruya	12/17/14	1002	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

OnSite
Environmental Inc.

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

April 1, 2015

Kim Stilson
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-2019
Laboratory Reference No. 1503-215

Dear Kim:

Enclosed are the analytical results and associated quality control data for samples submitted on March 19, 2015.

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 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

Case Narrative

Samples were collected on March 19, 2015 and received by the laboratory on March 19, 2015. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW1**					
Laboratory ID:	03-215-01					
Dichlorodifluoromethane	ND	0.25	EPA 8260C	3-23-15	3-23-15	
Chloromethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromomethane	ND	0.27	EPA 8260C	3-23-15	3-23-15	
Chloroethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Iodomethane	ND	1.7	EPA 8260C	3-23-15	3-23-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chloroform	ND	0.40	EPA 8260C	3-23-15	3-23-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Trichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromomethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW1**					
Laboratory ID:	03-215-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Tetrachloroethene	11	0.20	EPA 8260C	3-23-15	3-23-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromoform	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Bromobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
4-Chlorotoluene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,4-Dichlorobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichlorobenzene	ND	0.26	EPA 8260C	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*95*	*79-122*				
Toluene-d8	*96*	*80-120*				
4-Bromofluorobenzene	*104*	*80-120*				

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW17**					
Laboratory ID:	03-215-02					
Dichlorodifluoromethane	ND	0.25	EPA 8260C	3-23-15	3-23-15	
Chloromethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromomethane	ND	0.27	EPA 8260C	3-23-15	3-23-15	
Chloroethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Iodomethane	ND	1.7	EPA 8260C	3-23-15	3-23-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chloroform	ND	0.40	EPA 8260C	3-23-15	3-23-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Trichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromomethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW17**					
Laboratory ID:	03-215-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromoform	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Bromobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
4-Chlorotoluene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,4-Dichlorobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichlorobenzene	ND	0.26	EPA 8260C	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*79-122*				
Toluene-d8	*96*	*80-120*				
4-Bromofluorobenzene	*105*	*80-120*				

Date of Report: April 1, 2015
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW20**					
Laboratory ID:	03-215-03					
Dichlorodifluoromethane	ND	0.25	EPA 8260C	3-23-15	3-23-15	
Chloromethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromomethane	ND	0.27	EPA 8260C	3-23-15	3-23-15	
Chloroethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Iodomethane	ND	1.7	EPA 8260C	3-23-15	3-23-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chloroform	ND	0.40	EPA 8260C	3-23-15	3-23-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Trichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromomethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW20**					
Laboratory ID:	03-215-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromoform	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Bromobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
4-Chlorotoluene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,4-Dichlorobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichlorobenzene	ND	0.26	EPA 8260C	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*91*	*79-122*				
Toluene-d8	*91*	*80-120*				
4-Bromofluorobenzene	*97*	*80-120*				

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HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0323W1					
Dichlorodifluoromethane	ND	0.25	EPA 8260C	3-23-15	3-23-15	
Chloromethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromomethane	ND	0.27	EPA 8260C	3-23-15	3-23-15	
Chloroethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Iodomethane	ND	1.7	EPA 8260C	3-23-15	3-23-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chloroform	ND	0.40	EPA 8260C	3-23-15	3-23-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Trichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromomethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	

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Samples Submitted: March 19, 2015
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METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0323W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromoform	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Bromobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
4-Chlorotoluene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,4-Dichlorobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichlorobenzene	ND	0.26	EPA 8260C	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*89*	*79-122*				
Toluene-d8	*95*	*80-120*				
4-Bromofluorobenzene	*106*	*80-120*				

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0323W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**8.84**	**8.63**	10.0	10.0	88	86	64-138	2	16	
Benzene	**9.66**	**9.61**	10.0	10.0	97	96	76-125	1	14	
Trichloroethene	**8.22**	**8.12**	10.0	10.0	82	81	70-125	1	16	
Toluene	**10.4**	**10.1**	10.0	10.0	104	101	75-125	3	15	
Chlorobenzene	**8.54**	**8.33**	10.0	10.0	85	83	80-140	2	15	
Surrogate:										
Dibromofluoromethane					*94*	*93*	*79-122*			
Toluene-d8					*96*	*96*	*80-120*			
4-Bromofluorobenzene					*104*	*104*	*80-120*			

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW1**					
Laboratory ID:	03-215-01					
Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Toluene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Gasoline	**ND**	100	NWTPH-Gx	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*82*	*71-113*				
Client ID:	**HZMW17**					
Laboratory ID:	03-215-02					
Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Toluene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Gasoline	**ND**	100	NWTPH-Gx	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*82*	*71-113*				
Client ID:	**HZMW20**					
Laboratory ID:	03-215-03					
Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Toluene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Gasoline	**ND**	100	NWTPH-Gx	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*83*	*71-113*				

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0323W1					
Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Toluene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Gasoline	**ND**	100	NWTPH-Gx	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*84*	*71-113*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-215-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*82*	*83*	*71-113*			
MATRIX SPIKES											
Laboratory ID:	03-215-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**47.0**	**51.2**	50.0	50.0	ND	**94**	**102**	82-120	9	14	
Toluene	**47.4**	**51.9**	50.0	50.0	ND	**95**	**104**	83-120	9	14	
Ethyl Benzene	**48.2**	**53.0**	50.0	50.0	ND	**96**	**106**	83-120	9	15	
m,p-Xylene	**48.1**	**52.9**	50.0	50.0	ND	**96**	**106**	81-123	10	15	
o-Xylene	**48.2**	**52.6**	50.0	50.0	ND	**96**	**105**	80-120	9	16	
Surrogate:											
Fluorobenzene						*90*	*99*	*71-113*			

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW1**					
Laboratory ID:	03-215-01					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-25-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-25-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**HZMW17**					
Laboratory ID:	03-215-02					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-25-15	3-26-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-25-15	3-26-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**HZMW20**					
Laboratory ID:	03-215-03					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-25-15	3-26-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-25-15	3-26-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*79*	*50-150*				

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0325W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	3-25-15	3-25-15	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-215-03										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*79*	*81*	*50-150*			

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TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-215-01					
Client ID:	**HZMW1**					
Arsenic	**ND**	3.3	200.8	3-26-15	3-26-15	
Lab ID:	03-215-02					
Client ID:	**HZMW17**					
Arsenic	**8.7**	3.3	200.8	3-26-15	3-26-15	
Lab ID:	03-215-03					
Client ID:	**HZMW20**					
Arsenic	**ND**	3.3	200.8	3-26-15	3-26-15	

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TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0326WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
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Project: 2007-098-2019

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.3	

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	111	**123**	111	**129**	116	4	

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
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DISSOLVED ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-215-01					
Client ID:	**HZMW1**					
Arsenic	**ND**	3.0	200.8		3-20-15	
Lab ID:	03-215-02					
Client ID:	**HZMW17**					
Arsenic	**ND**	3.0	200.8		3-20-15	
Lab ID:	03-215-03					
Client ID:	**HZMW20**					
Arsenic	**ND**	3.0	200.8		3-20-15	

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

DISSOLVED ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed: 3-20-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0320D1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

DISSOLVED ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 3-20-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	

Date of Report: April 1, 2015
Samples Submitted: March 19, 2015
Laboratory Reference: 1503-215
Project: 2007-098-2019

DISSOLVED ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 3-20-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**211**	106	**206**	103	2	

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-napthalene) 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 method 8260C, 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

03-215

HWA GEOSCIENCES INC.

21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

Chain of Custody and Laboratory Anaylsis Request

DATE: 3/19/15
PAGE: 1 of 1

PROJECT NAME: Bothell Hertz #: 2007-098-2019
SAMPLERS NAME: K Stilson PHONE:
SAMPLERS SIGNATURE: K Stilson DATE: 3/19/15
HWA CONTACT: K Stilson Asugar PHONE:

TURNAROUND TIME
☐ DAYS
☑ STANDARD

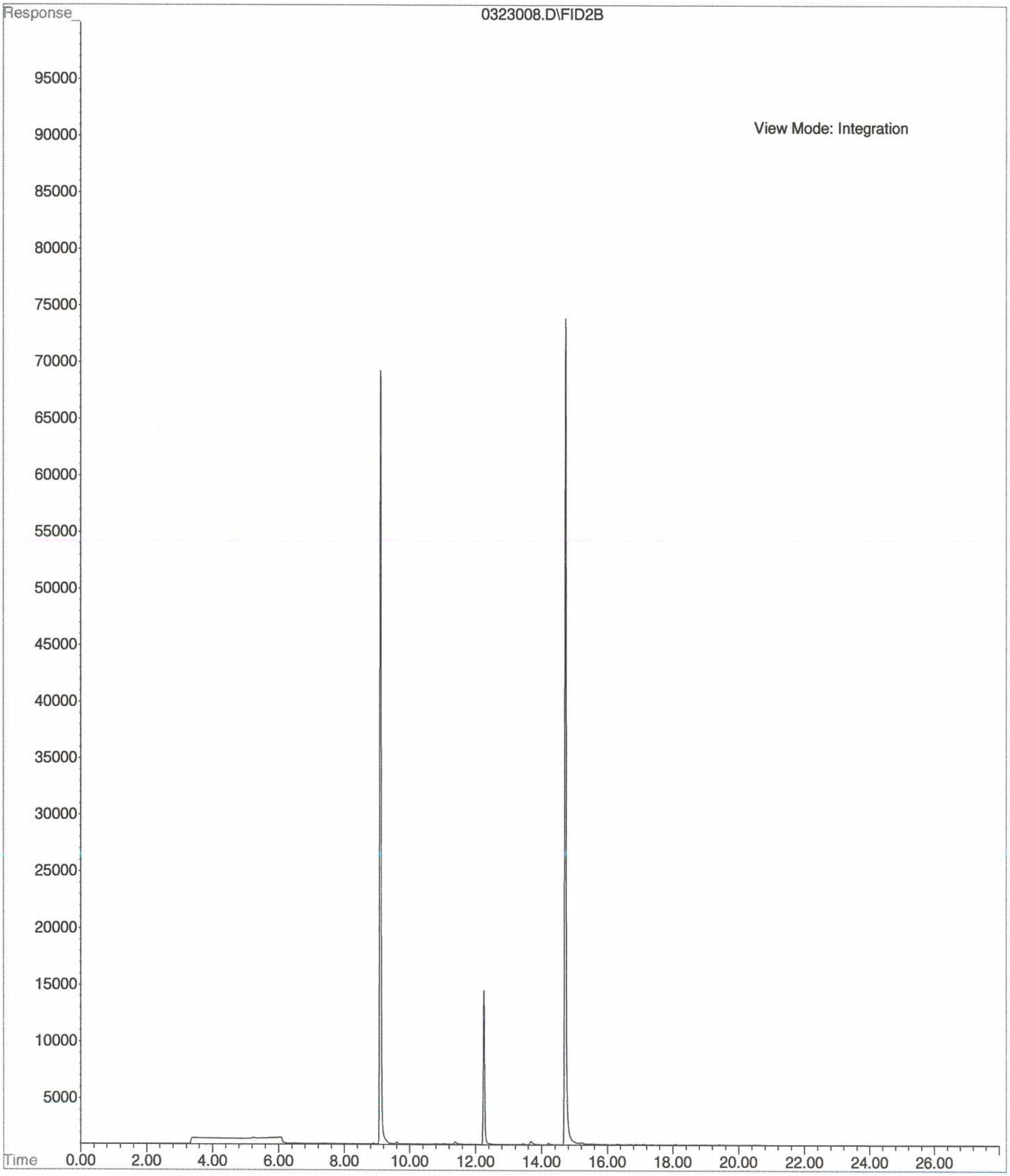
ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCs	TPH-G	BTEX	DX	Arsenic Total	Arsenic Diss	EDD	REMARKS
HZMW1	3/19/15	1130	w	1	9	\	\	\	\	\	\		
HZMW17	|	100	w	2	9	\	\	\	\	\	\		
HZMW20	|	215	w	3	9	\	\	\	\	\	\		Metals field filtered

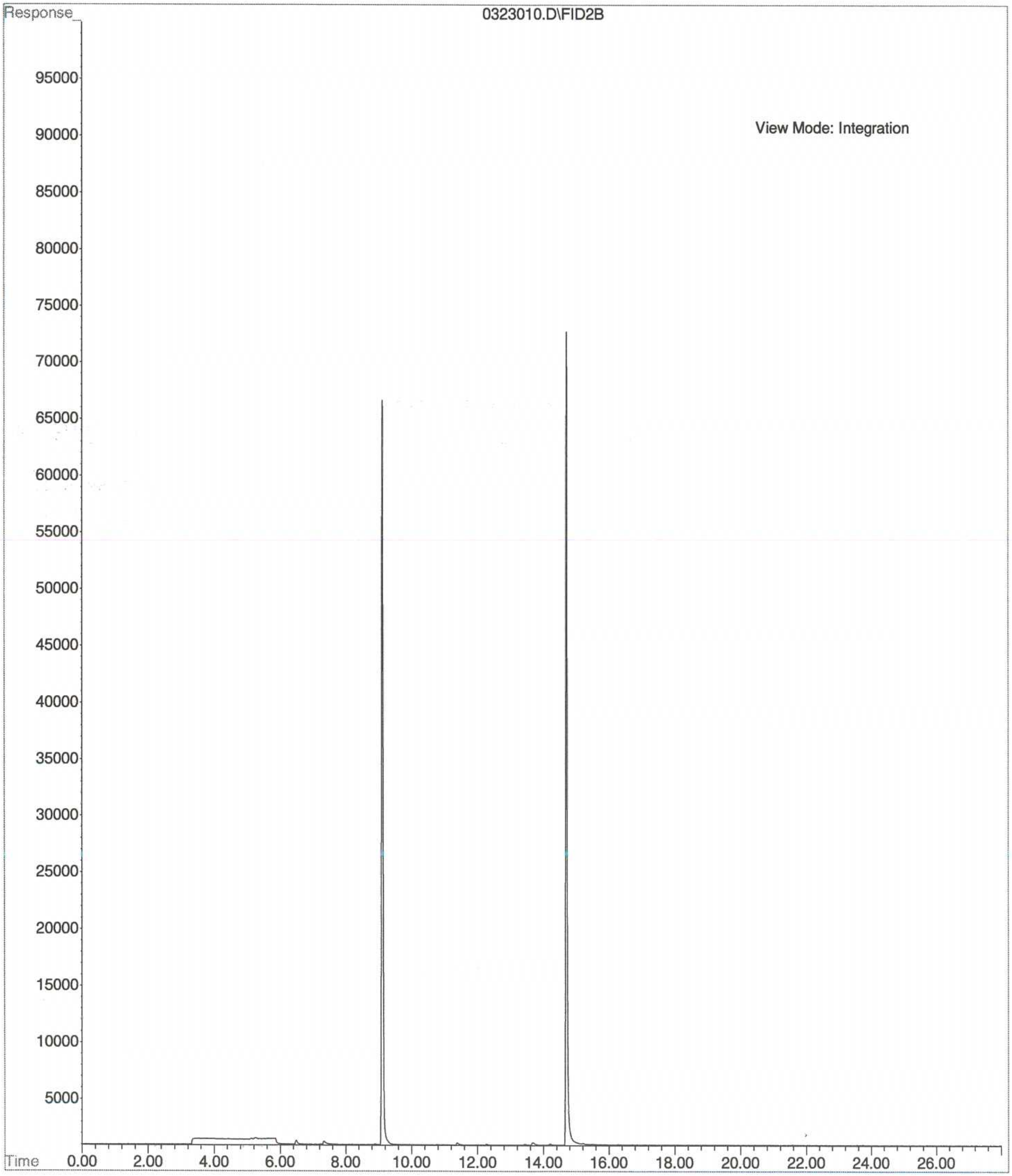
PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by: K Stilson	[signature]	HWA Geo	3/19/15	300	
Received by: Scott Williams	[signature]	Alpha	3/19/15	327	
Relinquished by: Scott Williams	" "	"	3/19/15	400	
Received by: MVOUN	[signature]	OSE	3/19/15	1600	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

File   : X:\BTEX\HOPE\DATA\H150323\0323008.D
Operator   :
Acquired   : 23 Mar 2015 14:38   using AcqMethod 150217B.M
Instrument :   HOPE
Sample Name: 03-215-01f
Misc Info : V2-36-17
Vial Number: 8



File : X:\BTEX\HOPE\DATA\H150323\0323010.D
Operator :
Acquired : 23 Mar 2015 15:46 using AcqMethod 150217B.M
Instrument : HOPE
Sample Name: 03-215-02f
Misc Info : V2-36-17
Vial Number: 10



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File        : X:\BTEX\HOPE\DATA\H150323\0323011.D
Operator    :
Acquired    : 23 Mar 2015  16:19     using AcqMethod 150217B.M
Instrument :    HOPE
Sample Name: 03-215-03f
Misc Info  : V2-36-17
Vial Number: 11
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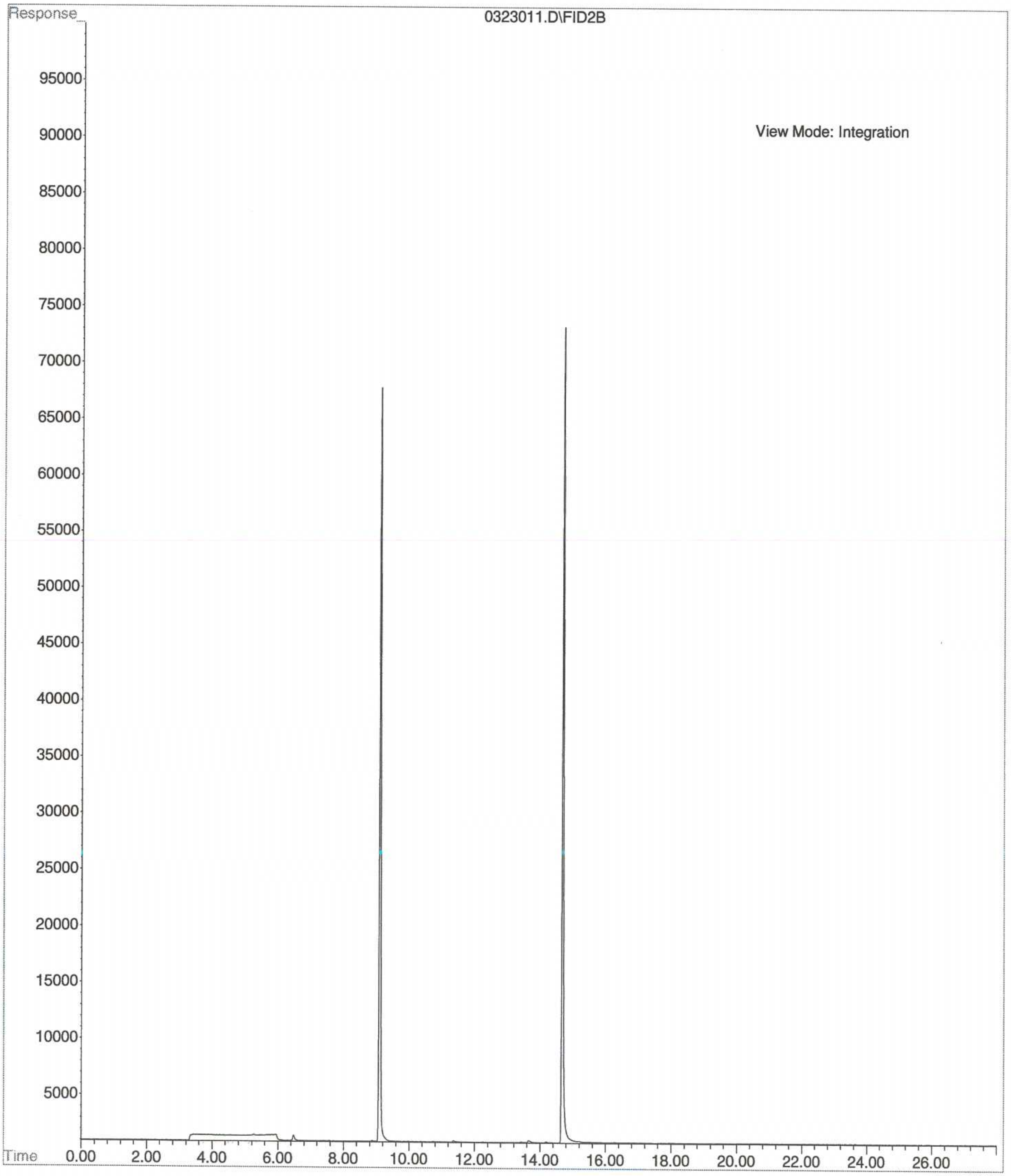
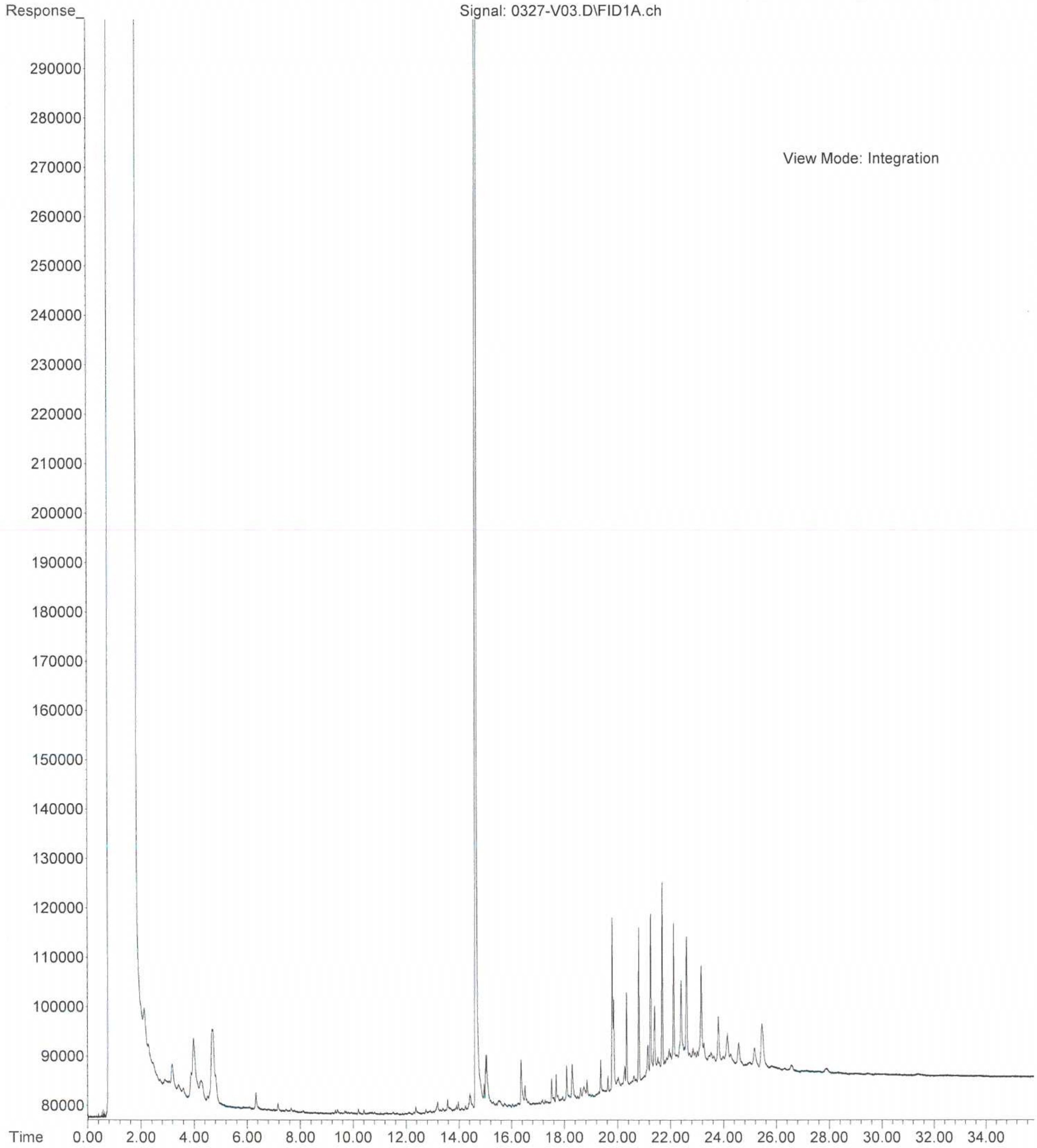
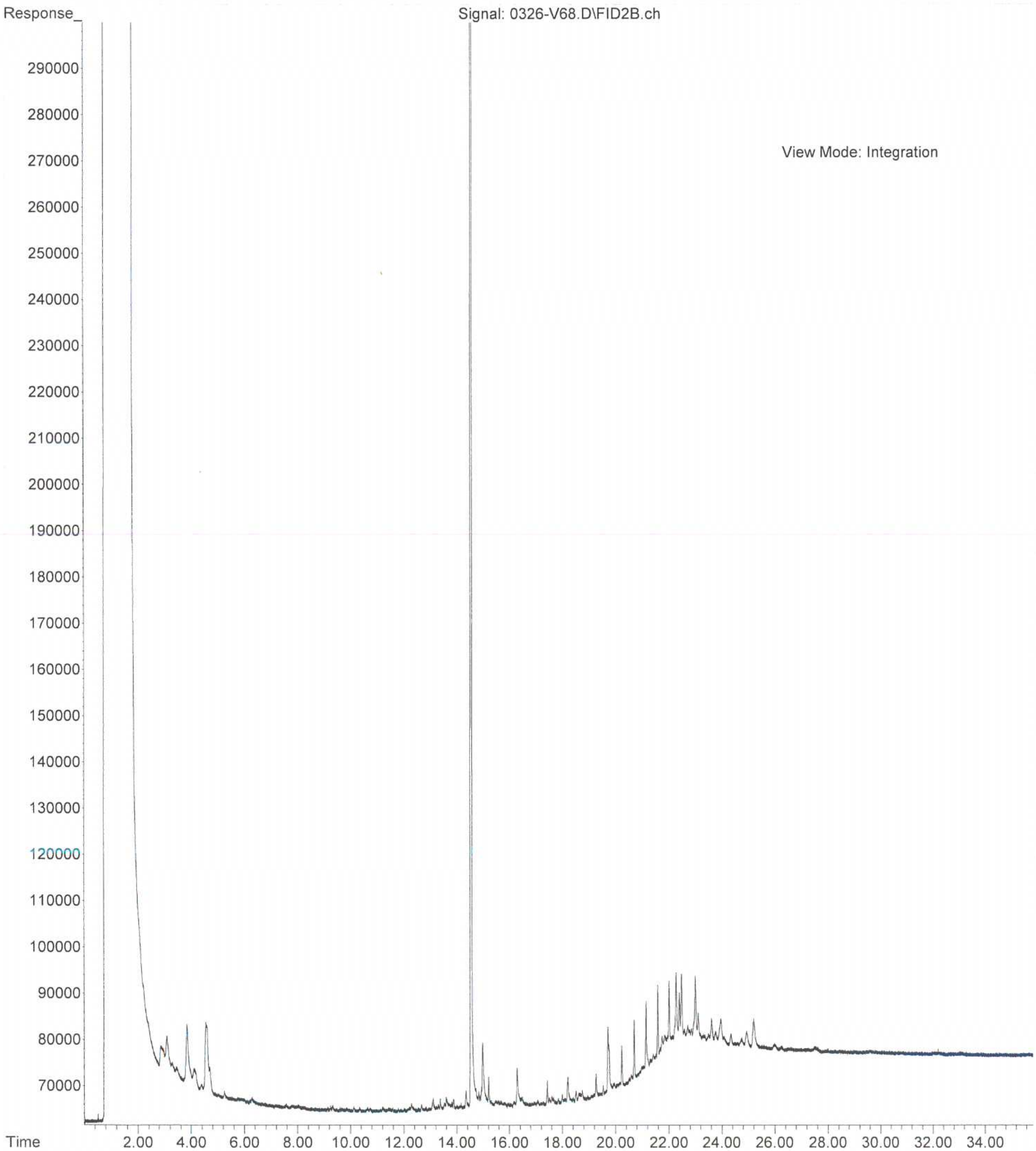


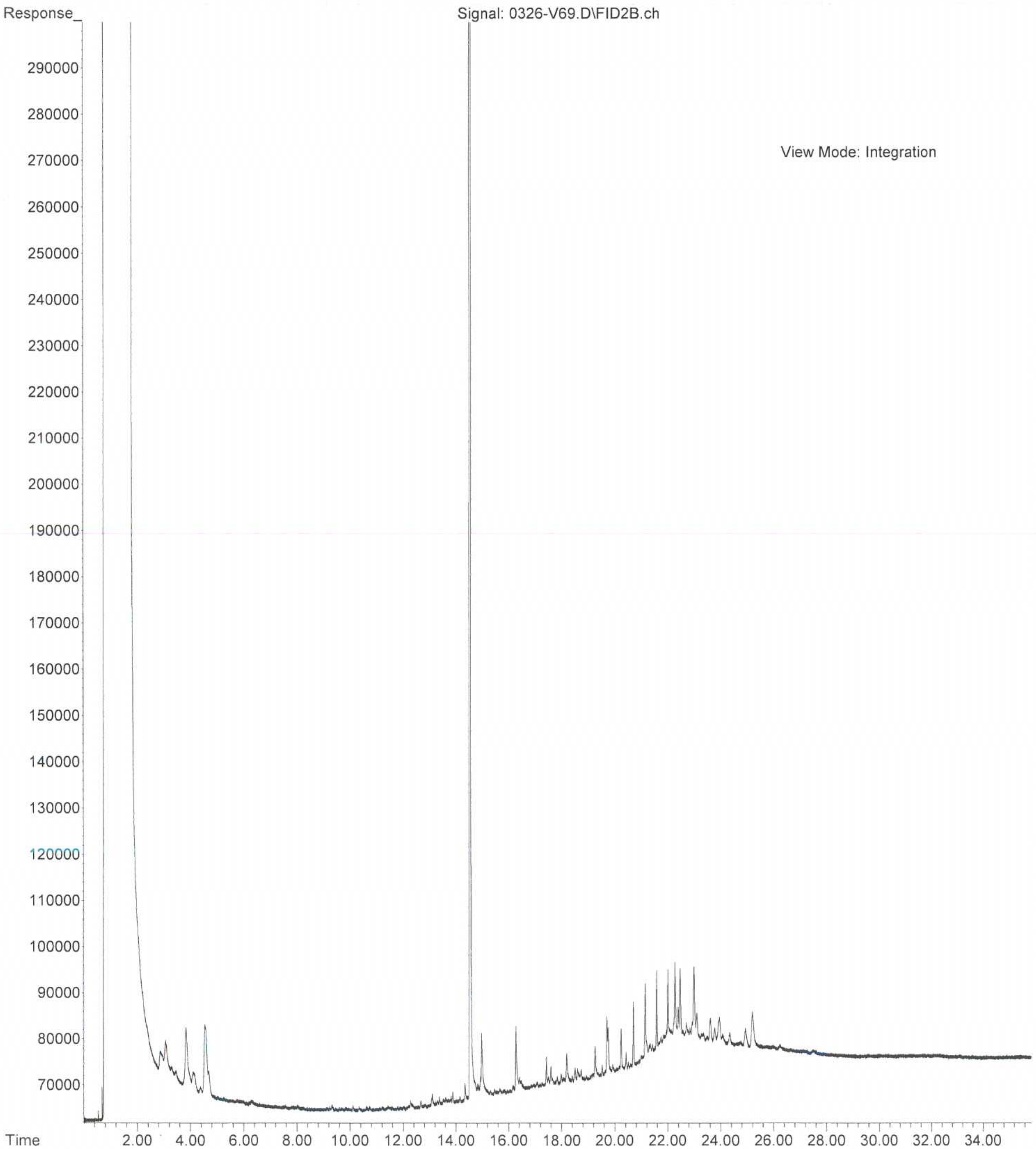
```
File        :X:\DIESELS\VIGO\DATA\V150327\0327-V03.D
Operator    :
Acquired    : 27 Mar 2015  11:40     using AcqMethod V150209F.M
Instrument :   Vigo
Sample Name: 03-215-01 RR
Misc Info   :
Vial Number: 3
```



File   :X:\DIESELS\VIGO\DATA\V150326.SEC\0326-V68.D
Operator   :
Acquired   : 26 Mar 2015 20:27   using AcqMethod V150209F.M
Instrument :   Vigo
Sample Name: 03-215-02
Misc Info   :
Vial Number: 68



File   :X:\DIESELS\VIGO\DATA\V150326.SEC\0326-V69.D
Operator   :
Acquired   : 26 Mar 2015 21:09   using AcqMethod V150209F.M
Instrument :   Vigo
Sample Name: 03-215-03
Misc Info   :
Vial Number: 69



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

March 30, 2015

Kim Stilson
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-2019
Laboratory Reference No. 1503-226

Dear Kim:

Enclosed are the analytical results and associated quality control data for samples submitted on March 20, 2015.

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: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

Case Narrative

Samples were collected on March 19, 2015 and received by the laboratory on March 20, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
Client ID:	**HZMW16**					
Laboratory ID:	03-226-01					
Dichlorodifluoromethane	ND	0.25	EPA 8260C	3-23-15	3-23-15	
Chloromethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromomethane	ND	0.27	EPA 8260C	3-23-15	3-23-15	
Chloroethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Iodomethane	ND	1.7	EPA 8260C	3-23-15	3-23-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(cis) 1,2-Dichloroethene	0.24	0.20	EPA 8260C	3-23-15	3-23-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chloroform	ND	0.40	EPA 8260C	3-23-15	3-23-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Trichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromomethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW16**					
Laboratory ID:	03-226-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Tetrachloroethene	0.35	0.20	EPA 8260C	3-23-15	3-23-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromoform	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Bromobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
4-Chlorotoluene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,4-Dichlorobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichlorobenzene	ND	0.26	EPA 8260C	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*95*	*79-122*				
Toluene-d8	*96*	*80-120*				
4-Bromofluorobenzene	*101*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW19**					
Laboratory ID:	03-226-02					
Dichlorodifluoromethane	ND	0.25	EPA 8260C	3-23-15	3-23-15	
Chloromethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromomethane	ND	0.27	EPA 8260C	3-23-15	3-23-15	
Chloroethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Iodomethane	ND	1.7	EPA 8260C	3-23-15	3-23-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chloroform	ND	0.40	EPA 8260C	3-23-15	3-23-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Trichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromomethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW19**					
Laboratory ID:	03-226-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromoform	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Bromobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
4-Chlorotoluene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,4-Dichlorobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichlorobenzene	ND	0.26	EPA 8260C	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*79-122*				
Toluene-d8	*94*	*80-120*				
4-Bromofluorobenzene	*107*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
Page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0323W1					
Dichlorodifluoromethane	ND	0.25	EPA 8260C	3-23-15	3-23-15	
Chloromethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromomethane	ND	0.27	EPA 8260C	3-23-15	3-23-15	
Chloroethane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Iodomethane	ND	1.7	EPA 8260C	3-23-15	3-23-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chloroform	ND	0.40	EPA 8260C	3-23-15	3-23-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Trichloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromomethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	3-23-15	3-23-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-23-15	3-23-15	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
Page 2 of 2

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
Laboratory ID:	MB0323W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Bromoform	ND	1.0	EPA 8260C	3-23-15	3-23-15	
Bromobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-23-15	3-23-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
4-Chlorotoluene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,4-Dichlorobenzene	ND	0.25	EPA 8260C	3-23-15	3-23-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	3-23-15	3-23-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-23-15	3-23-15	
1,2,3-Trichlorobenzene	ND	0.26	EPA 8260C	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*89*	*79-122*				
Toluene-d8	*95*	*80-120*				
4-Bromofluorobenzene	*106*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0323W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**8.84**	**8.63**	10.0	10.0	88	86	64-138	2	16	
Benzene	**9.66**	**9.61**	10.0	10.0	97	96	76-125	1	14	
Trichloroethene	**8.22**	**8.12**	10.0	10.0	82	81	70-125	1	16	
Toluene	**10.4**	**10.1**	10.0	10.0	104	101	75-125	3	15	
Chlorobenzene	**8.54**	**8.33**	10.0	10.0	85	83	80-140	2	15	
Surrogate:										
Dibromofluoromethane					*94*	*93*	*79-122*			
Toluene-d8					*96*	*96*	*80-120*			
4-Bromofluorobenzene					*104*	*104*	*80-120*			

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW16**					
Laboratory ID:	03-226-01					
Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Toluene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Gasoline	**ND**	100	NWTPH-Gx	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*78*	*71-113*				
Client ID:	**HZMW19**					
Laboratory ID:	03-226-02					
Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Toluene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Ethyl Benzene	**2.2**	1.0	EPA 8021B	3-23-15	3-23-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Gasoline	**110**	100	NWTPH-Gx	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0323W1					
Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Toluene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-23-15	3-23-15	
Gasoline	**ND**	100	NWTPH-Gx	3-23-15	3-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*84*	*71-113*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-215-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*82*	*83*	*71-113*			
MATRIX SPIKES											
Laboratory ID:	03-215-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**47.0**	**51.2**	50.0	50.0	ND	**94**	**102**	82-120	9	14	
Toluene	**47.4**	**51.9**	50.0	50.0	ND	**95**	**104**	83-120	9	14	
Ethyl Benzene	**48.2**	**53.0**	50.0	50.0	ND	**96**	**106**	83-120	9	15	
m,p-Xylene	**48.1**	**52.9**	50.0	50.0	ND	**96**	**106**	81-123	10	15	
o-Xylene	**48.2**	**52.6**	50.0	50.0	ND	**96**	**105**	80-120	9	16	
Surrogate:											
Fluorobenzene						*90*	*99*	*71-113*			

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW16**					
Laboratory ID:	03-226-01					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	3-25-15	3-26-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-25-15	3-26-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*91*	*50-150*				
Client ID:	**HZMW19**					
Laboratory ID:	03-226-02					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-25-15	3-26-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-25-15	3-26-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*81*	*50-150*				

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0325W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	3-25-15	3-25-15	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-226-02										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*81*	*87*	*50-150*			

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-226-01					
Client ID:	**HZMW16**					
Arsenic	**ND**	3.3	200.8	3-26-15	3-26-15	
Lab ID:	03-226-02					
Client ID:	**HZMW19**					
Arsenic	**ND**	3.3	200.8	3-26-15	3-26-15	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0326WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.3	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	111	**123**	111	**129**	116	4	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-226-01					
Client ID:	**HZMW16**					
Arsenic	**ND**	3.0	200.8		3-23-15	
Manganese	**60**	10	200.8		3-23-15	
Lab ID:	03-226-02					
Client ID:	**HZMW19**					
Arsenic	**ND**	3.0	200.8		3-23-15	
Manganese	**85**	10	200.8		3-23-15	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed: 3-23-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0323D1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0
Manganese	200.8	**ND**	10

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 3-23-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-226-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	
Manganese	**84.5**	**84.5**	0	10	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 3-23-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-226-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**211**	106	**208**	104	2	
Manganese	200	**289**	102	**277**	96	4	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

NITRATE (as Nitrogen)
EPA 353.2

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW16**					
Laboratory ID:	03-226-01					
Nitrate	**1.8**	0.050	EPA 353.2	3-20-15	3-20-15	

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW19**					
Laboratory ID:	03-226-02					
Nitrate	**ND**	0.050	EPA 353.2	3-20-15	3-20-15	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0323W2					
Nitrate	**ND**	0.050	EPA 353.2	3-20-15	3-20-15	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	03-226-01								
	ORIG	DUP							
Nitrate	**1.76**	**1.67**	NA	NA	NA	NA	5	13	
MATRIX SPIKE									
Laboratory ID:	03-226-01								
	MS		MS		MS				
Nitrate	**3.94**		2.00	1.76	109	90-123	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0323W2								
	SB		SB		SB				
Nitrate	**2.08**		2.00	NA	104	88-121	NA	NA	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

SULFATE
ASTM D516-07

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW16**					
Laboratory ID:	03-226-01					
Sulfate	**13**	10	ASTM D516-07	3-24-15	3-24-15	
Client ID:	**HZMW19**					
Laboratory ID:	03-226-02					
Sulfate	**ND**	5.0	ASTM D516-07	3-24-15	3-24-15	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

SULFATE
ASTM D516-07
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0324W1					
Sulfate	**ND**	5.0	ASTM D516-07	3-24-15	3-24-15	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	03-202-01								
	ORIG	DUP							
Sulfate	**28.4**	**29.2**	NA	NA	NA	NA	3	10	
MATRIX SPIKE									
Laboratory ID:	03-202-01								
	MS		MS		MS				
Sulfate	**83.4**		50.0	28.4	110	82-121	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0324W1								
	SB		SB		SB				
Sulfate	**10.3**		10.0	NA	103	90-114	NA	NA	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

DISSOLVED GASES
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW16**					
Laboratory ID:	03-226-01					
Methane	**ND**	0.50	RSK 175	3-24-15	3-24-15	
Client ID:	**HZMW19**					
Laboratory ID:	03-226-02					
Methane	**100**	5.0	RSK 175	3-24-15	3-24-15	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

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:	MB0324W1					
Methane	**ND**	0.50	RSK 175	3-24-15	3-24-15	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB0324W1										
	SB	SBD	SB	SBD		SB	SBD				
Methane	**4.06**	**3.85**	4.42	4.42	N/A	**92**	**87**	75-125	5	25	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

TOTAL ALKALINITY
SM 2320B

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW16**					
Laboratory ID:	03-226-01					
Total Alkalinity	**66**	2.0	SM 2320B	3-26-15	3-26-15	

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW19**					
Laboratory ID:	03-226-02					
Total Alkalinity	**120**	2.0	SM 2320B	3-26-15	3-26-15	

Date of Report: March 30, 2015
Samples Submitted: March 20, 2015
Laboratory Reference: 1503-226
Project: 2007-098-2019

TOTAL ALKALINITY
SM 2320B
QUALITY CONTROL

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0326W1					
Total Alkalinity	**ND**	2.0	SM 2320B	3-26-15	3-26-15	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	03-226-01								
	ORIG	DUP							
Total Alkalinity	**66.0**	**66.0**	NA	NA	NA	NA	0	10	
SPIKE BLANK									
Laboratory ID:	SB0326W1								
	SB		SB		SB				
Total Alkalinity	**106**		100	NA	106	88-114	NA	NA	

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-napthalene) 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 method 8260C, 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

HWA GEOSCIENCES INC.

21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

Chain of Custody and Laboratory Anaylsis Request

03-226

DATE: 3/20/15
PAGE: 1 of 1

PROJECT NAME: Bothell Hertz #: 2007-098-2019
SAMPLERS NAME: K Stilson PHONE:
SAMPLERS SIGNATURE: K [signature] DATE: 3/20/15
HWA CONTACT: KS + AS PHONE:

ANALYSIS REQUESTED

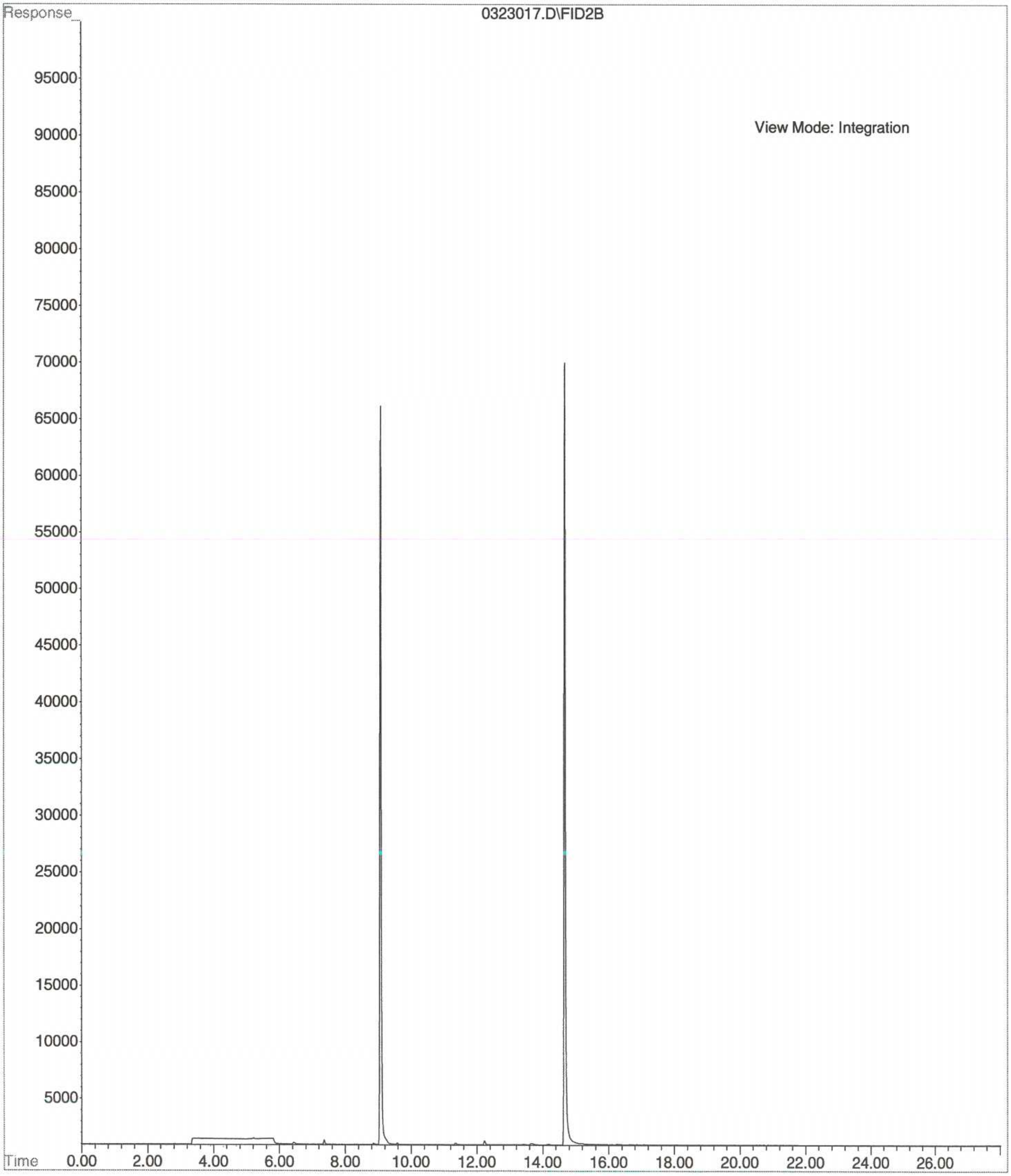
HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCS	TPH-G	DX	BTEX	Arsenic Total	Arsenic Diss	Nitrate	Manganese Diss	Sulfate	Methane	Alkalinity				EDD	REMARKS
HZMW16	3/19/15	530	W	1	14	/	/	/	/	/	/	/	/	/	/	/					
HZMW19	3/19/15	430	W	2	14	/	/	/	/	/	/	/	/	/	/	/					* Metals field filtered
					~~14~~																

TURNAROUND TIME
☐ DAYS
☒ STANDARD

PRINT NAME		SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	K Stilson	[signature]	HWA GeoScience	3/20/15	930	
Received by:	Jacob Hanson	[signature]	SPEEDY MSS	9/20/15	~~[illegible]~~ 1129	
Relinquished by:	Jacob Hanson	[signature]	Speedy MSS	9/20/15	1156	
Received by:	MVOW	[signature]	OSE	3/20/15	1156	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

File   : X:\BTEX\HOPE\DATA\H150323\0323017.D
Operator   :
Acquired   : 23 Mar 2015 19:40   using AcqMethod 150217B.M
Instrument :   HOPE
Sample Name: 03-226-01h
Misc Info   : V2-36-17
Vial Number: 17



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Operator    :
Acquired    : 23 Mar 2015  20:13     using AcqMethod 150217B.M
Instrument :   HOPE
Sample Name: 03-226-02h
Misc Info   : V2-36-17
Vial Number: 18
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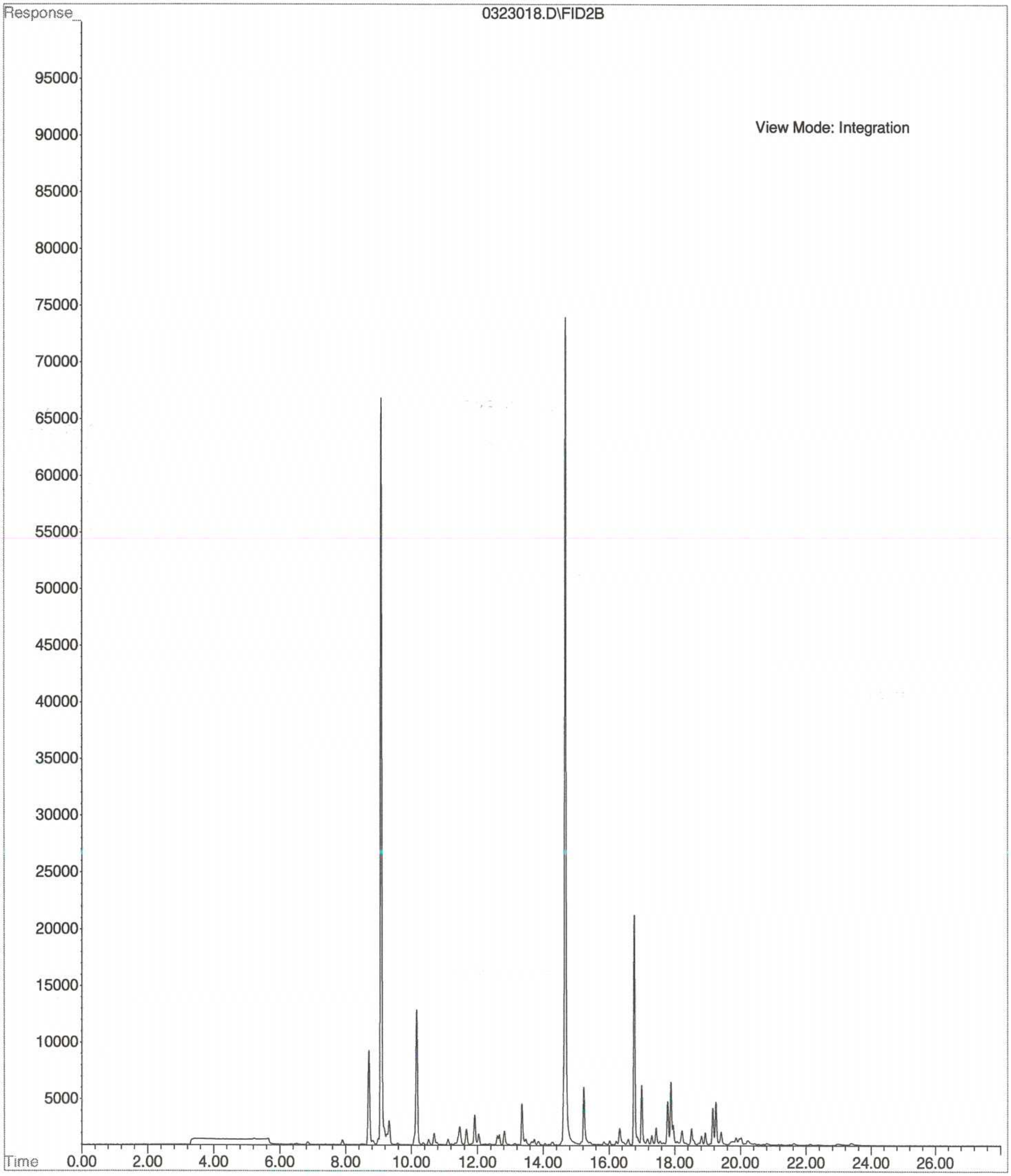

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Instrument :   Vigo
Sample Name: 03-226-01
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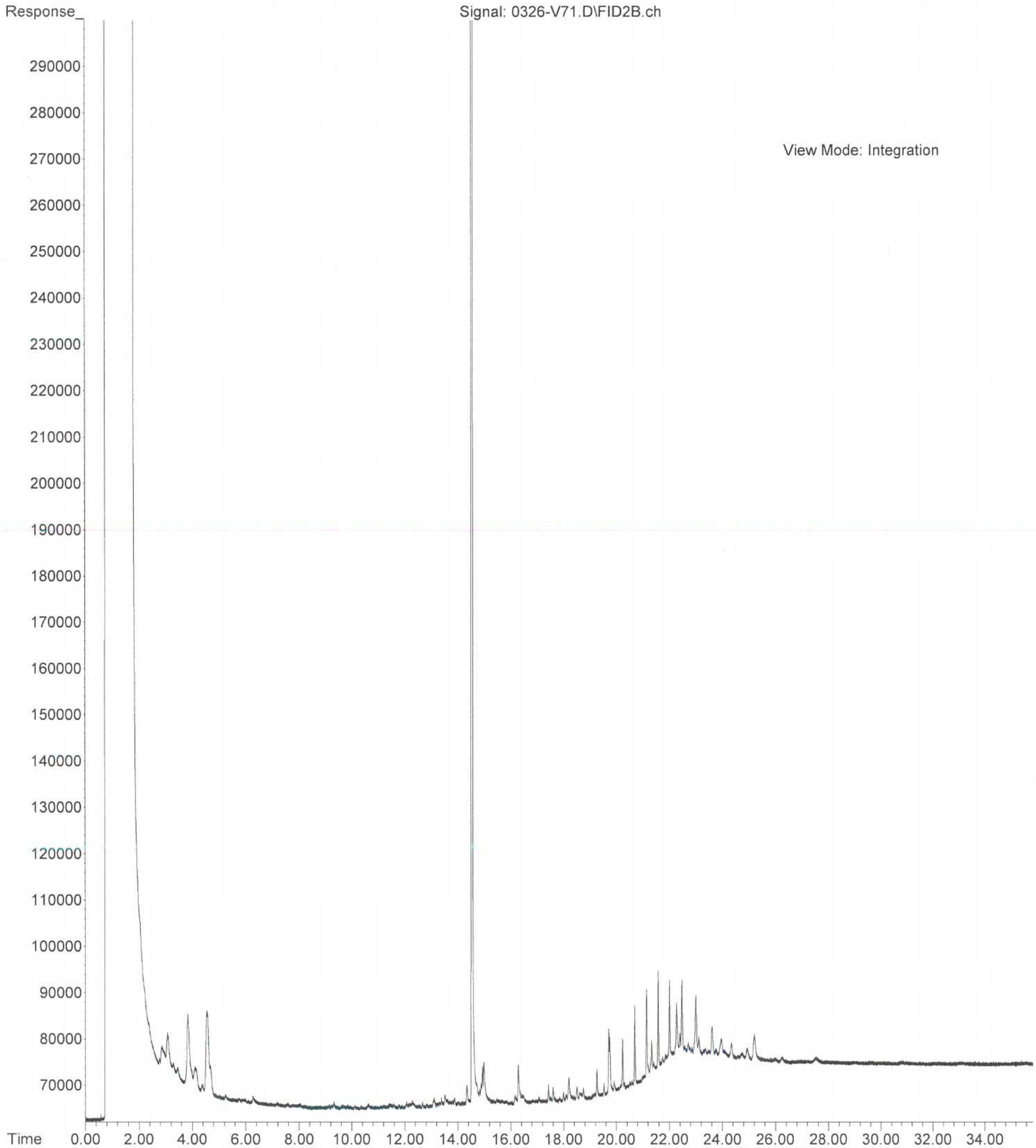
Vial Number: 71



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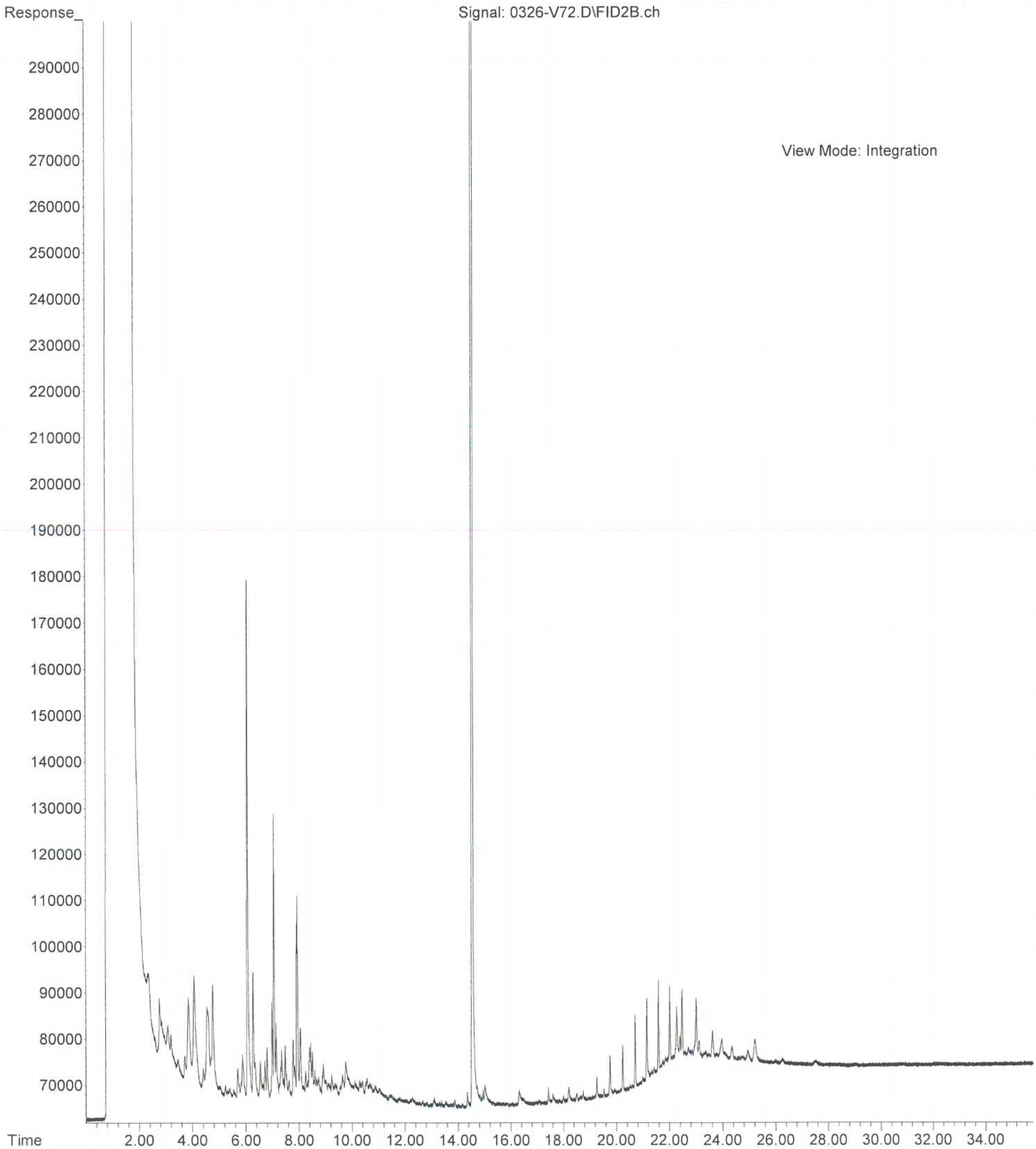
Instrument :   Vigo
Sample Name: 03-226-02
Misc Info   :
Vial Number: 72



OnSite Environmental Inc.

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

March 30, 2015

Kim Stilson
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-2019
Laboratory Reference No. 1503-247

Dear Kim:

Enclosed are the analytical results and associated quality control data for samples submitted on March 24, 2015.

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: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

Case Narrative

Samples were collected on March 20, 2015 and received by the laboratory on March 24, 2015. They were maintained at the laboratory at a temperature of 2^{o}C to 6^{o}C.

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.

NWTPH Gx/BTEX Analysis

The gasoline results for samples HZMW-14S, DUP 32015, HZMW-15S and HZMW-15D are attributed to a single peak (Tetrachloroethene).

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
Dichlorodifluoromethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	5.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	3.8	1.0	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	6.5	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	18	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
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HALOGENATED VOLATILES EPA 8260C
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	200	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*79-122*				
Toluene-d8	*94*	*80-120*				
4-Bromofluorobenzene	*88*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
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HALOGENATED VOLATILES EPA 8260C
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
Dichlorodifluoromethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	5.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	3.9	1.0	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	6.5	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	18	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	

Date of Report: March 30, 2015
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HALOGENATED VOLATILES EPA 8260C
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	210	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*79-122*				
Toluene-d8	*93*	*80-120*				
4-Bromofluorobenzene	*84*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
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HALOGENATED VOLATILES EPA 8260C
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
Dichlorodifluoromethane	ND	0.56	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	2.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	0.56	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	2.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	2.6	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	2.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	9.8	0.40	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	2.4	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	7.2	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	0.40	EPA 8260C	3-25-15	3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
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HALOGENATED VOLATILES EPA 8260C
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
1,1,2-Trichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	62	0.40	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	2.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	2.6	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*92*	*79-122*				
Toluene-d8	*93*	*80-120*				
4-Bromofluorobenzene	*86*	*80-120*				

Date of Report: March 30, 2015
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HALOGENATED VOLATILES EPA 8260C
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
Dichlorodifluoromethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	5.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	3.5	1.0	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	6.2	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	18	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
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Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	140	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*79-122*				
Toluene-d8	*92*	*80-120*				
4-Bromofluorobenzene	*86*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
Dichlorodifluoromethane	ND	42	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	150	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	30	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	42	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	150	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	30	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	200	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	150	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	280	30	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	400	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	540	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	30	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	30	EPA 8260C	3-25-15	3-25-15	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
1,1,2-Trichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	6700	30	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	150	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	30	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	200	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*79-122*				
Toluene-d8	*98*	*80-120*				
4-Bromofluorobenzene	*90*	*80-120*				

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METHOD BLANK QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0325W1					
Dichlorodifluoromethane	ND	0.28	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	0.28	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	1.3	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-25-15	3-25-15	

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METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0325W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	1.3	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*79-122*				
Toluene-d8	*99*	*80-120*				
4-Bromofluorobenzene	*93*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0325W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**7.85**	**7.66**	10.0	10.0	79	77	64-138	2	16	
Benzene	**9.45**	**9.20**	10.0	10.0	95	92	76-125	3	14	
Trichloroethene	**9.31**	**8.90**	10.0	10.0	93	89	70-125	5	16	
Toluene	**9.57**	**9.39**	10.0	10.0	96	94	75-125	2	15	
Chlorobenzene	**9.46**	**9.42**	10.0	10.0	95	94	80-140	0	15	
Surrogate:										
Dibromofluoromethane					*95*	*96*	*79-122*			
Toluene-d8					*97*	*96*	*80-120*			
4-Bromofluorobenzene					*91*	*92*	*80-120*			

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**250**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**320**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*79*	*71-113*				

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NWTPH-Gx/BTEX

Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**150**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**2000**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				

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NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0324W1					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*79*	*71-113*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-247-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**249**	**241**	NA	NA		NA		NA	3	30	
Surrogate:											
Fluorobenzene						*81*	*85*	*71-113*			
MATRIX SPIKES											
Laboratory ID:	03-247-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**48.0**	**48.4**	50.0	50.0	ND	**96**	**97**	82-120	1	14	
Toluene	**48.7**	**49.9**	50.0	50.0	ND	**97**	**100**	83-120	2	14	
Ethyl Benzene	**49.5**	**51.8**	50.0	50.0	ND	**99**	**104**	83-120	5	15	
m,p-Xylene	**49.4**	**52.1**	50.0	50.0	ND	**99**	**104**	81-123	5	15	
o-Xylene	**49.5**	**51.0**	50.0	50.0	ND	**99**	**102**	80-120	3	16	
Surrogate:											
Fluorobenzene						*93*	*91*	*71-113*			

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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
Diesel Range Organics	**ND**	0.27	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.43	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*84*	*50-150*				
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				

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NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0326W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	3-26-15	3-26-15	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	3-26-15	3-26-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-247-02										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*83*	*81*	*50-150*			

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

TOTAL METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-01					
Client ID:	**HZMW-14S**					
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-02					
Client ID:	**DUP 32015**					
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-03					
Client ID:	**HZMW-14D**					
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**13**	11	200.8	3-26-15	3-26-15	
Lead	**1.3**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-04					
Client ID:	**HZMW-15S**					
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-05					
Client ID:	**HZMW-15D**					
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

TOTAL METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0326WM1

Analyte	Method	Result	PQL
Cadmium	200.8	**ND**	4.4
Chromium	200.8	**ND**	11
Lead	200.8	**ND**	1.1

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

TOTAL METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Cadmium	**ND**	**ND**	NA	4.4	
Chromium	**ND**	**ND**	NA	11	
Lead	**ND**	**ND**	NA	1.1	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

TOTAL METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Cadmium	111	**115**	104	**119**	107	4	
Chromium	111	**116**	105	**119**	107	2	
Lead	111	**114**	103	**116**	105	2	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-01					
Client ID:	**HZMW-14S**					
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-02					
Client ID:	**DUP 32015**					
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-03					
Client ID:	**HZMW-14D**					
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-04					
Client ID:	**HZMW-15S**					
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-05					
Client ID:	**HZMW-15D**					
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed: 3-25-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0325D1

Analyte	Method	Result	PQL
Cadmium	200.8	**ND**	4.0
Chromium	200.8	**ND**	10
Lead	200.8	**ND**	1.0

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 3-25-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-247-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Cadmium	**ND**	**ND**	NA	4.0	
Chromium	**ND**	**ND**	NA	10	
Lead	**ND**	**ND**	NA	1.0	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 3-25-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-247-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Cadmium	200	**178**	89	**184**	92	3	
Chromium	200	**168**	84	**167**	83	1	
Lead	200	**179**	89	**180**	90	1	

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-napthalene) 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 method 8260C, 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 - The gasoline result is attributed to a single peak (Tetrachloroethene).

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

03-247

HWA GEOSCIENCES INC.

21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

Chain of Custody and Laboratory Anaylsis Request

DATE: ______
PAGE: ___ of ___

PROJECT NAME: Bothell Hertz #: 2007-098-2019
SAMPLERS NAME: KStilson PHONE: ______
SAMPLERS SIGNATURE: KStilson DATE: ______
HWA CONTACT: KStilson PHONE: ______

TURNAROUND TIME
☐ DAYS
☒ STANDARD

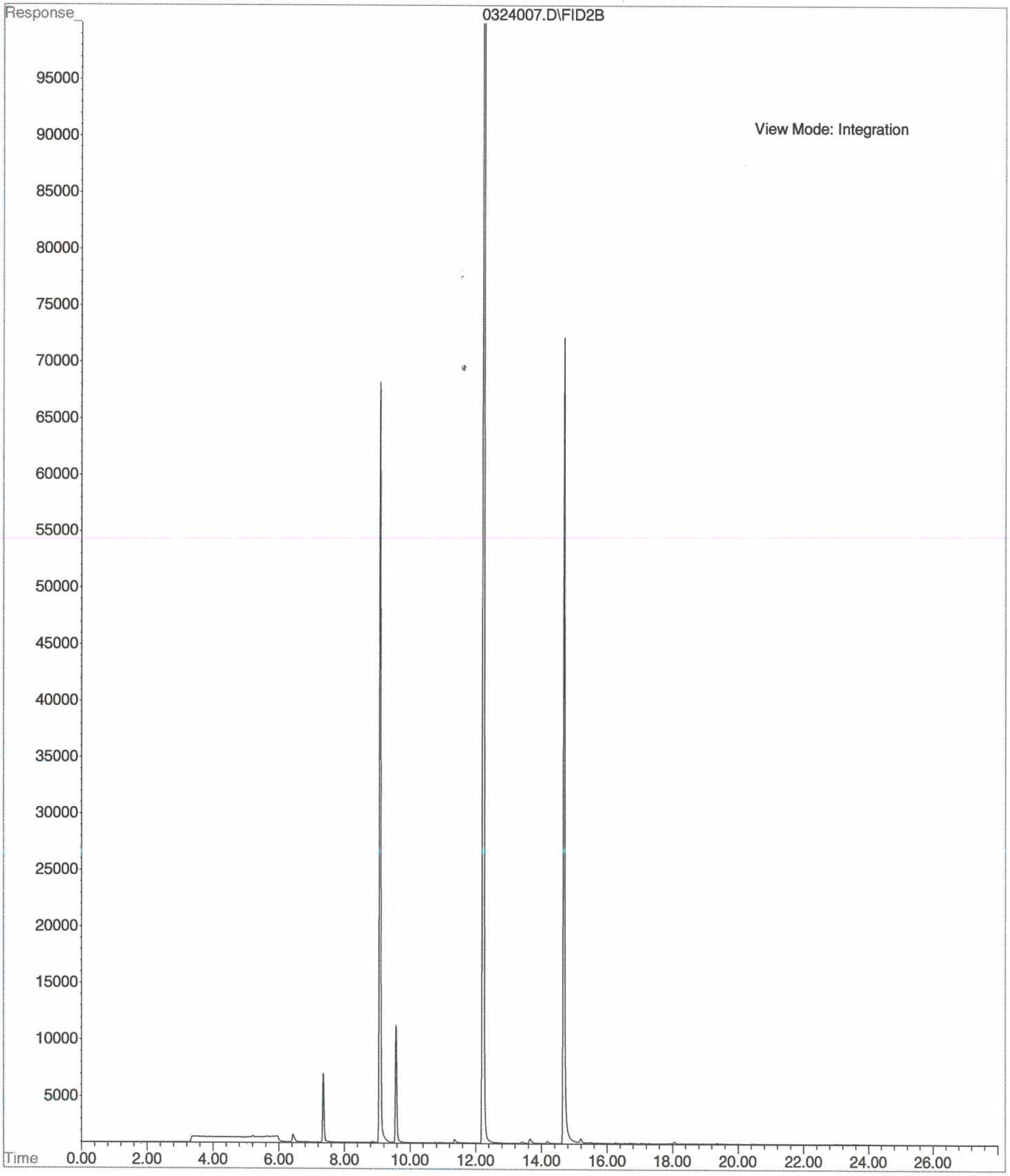
ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCs	TPH-G	TPH-Dx	BTEX	Total Met	Dissolve Met	EDD	REMARKS
HZMW-14S	3/20/05	1100	W	1	9	\	\	\	\	\	\		
DUP 32015		1120		2		\	\	\	\	\	\		
HZMW-14D		1145		3		\	\	\	\	\	\		* Metals field Filtered
HZMW-15S		145		4		\	\	\	\	\	\		
HZMW-15D		115		5		\	\	\	\	\	\		Arsenic Cd, Cr, Pb

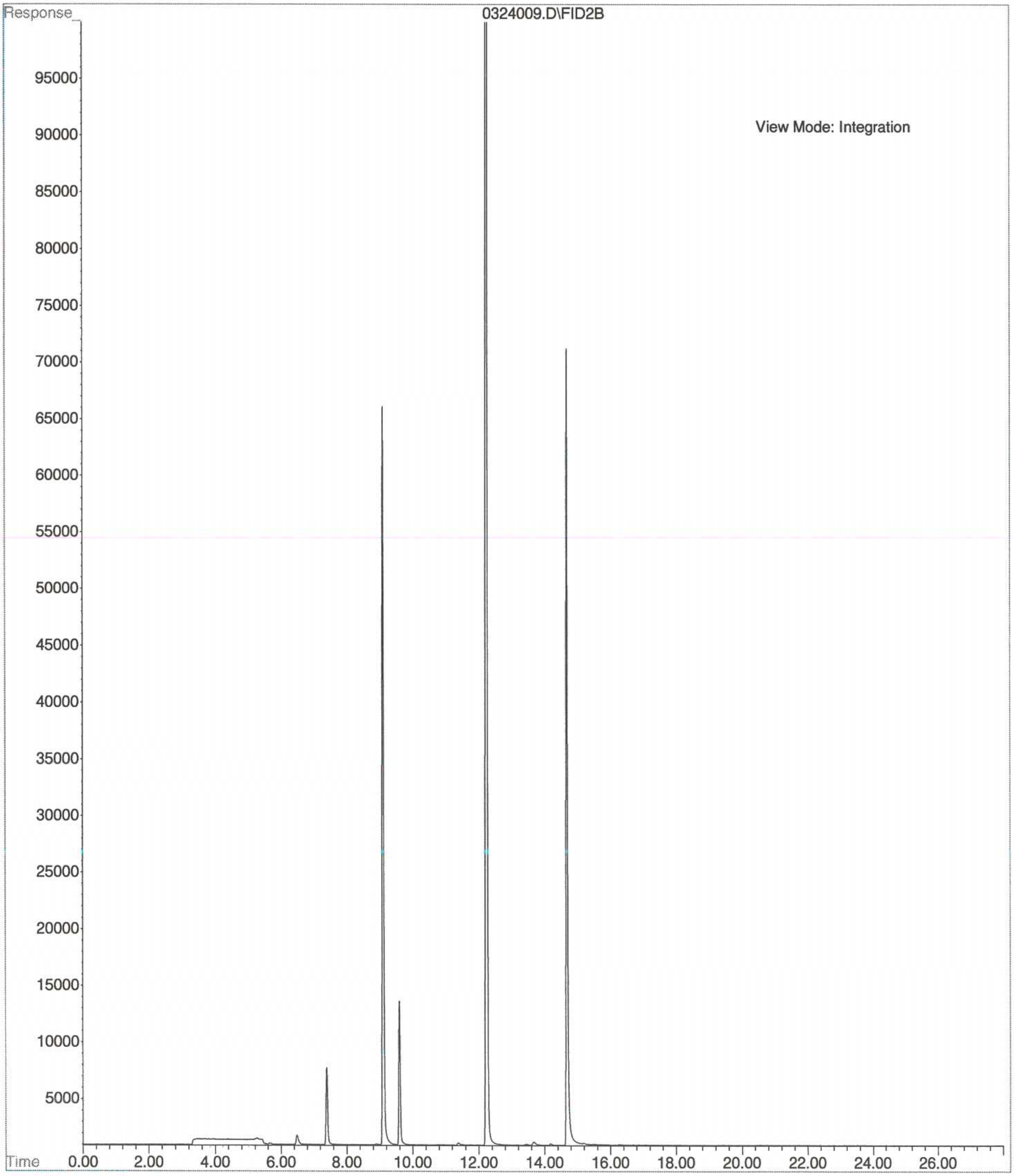
PRINT NAME		SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	KStilson	KStilson	HWA GeoScience	3/23/15	1010	
Received by:	PAT Miller	Pat Miller	Speedy	"	10:15	
Relinquished by:	Pat Miller	Pat Miller	"	"	10:50	
Received by:	M Voun	[illegible]	OSE	3/24/05	1050	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

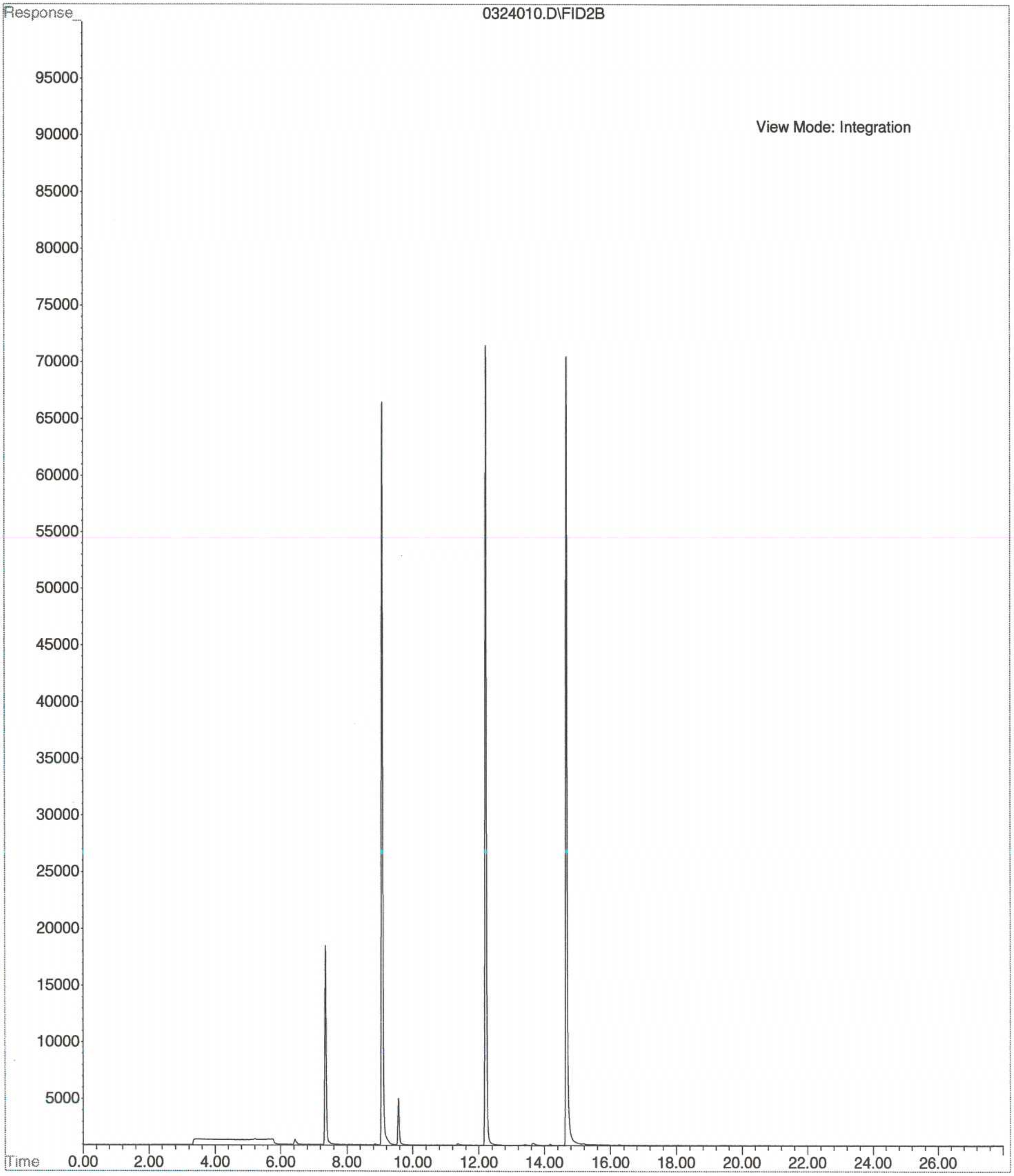
File   : X:\BTEX\HOPE\DATA\H150324\0324007.D
Operator   :
Acquired   : 24 Mar 2015 18:11   using AcqMethod 150217B.M
Instrument :   HOPE
Sample Name: 03-247-01e
Misc Info   : V2-36-17
Vial Number: 7



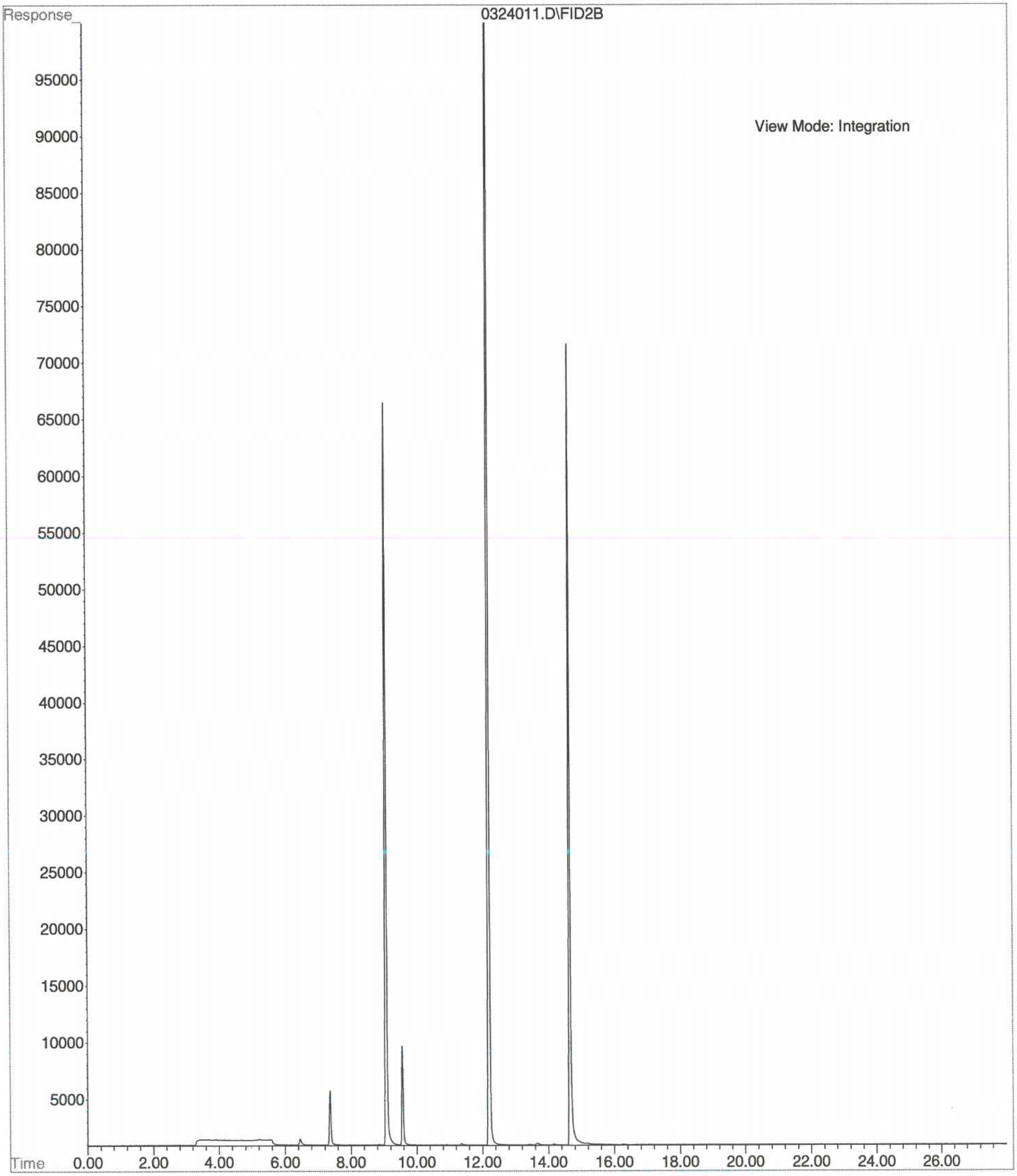
```
File        : X:\BTEX\HOPE\DATA\H150324\0324009.D
Operator    :
Acquired    : 24 Mar 2015  19:18     using AcqMethod 150217B.M
Instrument  :   HOPE
Sample Name: 03-247-02e
Misc Info   : V2-36-17
Vial Number: 9
```



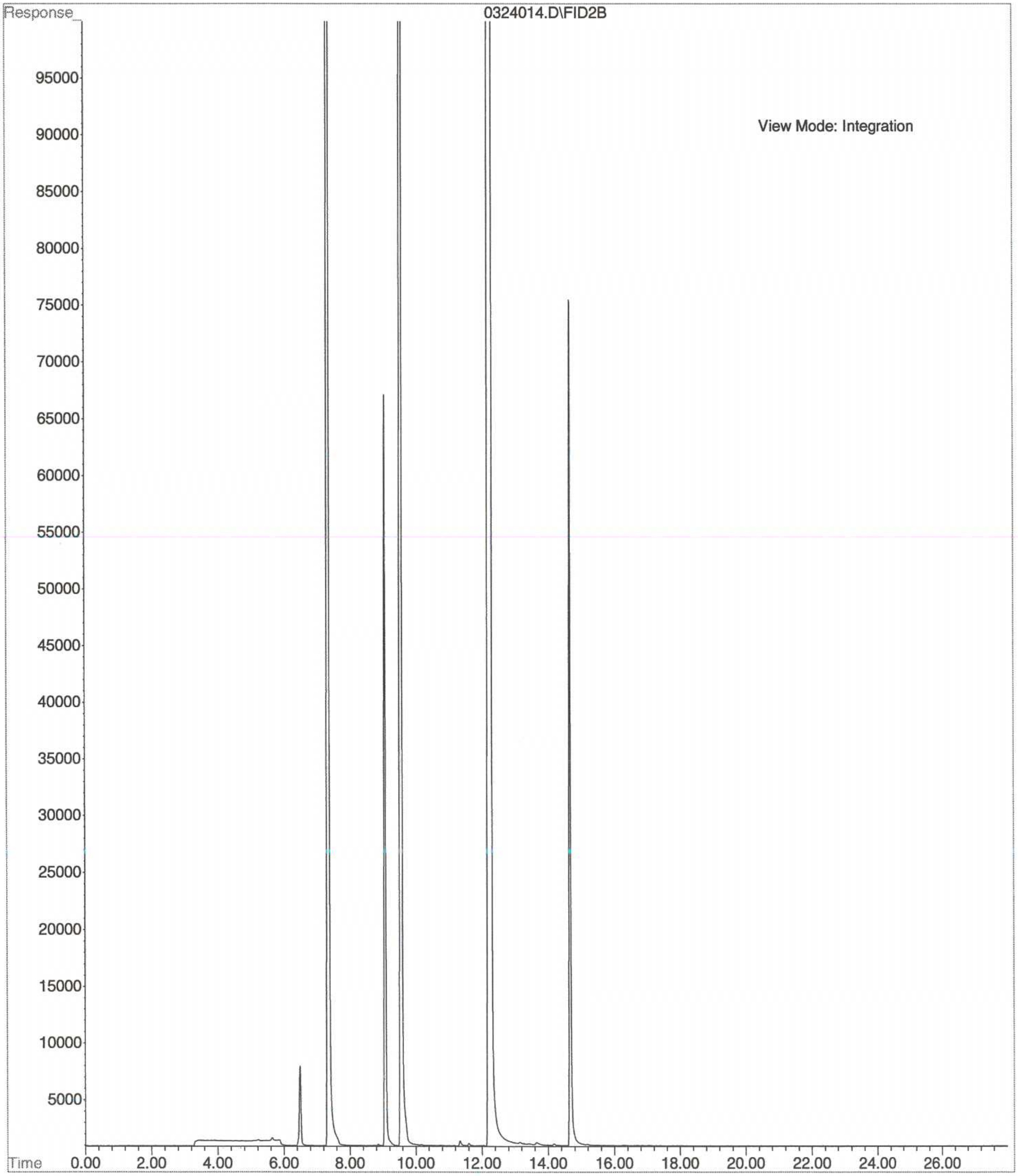
File   : X:\BTEX\HOPE\DATA\H150324\0324010.D
Operator   :
Acquired   : 24 Mar 2015 19:51   using AcqMethod 150217B.M
Instrument :   HOPE
Sample Name: 03-247-03e
Misc Info : V2-36-17
Vial Number: 10



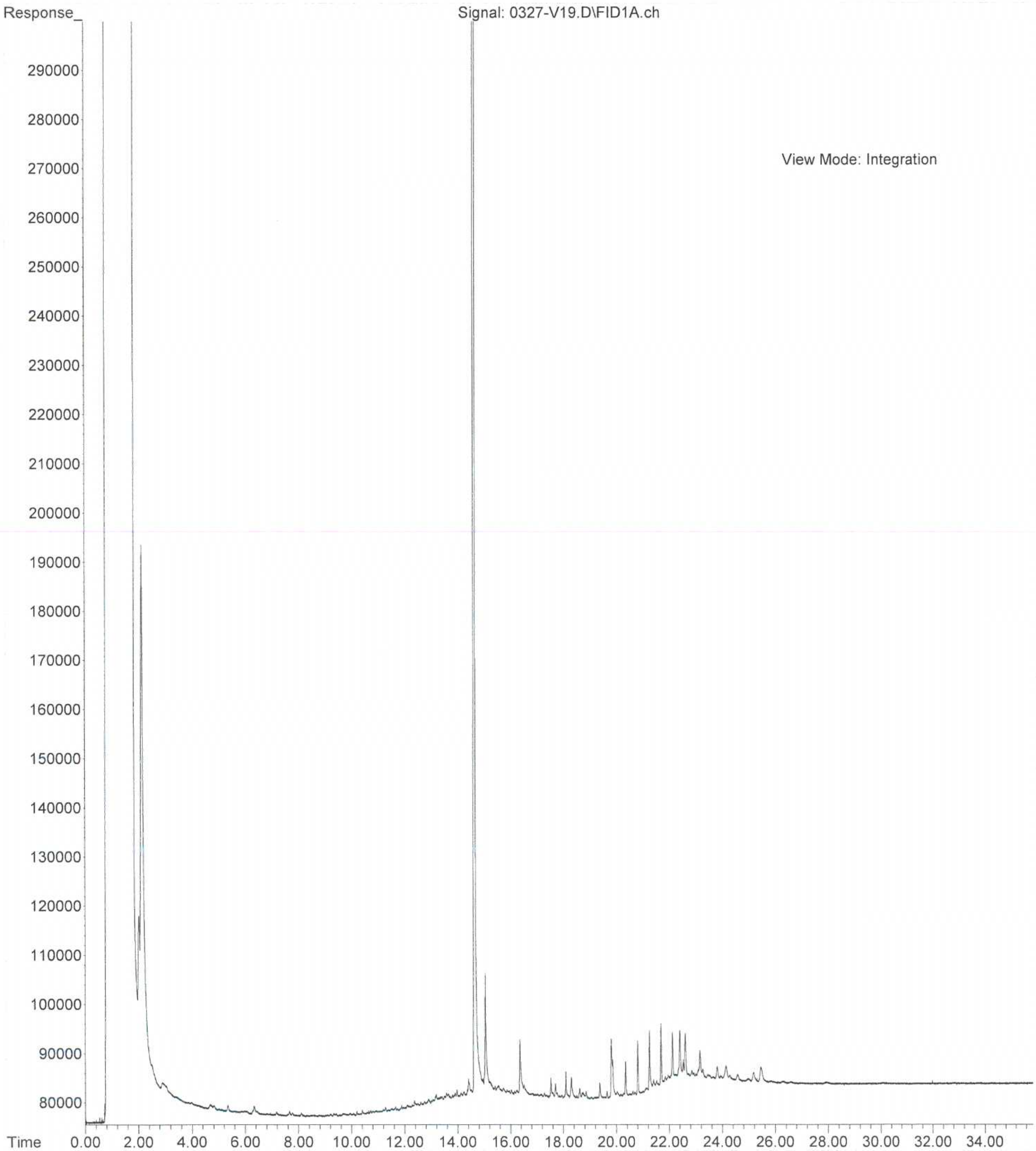
File   : X:\BTEX\HOPE\DATA\H150324\0324011.D
Operator   :
Acquired   : 24 Mar 2015 20:24   using AcqMethod 150217B.M
Instrument :   HOPE
Sample Name: 03-247-04e
Misc Info   : V2-36-17
Vial Number: 11



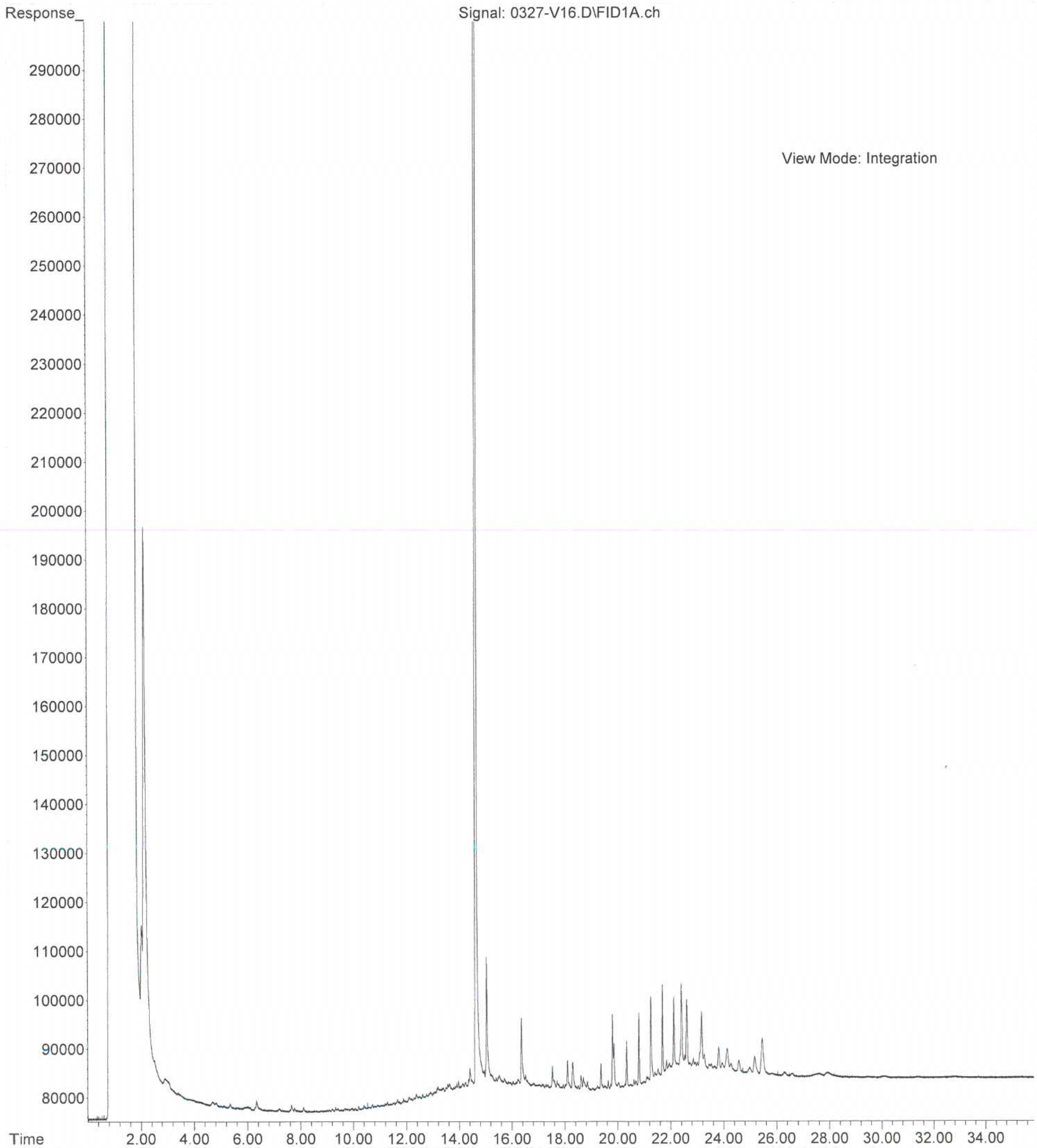
File   : X:\BTEX\HOPE\DATA\H150324\0324014.D
Operator   :
Acquired   : 24 Mar 2015 22:03   using AcqMethod 150217B.M
Instrument :   HOPE
Sample Name: 03-247-05e
Misc Info : V2-36-17
Vial Number: 14



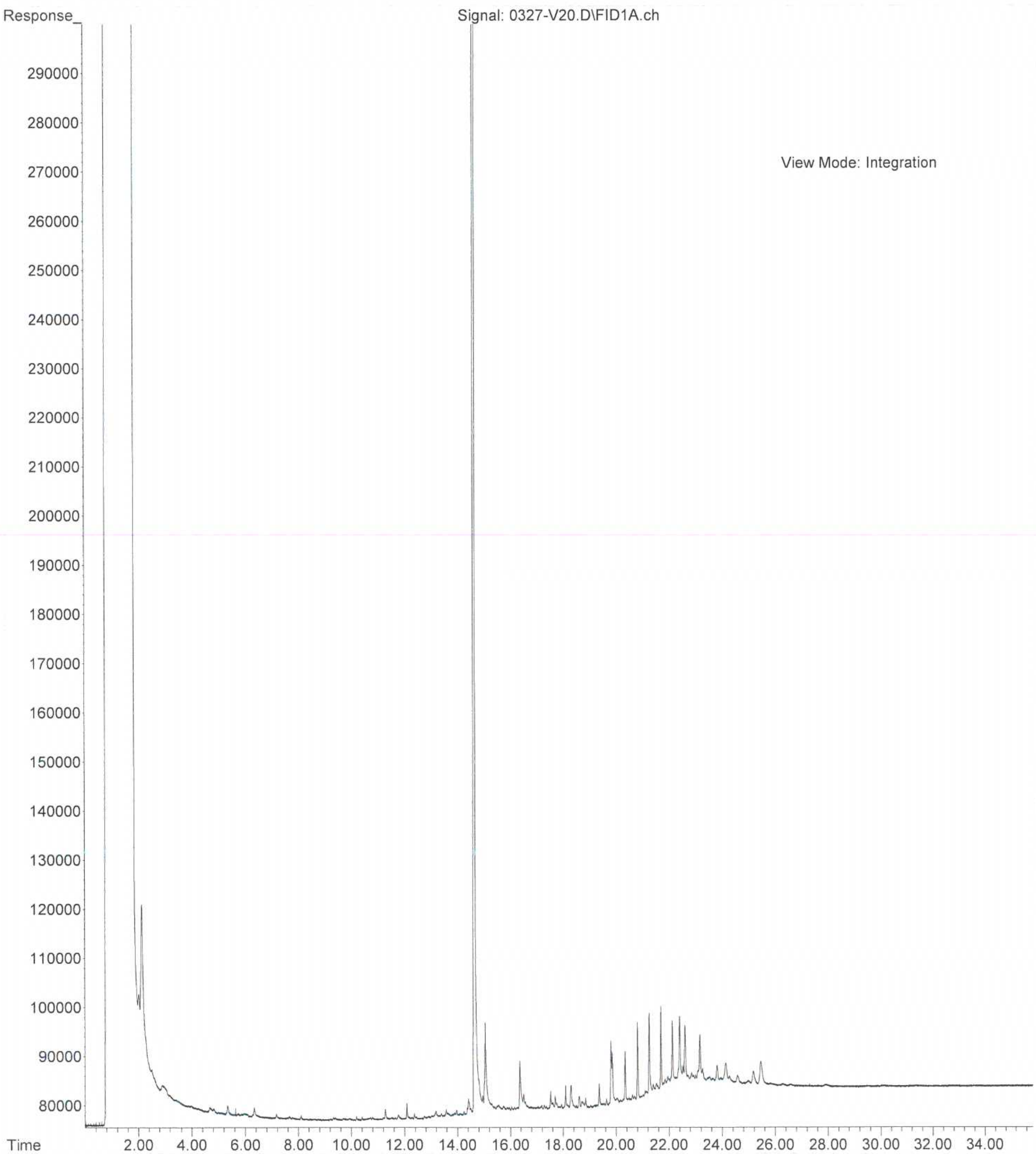
```
File       :X:\DIESELS\VIGO\DATA\V150327\0327-V19.D
Operator   :
Acquired   : 27 Mar 2015  22:55     using AcqMethod V150209F.M
Instrument :   Vigo
Sample Name: 03-247-01
Misc Info  :
Vial Number: 19
```



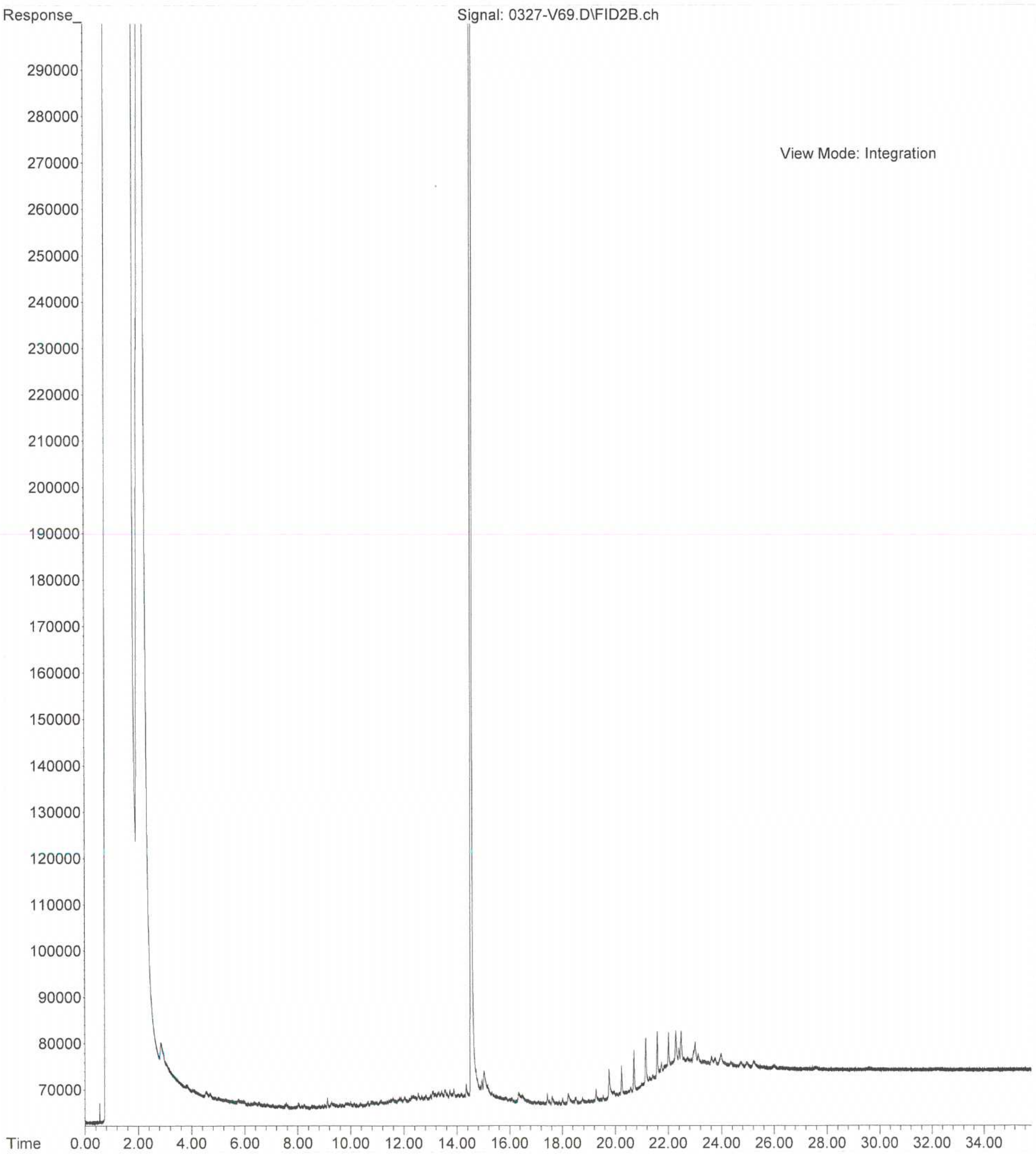
File   :X:\DIESELS\VIGO\DATA\V150327\0327-V16.D
Operator   :
Acquired   : 27 Mar 2015 20:52   using AcqMethod V150209F.M
Instrument :   Vigo
Sample Name: 03-247-02
Misc Info   :
Vial Number: 16



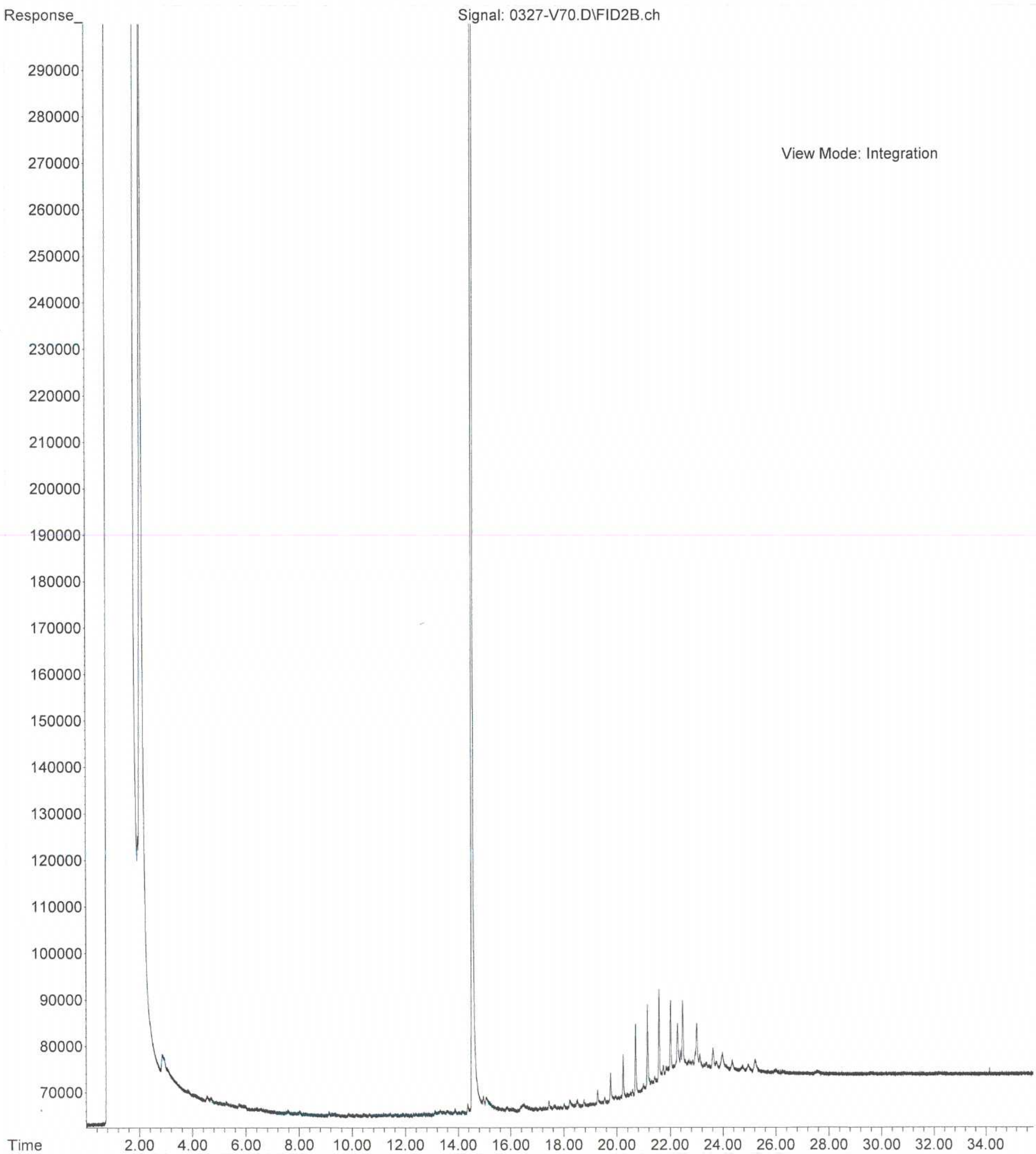
```
File        :X:\DIESELS\VIGO\DATA\V150327\0327-V20.D
Operator    :
Acquired    : 27 Mar 2015  23:36     using AcqMethod V150209F.M
Instrument :   Vigo
Sample Name: 03-247-03
Misc Info  :
Vial Number: 20
```



File   :X:\DIESELS\VIGO\DATA\V150327.SEC\0327-V69.D
Operator   :
Acquired   : 27 Mar 2015 22:55   using AcqMethod V150209F.M
Instrument :   Vigo
Sample Name: 03-247-04
Misc Info   :
Vial Number: 69



File   :X:\DIESELS\VIGO\DATA\V150327.SEC\0327-V70.D
Operator   :
Acquired   : 27 Mar 2015 23:36   using AcqMethod V150209F.M
Instrument :   Vigo
Sample Name: 03-247-05
Misc Info   :
Vial Number: 70



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

March 30, 2015

Kim Stilson
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-2019
Laboratory Reference No. 1503-247

Dear Kim:

Enclosed are the analytical results and associated quality control data for samples submitted on March 24, 2015.

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: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

Case Narrative

Samples were collected on March 20, 2015 and received by the laboratory on March 24, 2015. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

The gasoline results for samples HZMW-14S, DUP 32015, HZMW-15S and HZMW-15D are attributed to a single peak (Tetrachloroethene).

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
Dichlorodifluoromethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	5.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	3.8	1.0	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	6.5	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	18	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	200	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*79-122*				
Toluene-d8	*94*	*80-120*				
4-Bromofluorobenzene	*88*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
Dichlorodifluoromethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	5.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	3.9	1.0	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	6.5	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	18	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	210	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*79-122*				
Toluene-d8	*93*	*80-120*				
4-Bromofluorobenzene	*84*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
Dichlorodifluoromethane	ND	0.56	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	2.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	0.56	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	2.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	2.6	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	2.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	9.8	0.40	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	2.4	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	7.2	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	0.40	EPA 8260C	3-25-15	3-25-15	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
1,1,2-Trichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	62	0.40	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	2.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	2.6	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*92*	*79-122*				
Toluene-d8	*93*	*80-120*				
4-Bromofluorobenzene	*86*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
Dichlorodifluoromethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	5.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	3.5	1.0	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	6.2	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	18	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	140	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*79-122*				
Toluene-d8	*92*	*80-120*				
4-Bromofluorobenzene	*86*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
Dichlorodifluoromethane	ND	42	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	150	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	30	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	42	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	150	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	30	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	200	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	150	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	280	30	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	400	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	540	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	30	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	30	EPA 8260C	3-25-15	3-25-15	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
1,1,2-Trichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	6700	30	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	150	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	30	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	200	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*79-122*				
Toluene-d8	*98*	*80-120*				
4-Bromofluorobenzene	*90*	*80-120*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0325W1					
Dichlorodifluoromethane	ND	0.28	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	0.28	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	1.3	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-25-15	3-25-15	

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HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0325W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	1.3	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*79-122*				
Toluene-d8	*99*	*80-120*				
4-Bromofluorobenzene	*93*	*80-120*				

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HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0325W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**7.85**	**7.66**	10.0	10.0	79	77	64-138	2	16	
Benzene	**9.45**	**9.20**	10.0	10.0	95	92	76-125	3	14	
Trichloroethene	**9.31**	**8.90**	10.0	10.0	93	89	70-125	5	16	
Toluene	**9.57**	**9.39**	10.0	10.0	96	94	75-125	2	15	
Chlorobenzene	**9.46**	**9.42**	10.0	10.0	95	94	80-140	0	15	
Surrogate:										
Dibromofluoromethane					*95*	*96*	*79-122*			
Toluene-d8					*97*	*96*	*80-120*			
4-Bromofluorobenzene					*91*	*92*	*80-120*			

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*79*	*71-113*				

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				

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NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0324W1					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*79*	*71-113*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-247-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	3	30	Z
Surrogate:											
Fluorobenzene						*81*	*85*	*71-113*			
MATRIX SPIKES											
Laboratory ID:	03-247-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**48.0**	**48.4**	50.0	50.0	ND	**96**	**97**	82-120	1	14	
Toluene	**48.7**	**49.9**	50.0	50.0	ND	**97**	**100**	83-120	2	14	
Ethyl Benzene	**49.5**	**51.8**	50.0	50.0	ND	**99**	**104**	83-120	5	15	
m,p-Xylene	**49.4**	**52.1**	50.0	50.0	ND	**99**	**104**	81-123	5	15	
o-Xylene	**49.5**	**51.0**	50.0	50.0	ND	**99**	**102**	80-120	3	16	
Surrogate:											
Fluorobenzene						*93*	*91*	*71-113*			

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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
Diesel Range Organics	**ND**	0.27	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.43	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*84*	*50-150*				
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				

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NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0326W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	3-26-15	3-26-15	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	3-26-15	3-26-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-247-02										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*83*	*81*	*50-150*			

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TOTAL METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-01					
Client ID:	**HZMW-14S**					
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-02					
Client ID:	**DUP 32015**					
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-03					
Client ID:	**HZMW-14D**					
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**13**	11	200.8	3-26-15	3-26-15	
Lead	**1.3**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-04					
Client ID:	**HZMW-15S**					
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-05					
Client ID:	**HZMW-15D**					
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	

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TOTAL METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0326WM1

Analyte	Method	Result	PQL
Cadmium	200.8	**ND**	4.4
Chromium	200.8	**ND**	11
Lead	200.8	**ND**	1.1

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TOTAL METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Cadmium	**ND**	**ND**	NA	4.4	
Chromium	**ND**	**ND**	NA	11	
Lead	**ND**	**ND**	NA	1.1	

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TOTAL METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Cadmium	111	**115**	104	**119**	107	4	
Chromium	111	**116**	105	**119**	107	2	
Lead	111	**114**	103	**116**	105	2	

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DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-01					
Client ID:	**HZMW-14S**					
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-02					
Client ID:	**DUP 32015**					
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-03					
Client ID:	**HZMW-14D**					
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-04					
Client ID:	**HZMW-15S**					
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-05					
Client ID:	**HZMW-15D**					
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	

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DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed: 3-25-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0325D1

Analyte	Method	Result	PQL
Cadmium	200.8	**ND**	4.0
Chromium	200.8	**ND**	10
Lead	200.8	**ND**	1.0

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DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 3-25-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-247-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Cadmium	**ND**	**ND**	NA	4.0	
Chromium	**ND**	**ND**	NA	10	
Lead	**ND**	**ND**	NA	1.0	

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DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 3-25-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-247-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Cadmium	200	**178**	89	**184**	92	3	
Chromium	200	**168**	84	**167**	83	1	
Lead	200	**179**	89	**180**	90	1	

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-napthalene) 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 method 8260C, 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 - The Tetrachloroethene peak was subtracted from the gasoline result.

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

03-247

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Chain of Custody and Laboratory Anaylsis Request

DATE:
PAGE: ___ of ___

PROJECT NAME: Bothell Hertz #: 2007-098-2019
SAMPLERS NAME: KStilson PHONE:
SAMPLERS SIGNATURE: KStilson DATE:
HWA CONTACT: KStilson PHONE:

TURNAROUND TIME
☐ DAYS
☒ STANDARD

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCs	TPH-G	TPH-Dx	BTEX	Total Met	Dissolve Met	EDD	REMARKS
HZMW-14S	3/20/15	1100	W	1	9	/	/	/	/	/	/		
DUP 32015		1120		2		/	/	/	/	/	/		
HZMW-14D		1145		3		/	/	/	/	/	/		* Metals
HZMW-15S		145		4		/	/	/	/	/	/		field Filtered
HZMW-15D		115		5		/	/	/	/	/	/		
													Arsenic
													Cd, Cr, Pb

PRINT NAME		SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	KStilson	KS	HWA GeoScience	3/23/15	1010	
Received by:	Pat Miller	Pat Miller	Speedy	"	10:15	
Relinquished by:	Pat Miller	Pat Miller	"	"	10:50	
Received by:	MVoun	[illegible]	OSL	3/24/15	1050	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

OnSite Environmental Inc.

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

March 30, 2015

Kim Stilson
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-2019
Laboratory Reference No. 1503-247

Dear Kim:

Enclosed are the analytical results and associated quality control data for samples submitted on March 24, 2015.

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: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

Case Narrative

Samples were collected on March 20, 2015 and received by the laboratory on March 24, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

The gasoline results for samples HZMW-14S, DUP 32015, HZMW-15S and HZMW-15D are attributed to a single peak (Tetrachloroethene).

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
Dichlorodifluoromethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	5.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	3.8	1.0	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	6.5	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	18	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	200	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*79-122*				
Toluene-d8	*94*	*80-120*				
4-Bromofluorobenzene	*88*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
Dichlorodifluoromethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	5.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	3.9	1.0	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	6.5	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	18	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	210	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*79-122*				
Toluene-d8	*93*	*80-120*				
4-Bromofluorobenzene	*84*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
Dichlorodifluoromethane	ND	0.56	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	2.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	0.56	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	2.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	2.6	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	2.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	9.8	0.40	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	2.4	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	7.2	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	0.40	EPA 8260C	3-25-15	3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
1,1,2-Trichloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	62	0.40	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	2.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	0.40	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	2.6	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	0.40	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*92*	*79-122*				
Toluene-d8	*93*	*80-120*				
4-Bromofluorobenzene	*86*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
Dichlorodifluoromethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	1.4	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	5.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	3.5	1.0	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	6.2	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	18	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	1.0	EPA 8260C	3-25-15	3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
1,1,2-Trichloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	140	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	5.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	6.5	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*79-122*				
Toluene-d8	*92*	*80-120*				
4-Bromofluorobenzene	*86*	*80-120*				

Date of Report: March 30, 2015
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Project: 2007-098-2019

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
Dichlorodifluoromethane	ND	42	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	150	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	30	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	42	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	150	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	30	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	200	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	150	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	280	30	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	400	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	540	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	30	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	30	EPA 8260C	3-25-15	3-25-15	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
1,1,2-Trichloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	6700	30	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	150	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	30	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	30	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	200	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	30	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	30	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*79-122*				
Toluene-d8	*98*	*80-120*				
4-Bromofluorobenzene	*90*	*80-120*				

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METHOD BLANK QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0325W1					
Dichlorodifluoromethane	ND	0.28	EPA 8260C	3-25-15	3-25-15	
Chloromethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromomethane	ND	0.28	EPA 8260C	3-25-15	3-25-15	
Chloroethane	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Iodomethane	ND	1.3	EPA 8260C	3-25-15	3-25-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-25-15	3-25-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Chloroform	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Trichloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Dibromomethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
2-Chloroethyl Vinyl Ether	ND	3.6	EPA 8260C	3-25-15	3-25-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-25-15	3-25-15	

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METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0325W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Bromoform	ND	1.0	EPA 8260C	3-25-15	3-25-15	
Bromobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-25-15	3-25-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
4-Chlorotoluene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2-Dibromo-3-chloropropane	ND	1.3	EPA 8260C	3-25-15	3-25-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	3-25-15	3-25-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*79-122*				
Toluene-d8	*99*	*80-120*				
4-Bromofluorobenzene	*93*	*80-120*				

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0325W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**7.85**	**7.66**	10.0	10.0	79	77	64-138	2	16	
Benzene	**9.45**	**9.20**	10.0	10.0	95	92	76-125	3	14	
Trichloroethene	**9.31**	**8.90**	10.0	10.0	93	89	70-125	5	16	
Toluene	**9.57**	**9.39**	10.0	10.0	96	94	75-125	2	15	
Chlorobenzene	**9.46**	**9.42**	10.0	10.0	95	94	80-140	0	15	
Surrogate:										
Dibromofluoromethane					*95*	*96*	*79-122*			
Toluene-d8					*97*	*96*	*80-120*			
4-Bromofluorobenzene					*91*	*92*	*80-120*			

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*79*	*71-113*				

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*71-113*				

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Samples Submitted: March 24, 2015
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NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0324W1					
Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Toluene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-24-15	3-24-15	
Gasoline	**ND**	100	NWTPH-Gx	3-24-15	3-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*79*	*71-113*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-247-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	3	30	Z
Surrogate:											
Fluorobenzene						*81*	*85*	*71-113*			
MATRIX SPIKES											
Laboratory ID:	03-247-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**48.0**	**48.4**	50.0	50.0	ND	**96**	**97**	82-120	1	14	
Toluene	**48.7**	**49.9**	50.0	50.0	ND	**97**	**100**	83-120	2	14	
Ethyl Benzene	**49.5**	**51.8**	50.0	50.0	ND	**99**	**104**	83-120	5	15	
m,p-Xylene	**49.4**	**52.1**	50.0	50.0	ND	**99**	**104**	81-123	5	15	
o-Xylene	**49.5**	**51.0**	50.0	50.0	ND	**99**	**102**	80-120	3	16	
Surrogate:											
Fluorobenzene						*93*	*91*	*71-113*			

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Project: 2007-098-2019

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW-14S**					
Laboratory ID:	03-247-01					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**DUP 32015**					
Laboratory ID:	03-247-02					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				
Client ID:	**HZMW-14D**					
Laboratory ID:	03-247-03					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**HZMW-15S**					
Laboratory ID:	03-247-04					
Diesel Range Organics	**ND**	0.27	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.43	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*84*	*50-150*				
Client ID:	**HZMW-15D**					
Laboratory ID:	03-247-05					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-26-15	3-27-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-26-15	3-27-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				

Date of Report: March 30, 2015
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NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0326W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	3-26-15	3-26-15	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	3-26-15	3-26-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-247-02										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*83*	*81*	*50-150*			

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

TOTAL METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-01					
Client ID:	**HZMW-14S**					
Arsenic	**ND**	3.3	200.8	3-26-15	3-26-15	
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-02					
Client ID:	**DUP 32015**					
Arsenic	**ND**	3.3	200.8	3-26-15	3-26-15	
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-03					
Client ID:	**HZMW-14D**					
Arsenic	**ND**	3.3	200.8	3-26-15	3-26-15	
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**13**	11	200.8	3-26-15	3-26-15	
Lead	**1.3**	1.1	200.8	3-26-15	3-26-15	
Lab ID:	03-247-04					
Client ID:	**HZMW-15S**					
Arsenic	**ND**	3.3	200.8	3-26-15	3-26-15	
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

TOTAL METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-05					
Client ID:	**HZMW-15D**					
Arsenic	**ND**	3.3	200.8	3-26-15	3-26-15	
Cadmium	**ND**	4.4	200.8	3-26-15	3-26-15	
Chromium	**ND**	11	200.8	3-26-15	3-26-15	
Lead	**ND**	1.1	200.8	3-26-15	3-26-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

TOTAL METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0326WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3
Cadmium	200.8	**ND**	4.4
Chromium	200.8	**ND**	11
Lead	200.8	**ND**	1.1

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

TOTAL METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.3	
Cadmium	**ND**	**ND**	NA	4.4	
Chromium	**ND**	**ND**	NA	11	
Lead	**ND**	**ND**	NA	1.1	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

TOTAL METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 3-26-15
Date Analyzed: 3-26-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	111	**123**	111	**129**	116	4	
Cadmium	111	**115**	104	**119**	107	4	
Chromium	111	**116**	105	**119**	107	2	
Lead	111	**114**	103	**116**	105	2	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-01					
Client ID:	**HZMW-14S**					
Arsenic	**ND**	3.0	200.8		3-25-15	
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-02					
Client ID:	**DUP 32015**					
Arsenic	**ND**	3.0	200.8		3-25-15	
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-03					
Client ID:	**HZMW-14D**					
Arsenic	**ND**	3.0	200.8		3-25-15	
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	
Lab ID:	03-247-04					
Client ID:	**HZMW-15S**					
Arsenic	**ND**	3.0	200.8		3-25-15	
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-05					
Client ID:	**HZMW-15D**					
Arsenic	**ND**	3.0	200.8		3-25-15	
Cadmium	**ND**	4.0	200.8		3-25-15	
Chromium	**ND**	10	200.8		3-25-15	
Lead	**ND**	1.0	200.8		3-25-15	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed: 3-25-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0325D1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0
Cadmium	200.8	**ND**	4.0
Chromium	200.8	**ND**	10
Lead	200.8	**ND**	1.0

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 3-25-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-247-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	
Cadmium	**ND**	**ND**	NA	4.0	
Chromium	**ND**	**ND**	NA	10	
Lead	**ND**	**ND**	NA	1.0	

Date of Report: March 30, 2015
Samples Submitted: March 24, 2015
Laboratory Reference: 1503-247
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 3-25-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-247-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**186**	93	**181**	90	3	
Cadmium	200	**178**	89	**184**	92	3	
Chromium	200	**168**	84	**167**	83	1	
Lead	200	**179**	89	**180**	90	1	

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-napthalene) 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 method 8260C, 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 - The Tetrachloroethene peak was subtracted from the gasoline result.

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

03-247

HWA GEOSCIENCES INC.

21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

Chain of Custody and Laboratory Anaylsis Request

DATE:
PAGE: of

PROJECT NAME: Bothell Hertz #: 2007-098-2019
SAMPLERS NAME: KStilson PHONE:
SAMPLERS SIGNATURE: KStilson DATE:
HWA CONTACT: KStilson PHONE:

ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCs	TPH-G	TPH-Dx	BTEX	Total Met	DissolveMet	EDD	REMARKS
HZMW-14S	3/20/05	1100	W	1	9	/	/	/	/	/	/		
DUP 32015		1120		2		/	/	/	/	/	/		
HZMW-14D		1145		3		/	/	/	/	/	/		* Metals
HZMW-15S		145		4		/	/	/	/	/	/		field Filtered
HZMW-15D		115		5		/	/	/	/	/	/		
													Arsenic Cd, Cr, Pb

TURNAROUND TIME
☐ DAYS
☒ STANDARD

PRINT NAME		SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	KStilson	KStilson	HWA GeoScience	3/20/05	1010	
Received by:	PAT Miller	Pat Miller	Speedy	"	10:15	
Relinquished by:	Pat Miller	Pat Miller	"	"	10:50	
Received by:	MVOUN	[illegible]	OSE	3/24/05	1050	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

April 8, 2015

Kim Stilson
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-2019
Laboratory Reference No. 1503-291

Dear Kim:

Enclosed are the analytical results and associated quality control data for samples submitted on March 27, 2015.

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 8, 2015
Samples Submitted: March 27, 2015
Laboratory Reference: 1503-291
Project: 2007-098-2019

Case Narrative

Samples were collected on March 26, 2015 and received by the laboratory on March 27, 2015. They were maintained at the laboratory at a temperature of $2^{o}C$ to $6^{o}C$.

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.

Sulfate ASTM D516-07 Analysis

Sample PQL was increased due to sample interference.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: April 8, 2015
Samples Submitted: March 27, 2015
Laboratory Reference: 1503-291
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW12**					
Laboratory ID:	03-291-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Chloromethane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromomethane	ND	0.25	EPA 8260C	3-30-15	3-30-15	
Chloroethane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Iodomethane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-30-15	3-30-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Chloroform	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Trichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Dibromomethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
2-Chloroethyl Vinyl Ether	ND	2.6	EPA 8260C	3-30-15	3-30-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-30-15	3-30-15	

Date of Report: April 8, 2015
Samples Submitted: March 27, 2015
Laboratory Reference: 1503-291
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW12**					
Laboratory ID:	03-291-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromoform	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Bromobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
4-Chlorotoluene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*79-122*				
Toluene-d8	*96*	*80-120*				
4-Bromofluorobenzene	*88*	*80-120*				

Date of Report: April 8, 2015
Samples Submitted: March 27, 2015
Laboratory Reference: 1503-291
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC16**					
Laboratory ID:	03-291-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Chloromethane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromomethane	ND	0.25	EPA 8260C	3-30-15	3-30-15	
Chloroethane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Iodomethane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-30-15	3-30-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Chloroform	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Trichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Dibromomethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
2-Chloroethyl Vinyl Ether	ND	2.6	EPA 8260C	3-30-15	3-30-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-30-15	3-30-15	

Date of Report: April 8, 2015
Samples Submitted: March 27, 2015
Laboratory Reference: 1503-291
Project: 2007-098-2019

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC16**					
Laboratory ID:	03-291-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromoform	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Bromobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
4-Chlorotoluene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*105*	*79-122*				
Toluene-d8	*98*	*80-120*				
4-Bromofluorobenzene	*91*	*80-120*				

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HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0330W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Chloromethane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Vinyl Chloride	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromomethane	ND	0.25	EPA 8260C	3-30-15	3-30-15	
Chloroethane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Iodomethane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Methylene Chloride	ND	1.0	EPA 8260C	3-30-15	3-30-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromochloromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Chloroform	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Trichloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Dibromomethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromodichloromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
2-Chloroethyl Vinyl Ether	ND	2.6	EPA 8260C	3-30-15	3-30-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	3-30-15	3-30-15	

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METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0330W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Tetrachloroethene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Dibromochloromethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Chlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Bromoform	ND	1.0	EPA 8260C	3-30-15	3-30-15	
Bromobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	3-30-15	3-30-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
4-Chlorotoluene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	3-30-15	3-30-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	3-30-15	3-30-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*79-122*				
Toluene-d8	*104*	*80-120*				
4-Bromofluorobenzene	*93*	*80-120*				

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HALOGENATED VOLATILES EPA 8260C
MS/MSD 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:	03-291-02										
	MS	MSD	MS	MSD		MS	MSD				
1,1-Dichloroethene	**10.4**	**10.2**	10.0	10.0	ND	104	102	69-133	2	15	
Benzene	**10.4**	**10.3**	10.0	10.0	ND	104	103	75-119	1	15	
Trichloroethene	**10.0**	**9.65**	10.0	10.0	ND	100	97	70-120	3	15	
Toluene	**10.4**	**10.2**	10.0	10.0	ND	104	102	75-115	2	15	
Chlorobenzene	**9.40**	**9.18**	10.0	10.0	ND	94	92	75-120	2	15	
Surrogate:											
Dibromofluoromethane						*105*	*107*	*79-122*			
Toluene-d8						*101*	*104*	*80-120*			
4-Bromofluorobenzene						*90*	*95*	*80-120*			

Date of Report: April 8, 2015
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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW12**					
Laboratory ID:	03-291-01					
Benzene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
Toluene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
Gasoline	**ND**	100	NWTPH-Gx	3-31-15	3-31-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*71-113*				
Client ID:	**BC16**					
Laboratory ID:	03-291-02					
Benzene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
Toluene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
Gasoline	**ND**	100	NWTPH-Gx	3-31-15	3-31-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*89*	*71-113*				

Date of Report: April 8, 2015
Samples Submitted: March 27, 2015
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NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0331W2					
Benzene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
Toluene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
o-Xylene	**ND**	1.0	EPA 8021B	3-31-15	3-31-15	
Gasoline	**ND**	100	NWTPH-Gx	3-31-15	3-31-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*88*	*71-113*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-290-06										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*89*	*91*	*71-113*			
MATRIX SPIKES											
Laboratory ID:	03-290-04										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**47.5**	**47.7**	50.0	50.0	ND	**95**	**95**	82-120	0	14	
Toluene	**47.7**	**47.8**	50.0	50.0	ND	**95**	**96**	83-120	0	14	
Ethyl Benzene	**48.2**	**48.2**	50.0	50.0	ND	**96**	**96**	83-120	0	15	
m,p-Xylene	**48.6**	**48.4**	50.0	50.0	ND	**97**	**97**	81-123	0	15	
o-Xylene	**48.3**	**48.2**	50.0	50.0	ND	**97**	**96**	80-120	0	16	
Surrogate:											
Fluorobenzene						*92*	*97*	*71-113*			

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Samples Submitted: March 27, 2015
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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW12**					
Laboratory ID:	03-291-01					
Diesel Range Organics	**0.46**	0.26	NWTPH-Dx	3-30-15	3-30-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-30-15	3-30-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				
Client ID:	**BC16**					
Laboratory ID:	03-291-02					
Diesel Range Organics	**0.60**	0.26	NWTPH-Dx	3-30-15	3-30-15	
Lube Oil Range Organics	**ND**	0.42	NWTPH-Dx	3-30-15	3-30-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				

Date of Report: April 8, 2015
Samples Submitted: March 27, 2015
Laboratory Reference: 1503-291
Project: 2007-098-2019

NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0330W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	3-30-15	3-30-15	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	3-30-15	3-30-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	03-291-01									
	ORIG	DUP								
Diesel Range Organics	**0.464**	**0.443**	NA	NA		NA	NA	5	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA	NA	NA	NA	
Surrogate:										
o-Terphenyl						*83* *86*	*50-150*			

Date of Report: April 8, 2015
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TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-291-01					
Client ID:	**HZMW12**					
Arsenic	**12**	3.3	200.8	3-27-15	3-30-15	
Lab ID:	03-291-02					
Client ID:	**BC16**					
Arsenic	**17**	3.3	200.8	3-27-15	3-30-15	

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Project: 2007-098-2019

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 3-27-15
Date Analyzed: 3-30-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0327WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3

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Laboratory Reference: 1503-291
Project: 2007-098-2019

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 3-27-15
Date Analyzed: 3-30-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**8.94**	**8.92**	0	3.3	

Date of Report: April 8, 2015
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Laboratory Reference: 1503-291
Project: 2007-098-2019

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 3-27-15
Date Analyzed: 3-30-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-215-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	111	**131**	110	**132**	110	1	

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DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-291-01					
Client ID:	**HZMW12**					
Arsenic	**11**	3.0	200.8		3-30-15	
Manganese	**6100**	200	200.8		3-30-15	
Lab ID:	03-291-02					
Client ID:	**BC16**					
Arsenic	**13**	3.0	200.8		3-30-15	
Manganese	**7000**	200	200.8		3-30-15	

Date of Report: April 8, 2015
Samples Submitted: March 27, 2015
Laboratory Reference: 1503-291
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed: 3-30-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0330D1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0
Manganese	200.8	**ND**	10

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Samples Submitted: March 27, 2015
Laboratory Reference: 1503-291
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 3-30-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-290-10

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	
Manganese	**ND**	**ND**	NA	10	

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Samples Submitted: March 27, 2015
Laboratory Reference: 1503-291
Project: 2007-098-2019

DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 3-30-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-290-10

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**192**	96	**194**	97	1	
Manganese	200	**184**	92	**189**	95	3	

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NITRATE (as Nitrogen)
EPA 353.2

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW12**					
Laboratory ID:	03-291-01					
Nitrate	**ND**	0.050	EPA 353.2	3-31-15	3-31-15	
Client ID:	**BC16**					
Laboratory ID:	03-291-02					
Nitrate	**0.57**	0.050	EPA 353.2	3-31-15	3-31-15	

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NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0331W1					
Nitrate	**ND**	0.050	EPA 353.2	3-31-15	3-31-15	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	03-306-01								
	ORIG	DUP							
Nitrate	**3.10**	**3.08**	NA	NA	NA	NA	1	13	
MATRIX SPIKE									
Laboratory ID:	03-306-01								
	MS		MS		MS				
Nitrate	**7.56**		4.00	3.10	112	90-123	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0331W1								
	SB		SB		SB				
Nitrate	**2.14**		2.00	NA	107	88-121	NA	NA	

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SULFATE
ASTM D516-07

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW12**					
Laboratory ID:	03-291-01					
Sulfate	**ND**	10	ASTM D516-07	3-27-15	3-27-15	

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BC16**					
Laboratory ID:	03-291-02					
Sulfate	**ND**	5.0	ASTM D516-07	3-27-15	3-27-15	

Date of Report: April 8, 2015
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SULFATE
ASTM D516-07
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0327W1					
Sulfate	**ND**	5.0	ASTM D516-07	3-27-15	3-27-15	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	03-265-05								
	ORIG	DUP							
Sulfate	**29.5**	**31.5**	NA	NA	NA	NA	7	10	
MATRIX SPIKE									
Laboratory ID:	03-265-05								
	MS		MS		MS				
Sulfate	**84.7**		50.0	29.5	110	82-121	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0327W1								
	SB		SB		SB				
Sulfate	**9.96**		10.0	NA	100	90-114	NA	NA	

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DISSOLVED METHANE
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW12**					
Laboratory ID:	03-291-01					
Methane	**8800**	1000	RSK 175	4-8-15	4-8-15	
Client ID:	**BC16**					
Laboratory ID:	03-291-02					
Methane	**4500**	500	RSK 175	4-8-15	4-8-15	

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DISSOLVED METHANE
RSK 175
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0408W1					
Methane	**ND**	0.50	RSK 175	4-8-15	4-8-15	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB0408W1										
	SB	SBD	SB	SBD		SB	SBD				
Methane	**3.72**	**3.65**	4.42	4.42	N/A	**84**	**83**	75-125	2	25	

Date of Report: April 8, 2015
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TOTAL ALKALINITY
SM 2320B

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW12**					
Laboratory ID:	03-291-01					
Total Alkalinity	**1100**	10	SM 2320B	3-27-15	3-27-15	
Client ID:	**BC16**					
Laboratory ID:	03-291-02					
Total Alkalinity	**540**	10	SM 2320B	3-27-15	3-27-15	

Date of Report: April 8, 2015
Samples Submitted: March 27, 2015
Laboratory Reference: 1503-291
Project: 2007-098-2019

TOTAL ALKALINITY
SM 2320B
QUALITY CONTROL

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0327W1					
Total Alkalinity	**ND**	10	SM 2320B	3-27-15	3-27-15	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	03-291-02								
	ORIG	DUP							
Total Alkalinity	**540**	**540**	NA	NA	NA	NA	0	10	
SPIKE BLANK									
Laboratory ID:	SB0327W1								
	SB		SB		SB				
Total Alkalinity	**100**		100	NA	100	88-114	NA	NA	

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-napthalene) 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 method 8260C, 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

HWA GEOSCIENCES INC.

21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

Chain of Custody and Laboratory Anaylsis Request

03-291

DATE:
PAGE: 1 of 1

PROJECT NAME: Bothell Hertz #: 2009-098 2019
SAMPLERS NAME: KS PHONE:
SAMPLERS SIGNATURE: KS DATE:
HWA CONTACT: KS + AS PHONE:

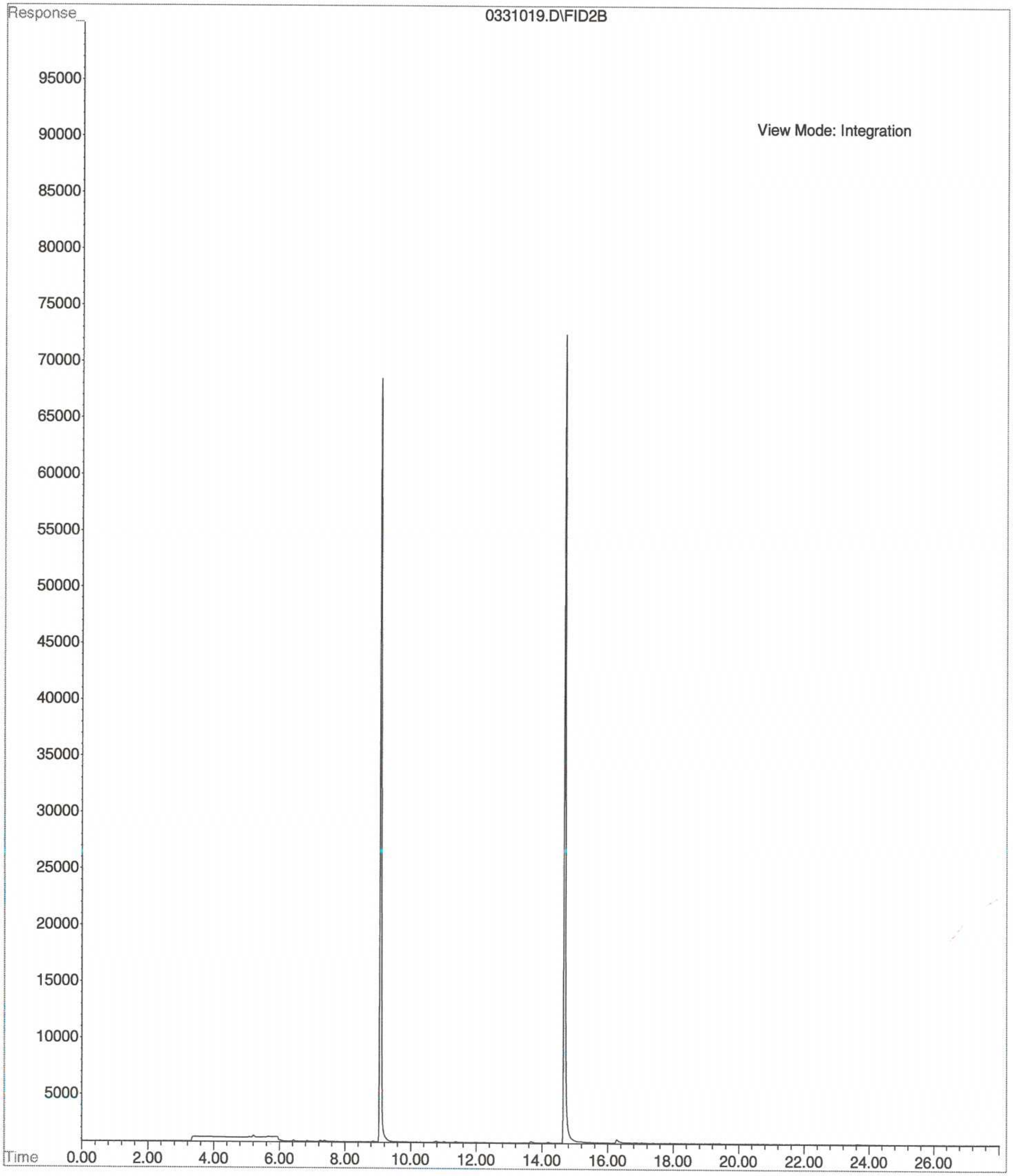
TURNAROUND TIME
☐ DAYS
☑ STANDARD

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCs	TPH-G	Dx	BTEX	Total Met	Diss Met	Nitrate	Sulfate	Methane	Alkalinity					EDD	REMARKS
HZMW12	3/26	1200	W	1	~~18~~ 14	/	/	/	/	/	/	/	/	/	/						
BC16	3/26	100	W	2	~~18~~ 14	/	/	/	/	/	/	/	/	/	/						
~~HZMW16~~	~~3/26~~	~~1200~~	~~W~~	~~3~~	~~18~~	/	/	/	/	/	/	/	/	/	/			DB			Arsenic T+D Manganese D

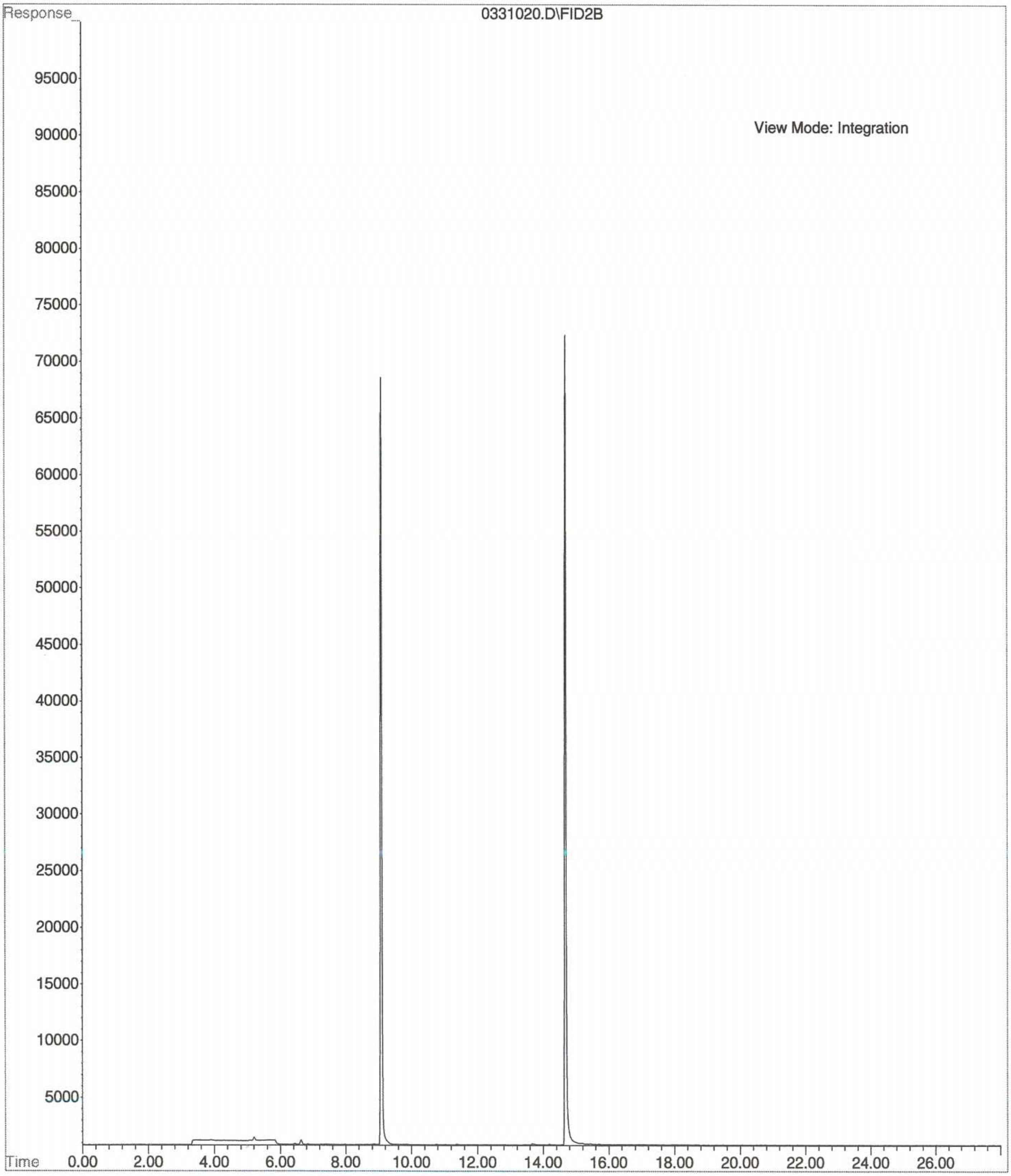
PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by: KS	KS	HWA Geo	3/27	1010	
Received by: M. VOUN		OSE	3/27/15	1010	
Relinquished by:					
Received by:					

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

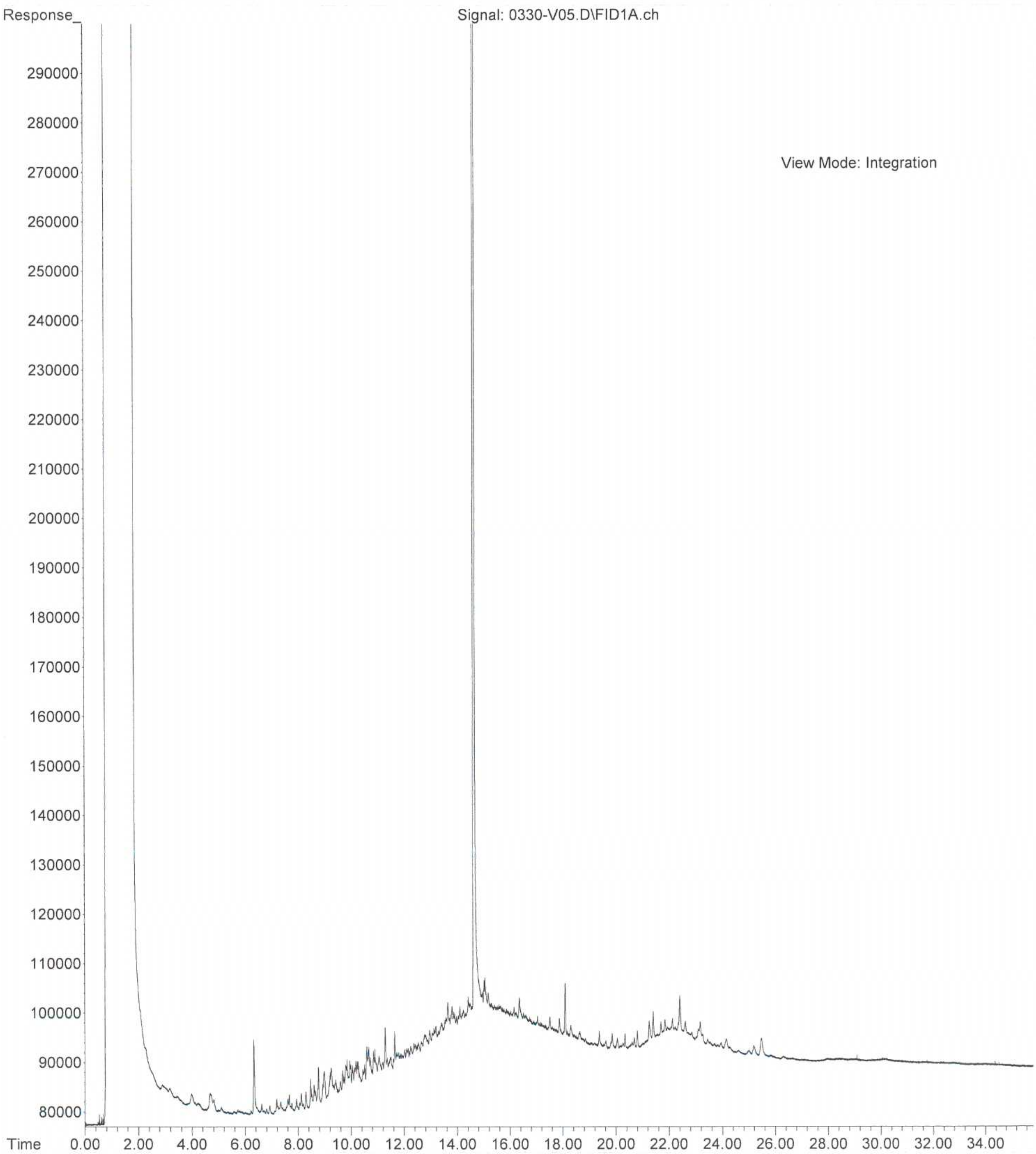
```
File        : X:\BTEX\HOPE\DATA\H150331\0331019.D
Operator    :
Acquired    : 31 Mar 2015  23:49     using AcqMethod 150312B.M
Instrument :   HOPE
Sample Name: 03-291-01k
Misc Info   : V2-36-17
Vial Number: 19
```



```
File        : X:\BTEX\HOPE\DATA\H150331\0331020.D
Operator    :
Acquired    :  1 Apr 2015  00:22     using AcqMethod 150312B.M
Instrument  :   HOPE
Sample Name: 03-291-02k
Misc Info   : V2-36-17
Vial Number: 20
```



```
File        :X:\DIESELS\VIGO\DATA\V150330\0330-V05.D
Operator    :
Acquired    : 30 Mar 2015  15:36     using AcqMethod V150209F.M
Instrument :   Vigo
Sample Name: 03-291-01
Misc Info  :
Vial Number: 5
```



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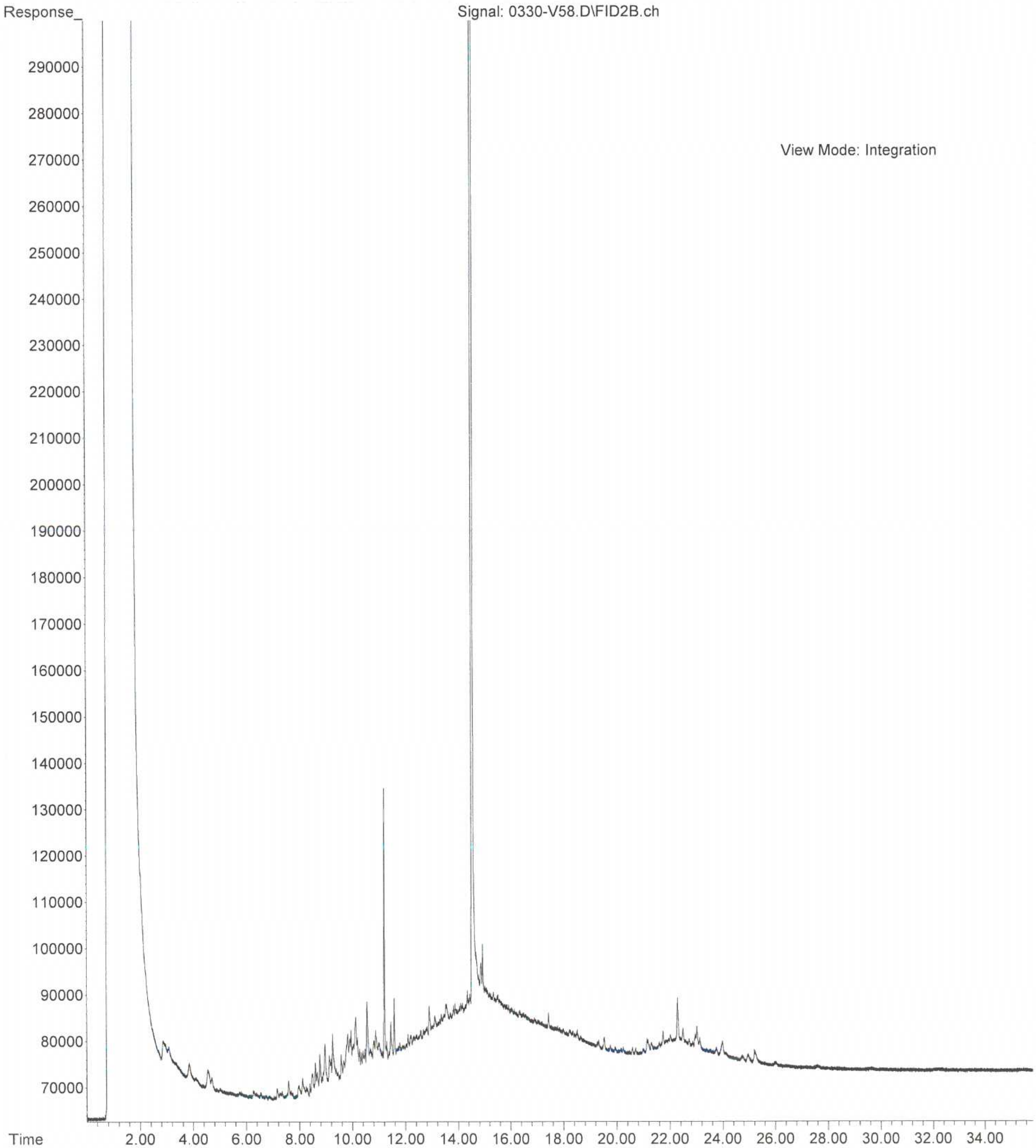
File        :X:\DIESELS\VIGO\DATA\V150330.SEC\0330-V58.D
Operator    :
Acquired    : 30 Mar 2015  17:39     using AcqMethod V150209F.M
Instrument :   Vigo
Sample Name: 03-291-02
Misc Info  :
Vial Number: 58
```



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

April 8, 2015

Kim Stilson
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-998
Laboratory Reference No. 1503-306

Dear Kim:

Enclosed are the analytical results and associated quality control data for samples submitted on March 31, 2015.

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 8, 2015
Samples Submitted: March 31, 2015
Laboratory Reference: 1503-306
Project: 2007-098-998

Case Narrative

Samples were collected on March 30, 2015 and received by the laboratory on March 31, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

<u>Sulfate ASTM D516-07 Analysis</u>

Sample HZMW4 (03-306-01) PQL was increased due to sample interference.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: April 8, 2015
Samples Submitted: March 31, 2015
Laboratory Reference: 1503-306
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW4**					
Laboratory ID:	03-306-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloromethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Vinyl Chloride	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromomethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloroethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Iodomethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Methylene Chloride	ND	1.0	EPA 8260C	4-1-15	4-1-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromochloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloroform	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Trichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Dibromomethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromodichloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	4-1-15	4-1-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	

Date of Report: April 8, 2015
Samples Submitted: March 31, 2015
Laboratory Reference: 1503-306
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW4**					
Laboratory ID:	03-306-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Tetrachloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Dibromochloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromoform	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Bromobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
4-Chlorotoluene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*79-122*				
Toluene-d8	*102*	*80-120*				
4-Bromofluorobenzene	*99*	*80-120*				

Date of Report: April 8, 2015
Samples Submitted: March 31, 2015
Laboratory Reference: 1503-306
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BLMW8**					
Laboratory ID:	03-306-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloromethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Vinyl Chloride	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromomethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloroethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Iodomethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Methylene Chloride	ND	1.0	EPA 8260C	4-1-15	4-1-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromochloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloroform	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Trichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Dibromomethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromodichloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	4-1-15	4-1-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	

Date of Report: April 8, 2015
Samples Submitted: March 31, 2015
Laboratory Reference: 1503-306
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BLMW8**					
Laboratory ID:	03-306-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Tetrachloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Dibromochloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromoform	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Bromobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
4-Chlorotoluene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*104*	*79-122*				
Toluene-d8	*105*	*80-120*				
4-Bromofluorobenzene	*99*	*80-120*				

Date of Report: April 8, 2015
Samples Submitted: March 31, 2015
Laboratory Reference: 1503-306
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TB**					
Laboratory ID:	03-306-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloromethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Vinyl Chloride	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromomethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloroethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Iodomethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Methylene Chloride	ND	1.0	EPA 8260C	4-1-15	4-1-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromochloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloroform	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Trichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Dibromomethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromodichloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	4-1-15	4-1-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	

Date of Report: April 8, 2015
Samples Submitted: March 31, 2015
Laboratory Reference: 1503-306
Project: 2007-098-998

HALOGENATED VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TB**					
Laboratory ID:	03-306-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Tetrachloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Dibromochloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromoform	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Bromobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
4-Chlorotoluene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*79-122*				
Toluene-d8	*105*	*80-120*				
4-Bromofluorobenzene	*102*	*80-120*				

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HALOGENATED VOLATILES EPA 8260C
METHOD BLANK QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0401W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloromethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Vinyl Chloride	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromomethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloroethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Trichlorofluoromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Iodomethane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Methylene Chloride	ND	1.0	EPA 8260C	4-1-15	4-1-15	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2,2-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromochloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chloroform	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Carbon Tetrachloride	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Trichloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Dibromomethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromodichloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	4-1-15	4-1-15	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	4-1-15	4-1-15	

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METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0401W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Tetrachloroethene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,3-Dichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Dibromochloromethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dibromoethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Chlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Bromoform	ND	1.0	EPA 8260C	4-1-15	4-1-15	
Bromobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	4-1-15	4-1-15	
2-Chlorotoluene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
4-Chlorotoluene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	4-1-15	4-1-15	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Hexachlorobutadiene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	4-1-15	4-1-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*79-122*				
Toluene-d8	*101*	*80-120*				
4-Bromofluorobenzene	*101*	*80-120*				

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HALOGENATED VOLATILES EPA 8260C
MS/MSD 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:	03-306-02										
	MS	MSD	MS	MSD		MS	MSD				
1,1-Dichloroethene	**10.7**	**11.0**	10.0	10.0	ND	107	110	69-133	3	15	
Benzene	**10.8**	**10.8**	10.0	10.0	ND	108	108	75-119	0	15	
Trichloroethene	**8.35**	**8.28**	10.0	10.0	ND	84	83	70-120	1	15	
Toluene	**10.6**	**10.5**	10.0	10.0	ND	106	105	75-115	1	15	
Chlorobenzene	**9.83**	**9.83**	10.0	10.0	ND	98	98	75-120	0	15	
Surrogate:											
Dibromofluoromethane						*95*	*97*	*79-122*			
Toluene-d8						*99*	*103*	*80-120*			
4-Bromofluorobenzene						*97*	*99*	*80-120*			

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NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW4**					
Laboratory ID:	03-306-01					
Benzene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
Toluene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
o-Xylene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
Gasoline	**ND**	100	NWTPH-Gx	4-1-15	4-1-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*88*	*71-113*				
Client ID:	**BLMW8**					
Laboratory ID:	03-306-02					
Benzene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
Toluene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
o-Xylene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
Gasoline	**ND**	100	NWTPH-Gx	4-1-15	4-1-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*87*	*71-113*				

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Project: 2007-098-998

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0401W1					
Benzene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
Toluene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
Ethyl Benzene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
m,p-Xylene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
o-Xylene	**ND**	1.0	EPA 8021B	4-1-15	4-1-15	
Gasoline	**ND**	100	NWTPH-Gx	4-1-15	4-1-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*87*	*71-113*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-292-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*90*	*89*	*71-113*			
MATRIX SPIKES											
Laboratory ID:	03-292-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**50.6**	**50.2**	50.0	50.0	ND	**101**	**100**	82-120	1	14	
Toluene	**51.1**	**50.3**	50.0	50.0	ND	**102**	**101**	83-120	2	14	
Ethyl Benzene	**50.7**	**50.1**	50.0	50.0	ND	**101**	**100**	83-120	1	15	
m,p-Xylene	**51.1**	**50.2**	50.0	50.0	ND	**102**	**100**	81-123	2	15	
o-Xylene	**50.5**	**50.1**	50.0	50.0	ND	**101**	**100**	80-120	1	16	
Surrogate:											
Fluorobenzene						*93*	*98*	*71-113*			

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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW4**					
Laboratory ID:	03-306-01					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	3-31-15	3-31-15	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	3-31-15	3-31-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**BLMW8**					
Laboratory ID:	03-306-02					
Diesel Range Organics	**0.30**	0.25	NWTPH-Dx	3-31-15	3-31-15	
Lube Oil Range Organics	**0.56**	0.41	NWTPH-Dx	3-31-15	3-31-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*84*	*50-150*				

Date of Report: April 8, 2015
Samples Submitted: March 31, 2015
Laboratory Reference: 1503-306
Project: 2007-098-998

NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0331W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	3-31-15	3-31-15	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	3-31-15	3-31-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*76*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-305-01										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*84*	*82*	*50-150*			

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Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-306-01					
Client ID:	**HZMW4**					
Arsenic	**ND**	3.3	200.8	4-6-15	4-6-15	
Lab ID:	03-306-02					
Client ID:	**BLMW8**					
Arsenic	**ND**	3.3	200.8	4-6-15	4-6-15	

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TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 4-6-15
Date Analyzed: 4-6-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0406WM1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3

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Laboratory Reference: 1503-306
Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted:	4-6-15
Date Analyzed:	4-6-15
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	04-030-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.3	

Date of Report: April 8, 2015
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Project: 2007-098-998

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 4-6-15
Date Analyzed: 4-6-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 04-030-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	111	**128**	116	**128**	115	1	

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Project: 2007-098-998

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-306-01					
Client ID:	**HZMW4**					
Arsenic	**ND**	3.0	200.8		4-6-15	
Manganese	**ND**	10	200.8		4-6-15	
Lab ID:	03-306-02					
Client ID:	**BLMW8**					
Arsenic	**ND**	3.0	200.8		4-6-15	
Manganese	**1200**	40	200.8		4-7-15	

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Samples Submitted: March 31, 2015
Laboratory Reference: 1503-306
Project: 2007-098-998

DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed: 4-6-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0401F1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0
Manganese	200.8	**ND**	10

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Project: 2007-098-998

DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 4-6-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-030-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	
Manganese	**161**	**159**	1	10	

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DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 4-6-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-030-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**201**	100	**201**	100	0	
Manganese	200	**344**	92	**356**	97	3	

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NITRATE (as Nitrogen)
EPA 353.2

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW4**					
Laboratory ID:	03-306-01					
Nitrate	**3.1**	0.10	EPA 353.2	3-31-15	3-31-15	

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BLMW8**					
Laboratory ID:	03-306-02					
Nitrate	**0.14**	0.050	EPA 353.2	3-31-15	3-31-15	

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NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0331W1					
Nitrate	**ND**	0.050	EPA 353.2	3-31-15	3-31-15	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	03-306-01								
	ORIG	DUP							
Nitrate	**3.10**	**3.08**	NA	NA	NA	NA	1	13	
MATRIX SPIKE									
Laboratory ID:	03-306-01								
	MS		MS		MS				
Nitrate	**7.56**		4.00	3.10	112	90-123	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0331W1								
	SB		SB		SB				
Nitrate	**2.14**		2.00	NA	107	88-121	NA	NA	

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SULFATE
ASTM D516-07

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW4**					
Laboratory ID:	03-306-01					
Sulfate	**ND**	50	ASTM D516-07	4-6-15	4-6-15	

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BLMW8**					
Laboratory ID:	03-306-02					
Sulfate	**ND**	5.0	ASTM D516-07	4-6-15	4-6-15	

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SULFATE
ASTM D516-07
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0406W1					
Sulfate	**ND**	5.0	ASTM D516-07	4-6-15	4-6-15	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	04-031-04								
	ORIG	DUP							
Sulfate	**66.9**	**62.3**	NA	NA	NA	NA	7	10	
MATRIX SPIKE									
Laboratory ID:	04-031-04								
	MS		MS		MS				
Sulfate	**164**		100	66.9	97	82-121	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB0406W1								
	SB		SB		SB				
Sulfate	**10.4**		10.0	NA	104	90-114	NA	NA	

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TOTAL ALKALINITY
SM 2320B

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW4**					
Laboratory ID:	03-306-01					
Total Alkalinity	**140**	2.0	SM 2320B	4-7-15	4-7-15	

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**BLMW8**					
Laboratory ID:	03-306-02					
Total Alkalinity	**170**	2.0	SM 2320B	4-7-15	4-7-15	

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Project: 2007-098-998

TOTAL ALKALINITY
SM 2320B
QUALITY CONTROL

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0407W1					
Total Alkalinity	**ND**	2.0	SM 2320B	4-7-15	4-7-15	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	04-030-01								
	ORIG	DUP							
Total Alkalinity	**188**	**184**	NA	NA	NA	NA	2	10	
SPIKE BLANK									
Laboratory ID:	SB0407W1								
	SB		SB		SB				
Total Alkalinity	**100**		100	NA	100	88-114	NA	NA	

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DISSOLVED METHANE
RSK 175

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZMW4**					
Laboratory ID:	03-306-01					
Methane	**ND**	0.50	RSK 175	4-8-15	4-8-15	
Client ID:	**BLMW8**					
Laboratory ID:	03-306-02					
Methane	**1100**	250	RSK 175	4-8-15	4-8-15	

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DISSOLVED METHANE
RSK 175
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0408W1					
Methane	**ND**	0.50	RSK 175	4-8-15	4-8-15	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB0408W1										
	SB	SBD	SB	SBD		SB	SBD				
Methane	**3.72**	**3.65**	4.42	4.42	N/A	**84**	**83**	75-125	2	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-napthalene) 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 method 8260C, 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

HWA GEOSCIENCES INC.

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03-306

Chain of Custody and Laboratory Anaylsis Request

DATE: 3/31/15
PAGE: 1 of 1

PROJECT NAME: Bothell Hertz #: 2007-098-998
SAMPLERS NAME: KS PHONE:
SAMPLERS SIGNATURE: KS DATE: 3/30/15
HWA CONTACT: KS+AS PHONE:

ANALYSIS REQUESTED

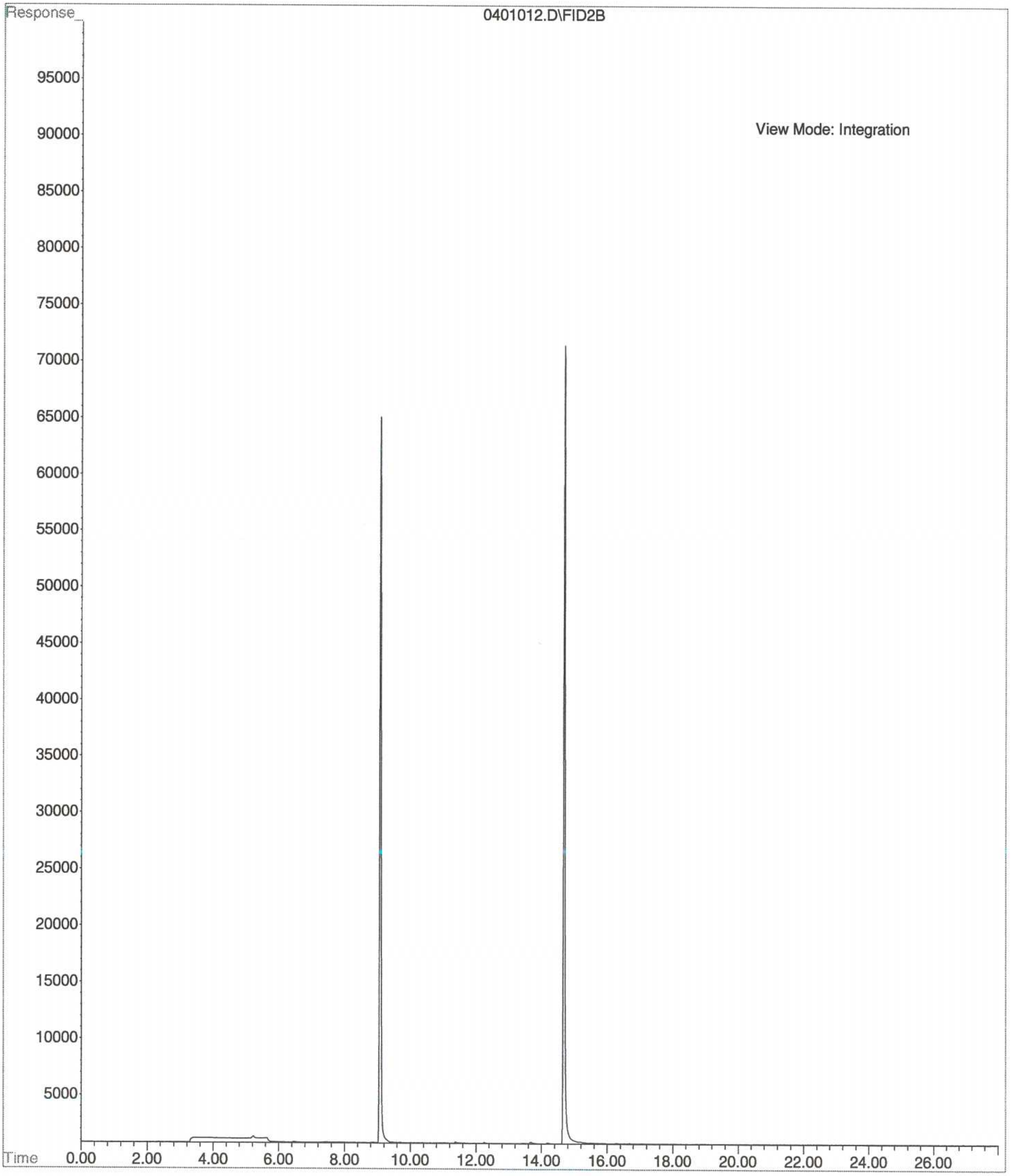
HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	HVOCs	TPH-G	Dx	BTEX	Total Arsenic	Diss. Arsenic	Diss Manganese	Nitrate	Sulfate	Alkalinity	Methane				EDD	REMARKS
HZMW4	3/30/15	1215	W	1	13	/	/	/	/	/	/	/	/	/	/	/					
BLMW8	↓	100	W	2	13	/	/	/	/	/	/	/	/	/	/	/					
TB	3/30/15	—	W	3	3	/															Field Filtered

TURNAROUND TIME
☐ DAYS
☑ STANDARD

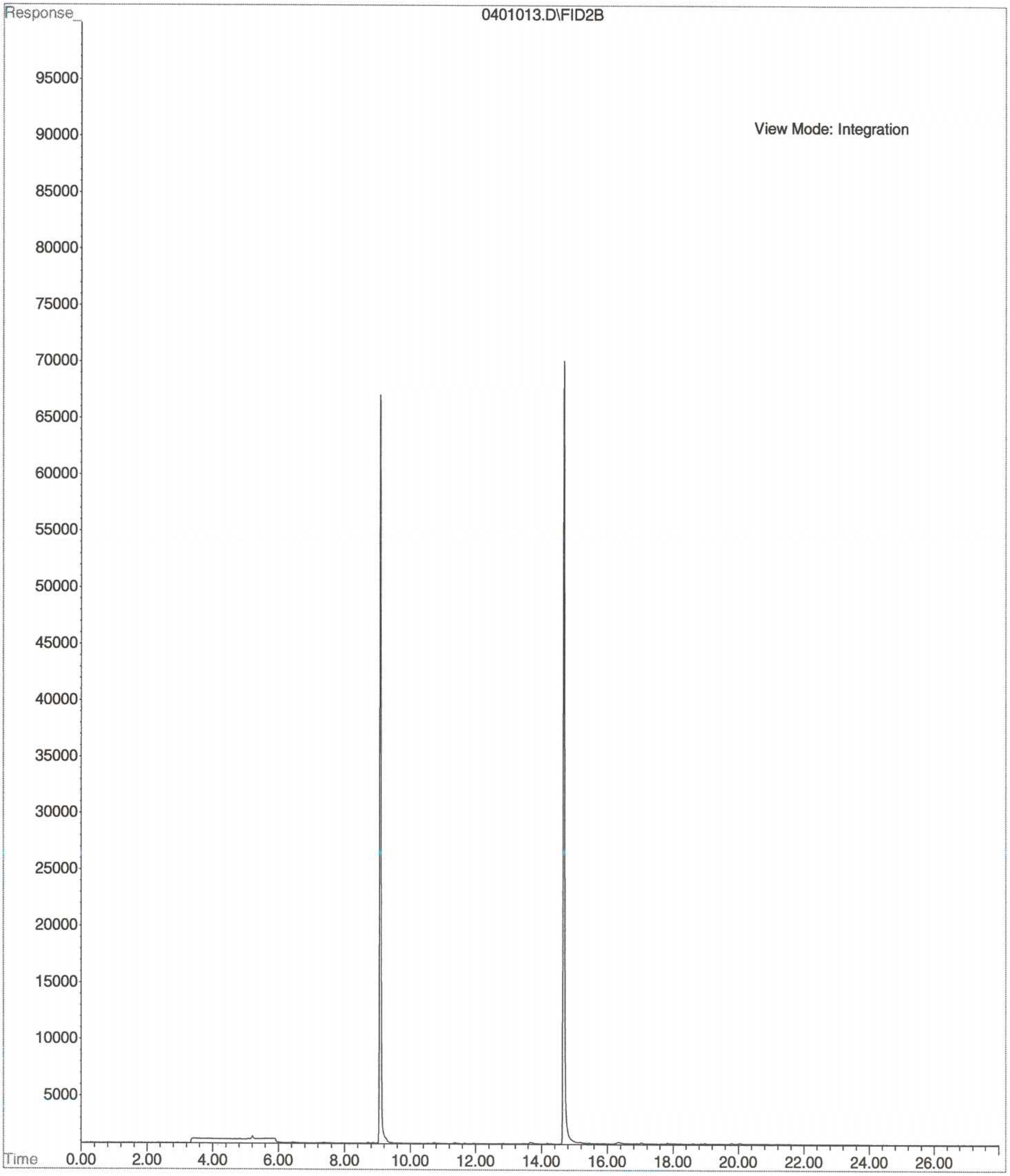
PRINT NAME		SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	KS	[signature]	HWA Geo	3/31/15	915	
Received by:	Pat Miller	[signature]	Speedy	"	10:07	
Relinquished by:	Pat Miller	[signature]	"	"	10:47	
Received by:	MVOWN	[signature]	OOS3	3/31/15	1047	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

```
File        : X:\BTEX\HOPE\DATA\H150401\0401012.D
Operator    :
Acquired    :  1 Apr 2015  22:56     using AcqMethod 150312B.M
Instrument  :   HOPE
Sample Name: 03-306-01b
Misc Info   : V2-36-17
Vial Number: 12
```



File   : X:\BTEX\HOPE\DATA\H150401\0401013.D
Operator   :
Acquired   : 1 Apr 2015 23:29   using AcqMethod 150312B.M
Instrument :   HOPE
Sample Name: 03-306-02b
Misc Info : V2-36-17
Vial Number: 13



```
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Instrument :    Teri
Sample Name: 03-306-01
Misc Info   :
Vial Number: 8
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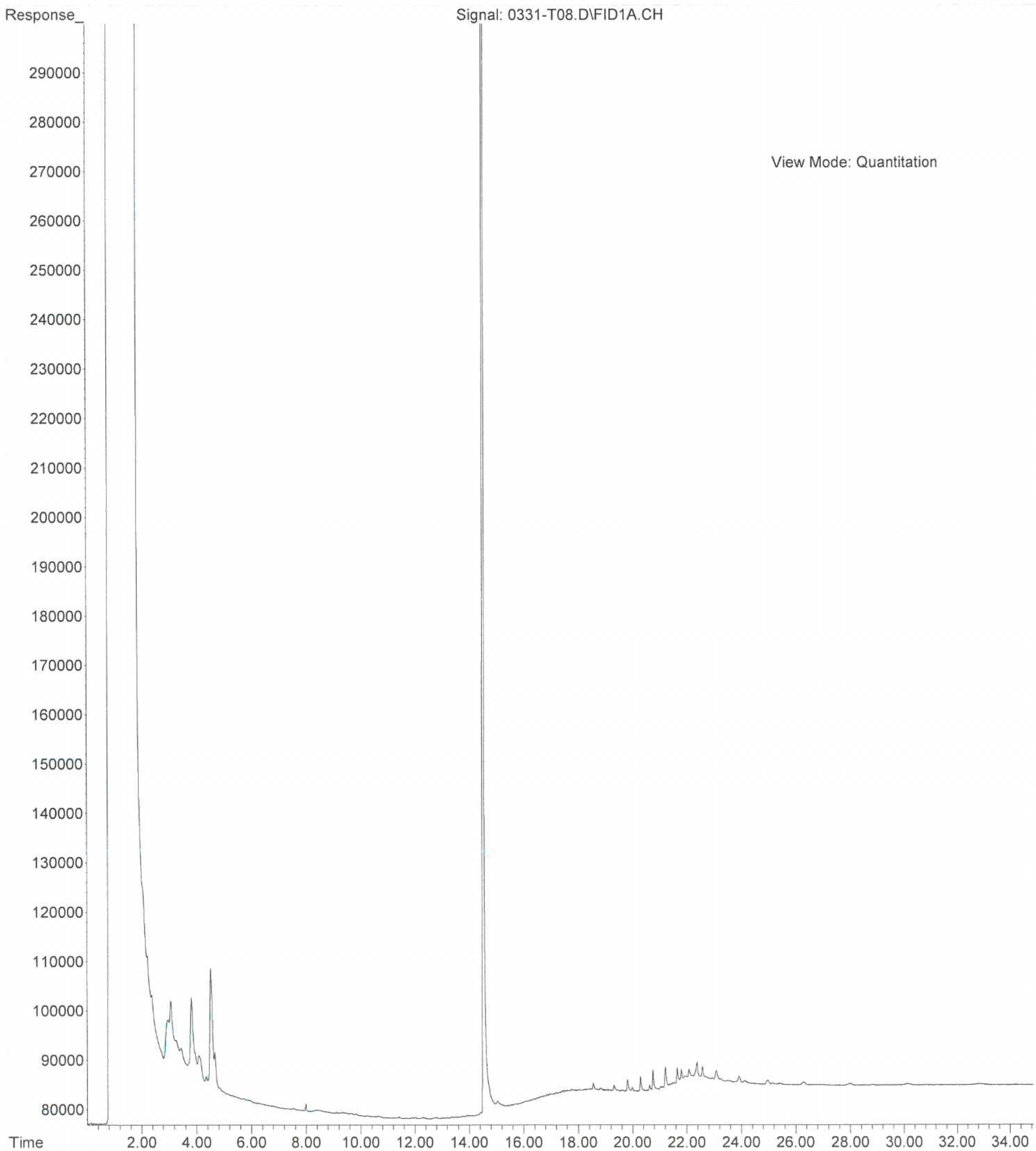

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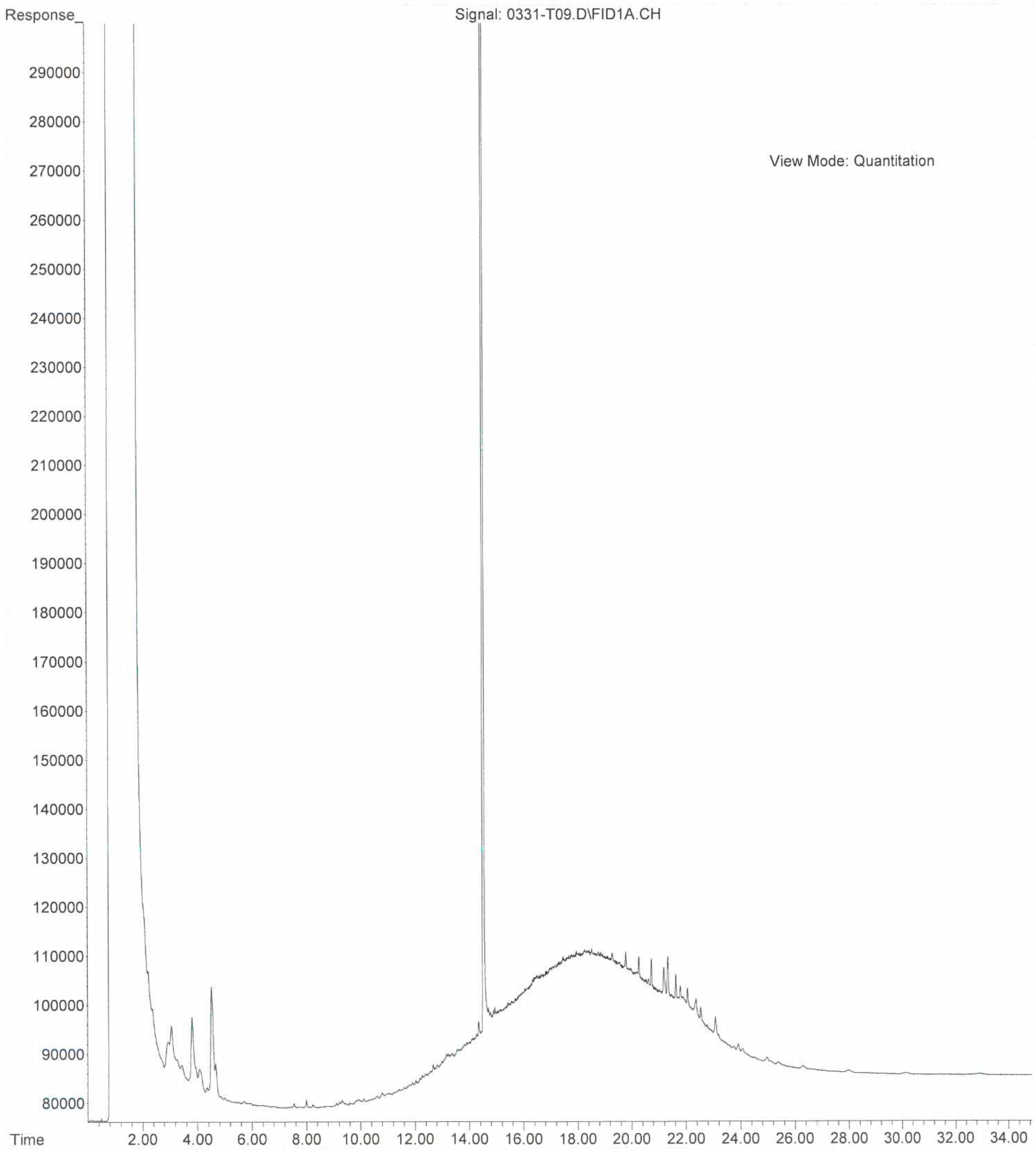
Operator    : ZT
Acquired    : 31 Mar 2015  17:59     using AcqMethod T150310F.M
Instrument :    Teri
Sample Name: 03-306-02
Misc Info   :
Vial Number: 9
```



APPENDIX H

DATA QUALITY ASSESSMENT

(on CD)

APPENDIX H

DATA QUALITY ASSESSMENT

INTRODUCTION

This appendix presents a data quality assessment for the Bothell Former Hertz Facility site remedial investigation soil and ground water samples collected between the winter of 2014 and spring 2015. A data quality assessment of soil samples collected during the interim action soil cleanups is presented in HWA (2011 and 2014).

Quality is the degree to which a set of inherent characteristics fulfills project requirements. Quality assurance (QA) is the processes of auditing the project's quality requirements and the results from quality control measurements to ensure appropriate quality standards are used. Quality control (QC) is the process of monitoring and recording results of executing the project quality activities to assess performance and to recommend necessary changes (PMI, 2008).

The principal ingredients that make up suitable data quality or "good data" are (Flory, 2000):

1. **Clearly stated measurement purposes:** Must include the chemical compounds to be analyzed; the sample matrices to be submitted; the intended use of the data, and the associated detection limits, accuracy, and precision required.
2. **Data management:** Refers to sample tracking (chain-of-custody) and associated activities that guarantee the laboratory results are associated with the correct sample.
3. **Sampling:** Includes a technically valid sampling plan that is correctly implemented to properly collect, identify, preserve, store and prepare samples for analysis.
4. **Analytical method:** Must have sufficient selectivity, detection limits, accuracy and precision to be technically valid.
5. **Quality control samples:** Must include sufficient quality control samples to support the necessary statements of accuracy, precision, and detection limits. These include blanks (field, trip, laboratory, reagent), duplicate measurements, matrix spikes, laboratory control samples, and performance evaluation samples.
6. **Quality control limits:** Includes clearly stated acceptable limits for quality control samples such as allowable blank contamination; precision of duplicate samples; and accuracy of matrix spikes, performance evaluation samples and laboratory control samples. Calibration frequency and linearity may also be included.
7. **Documentation:** Must be comprehensive enough to allow a third party evaluator to independently verify the suitability of the sample data.

The process of verifying the suitability of the data is termed data quality assessment. Data quality assessment is a determination of the suitability of the data for the intended use. It includes the four major tasks of (a) data management, (b) data validation, (c) data qualification/review (flagging), and (d) the determination of suitability. Data management includes determining the completeness of the data documentation. Environmental data validation primarily entails checking to see if the quality control requirements of the method have been met. Data qualification is the application of flags to the data that reflect the failures found during validation. The final determination of suitability must consider the technical validity of the data as well as the data qualifiers and be consistent with the intended use of the analytical data (Flory, 2000).

There were two components to the data quality program for the Bothell Former Hertz Facility site remedial investigation: field and laboratory. Both components followed Washington Department of Ecology guidance (Ecology, 2004). Also, the *Interim Action Work Plan* (HWA, 2010) specified the sample collection procedures and analysis, and defined the data quality objectives (DQOs) and criteria for the independent action cleanup.

FIELD QC METHODS

Assessment of field QC methods and data revealed no deviations from the *Interim Action Work Plan* (HWA, 2010). Field QC included proper documentation of field activities in a field log book and daily field reports that provided a daily record of significant events, observations, deviations from the sampling plan and measurements collected during the field activities. Field personnel followed standard QC procedures to collect and transport samples including collection of duplicate samples, decontamination of reusable sampling equipment between samples, labeling samples, and following chain of custody procedures to transport samples to the laboratory. Field personnel photographically documented significant events and observations during the independent action cleanup.

LABORATORY QC METHODS

OnSite Environmental Inc. of Redmond, Washington performed all sample analyses. OnSite Environmental is accredited by the Washington Department of Ecology (Accreditation #C591-14) for all analyses performed for the remedial investigation.

Specific laboratory QC consisted of the following (OnSite Environmental, 2012; Ecology, 2004):

- **Sample Batching.** A batch consisted of up to twenty samples in addition to any quality control samples that were required. Samples in a batch may have been collected at different sites by different clients of OnSite Environmental. The samples were extracted, digested, and prepared for analysis within a twelve-hour window. If more than twenty samples were to be extracted, a second batch of quality control samples was generated.
- **Method Blanks.** Method blanks were used to ensure that the extraction and analysis procedures did not contribute contamination to the analysis. Method blanks were prepared and analyzed in the laboratory to document the response of the measurement system to a sample containing effectively none of the analyte of interest. A positive blank response can be due to a variety of factors related to the procedure, equipment, or

reagents. Unusually high blank responses indicate laboratory contamination. The method blank response becomes very important when the analyte concentration is near the detection limit.

- **Spike Blanks.** A spike blank is a laboratory QC sample prepared by adding a known amount of the target analyte(s) to a laboratory blank sample. This is a measure of the accuracy of the test procedure. If an analyte for any spike blank was outside of quality control criteria, then that particular analyte was evaluated and actions were taken to bring the analysis into control.
- **Duplicate Samples.** Duplicate samples were used to ensure that sample results could be reproduced in a precise manner.
- **Surrogates.** Surrogate compounds are compounds similar to the analytes of interest that were added to the sample at a known concentration in order to track the accuracy of the sample extraction and analysis. Some methods for organics analyses specify that all samples, including QC samples, be spiked with surrogate compounds at the start of the procedure. Because surrogate compounds are not expected to be present in the samples, they give analytical responses that can be distinguished from those of the analytes of interest. Surrogate percent recoveries (defined below) provided an estimate of accuracy for the entire analytical procedure. The standard deviations of surrogate results provided an estimate of analytical precision, while the mean percent recoveries indicated whether or not the sample results were biased.
- **Spiked Blank Duplicates.** These were a second laboratory spiked blank laboratory QC sample. The difference in the laboratory's recovery of the spiked blank and spiked blank duplicate was a measure of analytical precision, and was reported as relative percent difference (RPD) as defined below.
- **Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples.** Matrix spike samples were used to ensure the analytes of interest could be accurately recovered from the sample matrix. The matrix spike duplicate was also used to ensure the analytes could be repeatedly recovered in an accurate and precise manner.

Analytical Accuracy and Precision

Routine laboratory QC analyses provided information about accuracy and precision. The types of quality control samples differed depending on the method specifications. Analytical accuracy was assessed through the surrogate, spike blank, and matrix spike analysis as specified by the analytical method. Accuracy was expressed as percent recovery:

$$\text{Percent Recovery (\%R)} = 100*(X_s/C_t)$$

Where X_s was the observed concentration of the analyte, and C_t was the true concentration of the analyte. The acceptable range for accuracy was determined by the method or by control charting of actual laboratory samples. A control chart is a graphical representation of the precision of QC results showing whether the measurement system is in statistical control. The laboratory analyst was responsible for verifying that the surrogate, spike blank and MS/MSD percent recoveries meet the quality control limits.

Analytical precision was assessed through analysis of the sample duplicates or matrix spike duplicates as specified by the analytical method. Precision was expressed as relative percent difference:

$$\text{Relative Percent Difference (RPD)} = 100*(X_1-X_2)/((X_1+X_2)/2)$$

Where: X_1 was the concentration in the first duplicate sample and X_2 was the concentration in the second duplicate sample. The acceptable range for precision was determined by the method or by control charting of actual laboratory samples. The analyst was responsible for verifying that the duplicate or MS/MSD recoveries meet the quality control limits.

Practical Quantitation Limits and Method Detection Limits

OnSite Environmental reported all analytical results for the remedial investigation as practical quantitation limits (PQLs). PQLs are the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. OnSite Environmental's routine PQLs for all independent action analyses were lower than regulatory ground water cleanup levels thus ensuring confirmation of successful cleanup. OnSite Environmental conducts studies annually for all accredited test methods to determine its PQLs.

Method detection limits (MDLs) are the lowest concentration that can be detected by an instrument with correction for the effects of sample matrix and method-specific parameters such as sample preparation. OnSite Environmental conducts studies annually for all accredited test methods to determine its method detection limits. MDLs are defined at 40 CFR Part 136 as three times the standard deviation of replicate spiked analyses. An analytical PQL is generally 5-10 times the MDL. MDLs are only a measure of the ability of the test procedure to generate a positive response and have nothing to do with the accuracy of that response (Quality Assurance Associates, 2010).

DATA VERIFICATION

The analyses performed for the remedial investigation included:

- NWTPH-Gx - Gasoline range petroleum hydrocarbons using Ecology Method NWTPH-Gx
- NWTPH-Dx - Diesel and oil range petroleum hydrocarbons using Ecology Method NWTPH-Dx

- BTEX - Benzene, toluene, ethylbenzene, and xylenes using EPA Method 8021
- RCRA 8 Metals - Arsenic, barium, cadmium, chromium, lead, selenium, silver using EPA Method 6010B and 6020; and mercury using EPA Method 7471A
- Halogenated Volatile Organic Compounds (HVOCs) using EPA Method 8260C

For the remedial investigation three soil analyses were performed (HZMW-16-12.5, HZMW-18-7.5, and HZMW-19-12.5) and 40 ground water analyses. Soil analytical data are summarized in Table 2 and ground water analytical data in Table 3 of the main body of the RI/FS/DCAP. Verification of the data included checking holding times, checking that the laboratory performed the analyses requested on the chain of custody form, and that the laboratory's QC results were within established control limits. Holding times, surrogate percent recoveries, method blank analytical results, lab duplicate RPDs, matrix spike/matrix spike duplicate percent recoveries and RPDs, and spiked blank/spiked blank duplicate percent recoveries and RPDs were all within control limits with the following exceptions:

- **Soil samples HZMW16-12.5 and HZMW-18-7.5 collected 1/6/14:** EPA Method 5035A vials were received outside of 48 hours from the time of collection. Because the 5035A vials were cooled to 4 degrees Celsius and tightly sealed, HWA does not think this to be a serious quality control issue and the reported data are accurate.

- **Ground water samples HZMW-15S, HZMW-15D, Dup 1, HZMW-14S and HZMW-14D collected 5/29/14:** The gasoline result was attributed to a single peak due to the presence of tetrachloroethene (a Z flag). Per HWA's request, OnSite Environmental subtracted the tetrachloroethene peak from the gasoline range results for each sample referenced above resulting in an accurate reported NWTPH-Gx result.

- **Ground water sample HZMW-19 collected 5/30/14 and 6/9/14:** The practical quantitation limit for NWTPH-Dx diesel was slightly elevated due to interferences present in both samples; however, the elevated practical quantitation limit for both ground water samples is much lower than the MTCA ground water cleanup level of 500 mg/L, so this is not a QC issue.

- **Ground water sample HZMW-18 collected 6/10/14:** Some VOA sample vials contained headspace possibly resulting in the loss of volatile organic compounds. Well HZMW-18 is not part of the Hertz site remedial investigation ground water monitoring network and was sampled only one time for informational purposes. The analytical results for all volatile organics were less than laboratory reporting limits.

- **Ground water samples HZMW-14S, HZMW-14D, HZMW-15S and HZMW-15D collected 9/11/14 and 9/13/14:** The gasoline result was attributed to a single peak due to the presence of tetrachloroethene (a Z flag). Per HWA's request, OnSite Environmental subtracted the tetrachloroethene peak from the gasoline range results for each sample referenced above resulting in an accurate reported NWTPH-Gx result.

- **Ground water sample HZMW-19 collected 9/12/14:** Hydrocarbons in the gasoline range impacted the diesel range result (an M flag). This may have resulted in the reported diesel concentration of 680 µg/L for this sample being higher than the MTCA cleanup level of 500 µg/L.

- **Ground water samples HZMW-14S, HZMW-14D, HZMW-15S and HZMW-15D collected 12/15/14:** The gasoline result was attributed to a single peak due to the presence of tetrachloroethene (a Z flag). Per HWA's request, OnSite Environmental subtracted the tetrachloroethene peak from the gasoline range results for each sample referenced above resulting in an accurate reported NWTPH-Gx result.

- **Ground water samples HZMW-15S, HZMW-15D, Dup 1, HZMW-14S and HZMW-14D collected 3/20/15:** The gasoline result is attributed to a single peak due to the presence of tetrachloroethene (a Z flag). Per HWA's request, OnSite Environmental subtracted the tetrachloroethene peak from the gasoline range results for each sample referenced above resulting in an accurate reported NWTPH-Gx result.

EVALUATION OF FIELD DUPLICATE SAMPLE RESULTS

Field duplicate samples were collected at an approximate frequency of one duplicate per 13.3 ground water samples – a frequency significantly more than the ratio of one duplicate per 20 samples specified in the *Interim Action Work Plan* (HWA, 2010). Inspection of Table 3 indicates good agreement between duplicate sample and primary sample results.

TRIP BLANK RESULTS

Trip blanks are VOA vials filled with deionized water that were transported, stored, and handled in the same manner as VOA vials for BTEX and HVOC analyses. Volatile organic compounds being detected in the analysis of a trip blank indicates poor sample handling techniques in the field. Inspection of Table 3 indicates no volatile organic compounds were detected in any of the trip blank samples.

PROJECT DOCUMENTATION AND DATA MANAGEMENT

Field personnel used bound waterproof field notebooks to record significant events and observations during the remedial investigation. Entries were made in waterproof ink or pencil, signed, and dated. Field personnel also completed daily field reports and forwarded copies of the field report to City of Bothell representatives. All field logs, figures, and records are retained in project files at HWA's office.

Digital photographs taken of field activities and significant events are stored on HWA's computer system with the following information noted:

• Date, time, and location of photograph taken
• Description of photograph taken
• Reasons photograph was taken
• Viewing direction

Original laboratory certificates containing analytical results and laboratory QC data are documented in Appendix C of the RI/FS/DCAP. An electronic copy of each laboratory certificate is stored on HWA's computer network server as PDF files in the project folder. In addition, OnSite Environmental's Electronic Data Deliverables (EDD) packages for all analytical results are stored on HWA's computer network server as Microsoft Excel spreadsheets in the project folder. HWA routinely backs up its network servers.

SUMMARY

- Field QC procedures were followed.
- The voluminous field and laboratory data generated during the remedial investigation are technically complete, accessible, and efficiently handled.
- All but two samples collected during the remedial investigation were analyzed within holding times and those two samples slightly out of holding times. Appropriate standard analytical methods were used. The few quality control issues noted above did not compromise the analytical accuracy or precision of the data.
- All reported data should be considered valid as qualified and acceptable for further use.

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APPENDIX I

CONSTRUCTION-PHASE SOIL CHARACTERIZATION & LIMITED REMEDIAL ACTION, FORMER BOTHELL HERTZ RENTAL FACILITY, BOTHELL, WASHINGTON, 2012

(on CD)

HWA GEOSCIENCES INC.
Geotechnical & Pavement Engineering • Hydrogeology • Geoenvironmental • Planning & Permitting • Inspection & Testing

September 19, 2012
HWA Project No. 2007-098-22

City of Bothell Public Works
9654 NE 182th Street
Bothell, Washington 98011

Attention: Nduta Mbuthia

Subject: **CONSTRUCTION-PHASE SOIL CHARACTERIZATION AND LIMITED REMEDIAL ACTION**
Former Bothell Hertz Rental Facility
Bothell, Washington

Dear Ms Mbuthia:

HWA GeoSciences Inc. (HWA) provided soil characterization for utility trenching and hazardous materials management consulting services during construction of the Bothell Way NE drainage improvements project, and the Bothell Crossroads Phase III project, in Bothell, Washington (Figure 1). Both projects involve utility trenching, some of which is located on the Bothell Former Hertz Facility, which is under an Agreed Order with the Washington State Department of Ecology. This report documents soil sampling, analysis and waste handling during construction activities on the former Hertz property.

Previous subsurface investigations and cleanup actions were completed on the former Hertz property, including a soil remediation in conducted 2010 (HWA, 2011). The cleanup included excavation and off-site treatment and disposal of 11,182 tons of petroleum contaminated soils in September 2010. Confirmation samples collected at and beyond the excavation boundaries at that time were all below cleanup levels.

SCOPE OF WORK

HWA performed the following tasks as requested:

- Coordinated with the City's contractor, KLB, (contractor) to complete five test pits along the project alignment for waste characterization purposes prior to installing the stormwater conveyance system.
- Collected up to two soil samples from each test pit for laboratory analyses.
- Field screened samples for organic vapors during sampling.
- Directed limited over-excavation trench to remove soils containing petroleum hydrocarbons in exceedance of MTCA cleanup levels.
- Collected six confirmation samples from the overexcavation area.
- Coordinated with the contractor to complete an additional five test pits along the future roadway alignment for waste characterization purposes in advance of the roadway construction project.

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- Submitted the soil samples to Onsite Environmental, an Ecology-accredited analytical laboratory for one or more the following analyses.
  - Gasoline Range Petroleum and Aromatic Hydrocarbons by Washington Method NWTPH-Gx/BETX
  - Diesel and Heavy oil range petroleum hydrocarbons by Washington Method NWTPH-Dx
  - HVOCs by EPA Method 8260B/5035A
  - Total RCRA Metals (As, Ba, Ca, Cr, Pb, Hg, Se, Ag) or MTCA Metals (As, Ca, Cr, Pb, Hg) by EPA Method 6010B/7471A
- Prepared this summary data report including sampling locations and analytical results.

FINDINGS

HWA sampled soils during construction to characterize trench spoils for disposal. HWA sampled characterization test pits on the former Hertz property with the assistance of the drainage improvements contractor in February and March, 2012, and Crossroads Phase III contractor in July 2012. Test pits were located along planned utility alignments. Test pit depths were selected to be representative of required construction excavation depths.

Subsurface Conditions

Soils encountered during excavation consisted of fill soils overlying native alluvial soils. The thickness and composition of fill soils varied considerably. Surficial fill (less than three feet below ground surface (bgs)) was typically compacted silty sand and gravel fill. In the area around test pits TP-1, TP-2, TP-3, and TP-4 (Figure 2), deeper fill soils consisted of up to 10 feet of silty dredge fill from historical Sammamish River realignment activities and debris. The debris included demolition-type debris, such as wood, metal, concrete and asphalt. The thickness and occurrence of this debris and dredge fill diminished east of TP-4. Significant debris was not observed in test pits HTP-6 through HTP-10. Fill soils at HTP-6 through HTP-10 consisted of gray silty sand. Hydrocarbon odors were noted at test pit locations TP-1, TP-2, TP-3, TP-4, HTP-6, and HTP-10, and during trench excavation activities in the vicinity of these test pits. Native soils underlying the fill typically consisted of interbedded peat and silty fine sand. These observations were generally consistent with previous subsurface investigations and soil excavation activities at the former Hertz property.

Ground water was encountered at approximately eight to ten feet bgs during test pit and trench excavation activities.

Drainage Improvements Test Pit Analytical Results

During test pit excavation, one soil sample was collected for analysis from shallow fill soils, and a second was collected near the ground water interface or total trench depth at each test pit (Table 1).

Of the ten test pit soil samples collected from the trench alignment, petroleum hydrocarbons (in the gasoline range) exceeding MTCA cleanup levels were detected in one sample collected at test pit TP-4 (TP-4-8). This sample was collected from fill soils near the ground water interface that exhibited hydrocarbon staining and odors. HWA recommended overexcavation of soils in the vicinity of this sample.

Low concentrations of diesel and oil range hydrocarbons were detected in four samples, below cleanup levels. The aromatic hydrocarbon xylene was detected in two samples, but at concentrations below cleanup levels. HVOCs were not detected in any of the test pit samples. The metals barium, chromium, and/or lead were detected in all samples, but at concentrations below cleanup levels.

Limited Soil Remedial Activities

Upon receipt of the initial test pit sampling results, HWA recommended additional lateral trench overexcavation in the vicinity of test pit TP-4, where gasoline-range hydrocarbons exceeding MTCA Method A cleanup level had been detected. HWA recommended overexcavation of the trench by approximately five feet on either side, between stations 22+20 to 23+00 in order to remove impacted soils and prevent the need for shoring/supporting and/or compromising the newly constructed storm water pipe during future construction activities.

During the drainage improvements project the contractor conducted the trench over-excavation during pipe installation. Figure 2 shows the overexcavated areas. All other areas along the 36-inch diameter pipe alignment were excavated to depths of eight to fifteen feet, in a trench generally around five feet wide. The area of overexcavation (beyond that normally required for utility installation) was approximately 60 feet long and ten to 15 feet wide (Figure 2).

Soils consisted of silty sand fill soils overlying dredge fill and debris. Native soils, consisting of silty fine sand and peat, were encountered below 11 feet bgs. Ground water was encountered at approximately eight to ten feet bgs, and was dewatered by a combination of well points outside of the excavation and sumps within the excavation. Ground water was pumped to on-site storage tanks for holding and testing prior to discharge to sanitary sewer per the King County discharge permit issued for the project.

TABLE 1
SOIL ANALYTICAL DATA
(all results in milligrams per kilogram (mg/kg))

Sample ID	Depth, ft bgs	Sample Location Descriptions (See Figure 2)	Petroleum Hydrocarbons			Aromatic Hydrocarbons				HVOCs***	Metals***		
			Gasoline	Diesel	Oil	Benzene	Ethylbenzene	Toluene	Xylenes		Barium	Chromium	Lead
Drainage Improvements Pre-Construction Characterization Samples, February, 2012													
TP-1-3	3	Approx. 20' north of MH-19	<4.8	<27	<54	<0.02	<0.048	<0.048	<0.048	ND	**29**	**26**	<5.4
TP-1-8	8		<7.9	<34	**130**	<0.02	<0.079	<0.079	<0.079	ND	**76**	**41**	**27**
TP-2-4	4	MH-27 location	**12**	<29	**230**	<0.02	<0.056	<0.056	<0.056	ND	**54**	**35**	**10**
TP-2-10	10		<7.2	<30	<61	<0.02	<0.072	<0.072	<0.072	ND	**73**	**47**	<6.1
TP-3-6	6	Approx 15' north of pipeline alignment, station 22+20	**77**	<29	**130**	<0.02	<0.062	<0.062	**0.18**	ND	**150**	**70**	**18**
TP-3-12	12		<7.2	<31	<63	<0.02	<0.072	<0.072	<0.072	ND	**92**	**34**	<6.3
TP-4-4	4	CB-36 location (**SOILS REMOVED BY OVEREXCAVATION**)	<6.8	<31	<61	<0.02	<0.068	<0.068	<0.068	ND	**76**	**38**	**6.2**
TP-4-8	8		**130**	**61**	**221**	<0.02	<0.078	<0.078	**0.16**	ND	**84**	**47**	<6.4
TP-5-4	4	50' east of CB-36, approximate station 23+20	<6.1	<29	<58	<0.02	<0.061	<0.061	<0.061	ND	**53**	**35**	<5.8
TP-5-8	8		<6.5	<30	<60	<0.02	<0.065	<0.065	<0.065	ND	**63**	**42**	**6.3**
Limited Remediation Confirmation Samples, March 2012													
Trench-1-15	15	Overexcavation area between approximate stations 22+20 to 23+00	<6.2	<30	<60	<0.02	<0.062	<0.062	<0.062	NA	NA	NA	NA
Trench-2-10	10		**7.6**	<31	**69**	<0.02	<0.066	<0.066	<0.066	NA	NA	NA	NA
Trench-3-10	10		**360**	**130**	**520**	<0.022	<0.11	**0.13**	**0.58**	NA	NA	NA	NA
Trench 4-14	14		<7.1	<32	<64	<0.02	<0.071	<0.071	<0.071	NA	NA	NA	NA
Trench-5-10	10		<5.9	<49	**530**	<0.02	<0.059	<0.059	<0.059	NA	NA	NA	NA
Trench 6-10	10		<5.4	<29	<57	<0.02	<0.054	<0.054	<0.054	NA	NA	NA	NA
Crossroads Phase III Pre-Construction Characterization Samples, July, 2012													
HTP-6-3	3	Sta. 21+75, 15' East of existing SSMH9	<6.0	<28	**470**	<0.02	<0.06	<0.06	<0.06	NA	NA	**44**	**20**
HTP-6-7	7		<6.4	<32	**130**	<0.02	<0.064	<0.064	<0.064	NA	NA	**42**	**14**
HTP-7-4	4	Sta. 22+00 (north side of road)	<5.7	<28	<55	<0.02	<0.057	<0.057	<0.057	NA	NA	**48**	**12**
HTP-8-7	7	30' South of new SD CB#36	<5.9	<28	<56	<0.02	<0.059	<0.059	<0.059	NA	NA	**38**	<5.6
HTP-8-10	10		**11**	<31	**86**	<0.02	<0.063	<0.063	<0.063	NA	NA	**38**	**13**
HTP-9-10	10	25' North of new SD CB#36	<5.7	<30	<59	<0.02	<0.057	<0.057	<0.057	NA	NA	**57**	**13**
HTP-10-7	7	25' East of H-TP-9	<5.5	<29	**250**	<0.02	<0.055	<0.055	<0.055	NA	NA	**53**	<5.8
HTP-10-11	11		<5.4	**360**	**3400**	<0.02	<0.054	<0.054	<0.054	NA	NA	**39**	**25**
MTCA Method A or B Cleanup Level			100/30*	2000	2000	0.03	6	7	9	Varies	16000(B)	19/2000	250

Notes:
Ft bgs - Feet below ground surface
Bold - Analyte Detected
Bold/Shaded – Analyte concentration exceeds cleanup level
< - Analyte not detected at analytical method reporting limit
ND – Not detected at analytical method reporting limit
NA – Not Analyzed
MTCA Method A - Washington Model Toxics Control Act Method A (Table 740-1) soil cleanup levels for unrestricted land use
*- The Method A Soil cleanup levels for gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylenes are less than 1% of the gasoline mixture are 100 mg/kg. All other mixtures are 30 mg/kg.
** - The MTCA Method A soil cleanup level for trivalent chromium is 2,000 mg/kg. Geochemical conditions on site would not cause oxidation to hexavalent chromium having a cleanup level of 19 mg/kg.
*** - No HVOCs or other metals detected at laboratory reporting limits. See Appendix A for laboratory analytical reports.

Limited Soil Remedial Activities Analytical Results

HWA collected six confirmation soil samples during trench over-excavation to document the limited soil remediation. Two soil samples were collected from the trench bottom (approximately 14 to 15 feet bgs) and four sidewall samples were collected at the ground water interface (10 feet bgs) (Figure 2).

The analytical results of these samples are summarized in Table 1 and laboratory analytical reports are included in Appendix A.

Samples on the south side of the overexcavated trench area did not contain petroleum hydrocarbons exceeding cleanup levels. One sidewall sample (Trench-3-10, Figure 2) contained gasoline-range petroleum hydrocarbons exceeding the MTCA Method A cleanup level.

Soils associated with this sample were left in place as they were outside the project limits and scope of work. However, this sample location is within the area of future roadway construction, and therefore, soils in the vicinity are scheduled to be removed during the construction of Crossroads Phase III following additional characterization and delineation test pits for that project.

Approximately 700 tons of excavated petroleum-affected soils from the area around TP-4 were disposed of off-site at Rabanco's Subtitle D Roosevelt Regional Landfill during the drainage improvements project, in March 2012.

Crossroads Phase III Test Pit Analytical Results

As part of the Crossroads project (currently underway), five additional test pits were completed at the former Hertz property to characterize utility trench spoils for disposal during construction. Two test pits, HTP-6 and HTP-7 were completed west of the former (2010) remedial excavation, and three test pits HTP-8 through HTP-10, were completed around the limited soil remediation area (discussed above) to further delineate the impacted soils.

Of these five test pits, only one contained any petroleum hydrocarbons, aromatics, or metals above cleanup levels. Heavy-oil range petroleum hydrocarbons were detected above MTCA cleanup levels in the deep (11 foot bgs) sample collected from HTP-10, north of the limited remediation area (Figure 2). Samples from TP-4 and TRENCH 3-10 in the limited remediation area contained gasoline range petroleum hydrocarbons above cleanup levels. The relatively low concentrations of different petroleum fractions in this limited area suggests the detections are not related to a single product release or plume, and are likely representative of fill soils.

The other six test pits (HTP-6, HTP-7, HTP-9, TP-3, TP-5, and TP-6) surrounding the 2010 soil cleanup area, as well as prior explorations (e.g. TP-17, MW-8) constrain the petroleum hydrocarbon-affected soil area to the east, south, and west of the limited soil remediation area. The 2010 cleanup area is approximately 40 feet north of these soils, and therefore the remaining impacted soils are very limited in volume. These soils will be excavated and further confirmation samples collected during the Crossroads roadway construction, after which another report will be prepared to document additional findings.

Limitations

The conclusions expressed by HWA are based solely on material referenced in this report. Observations were made under the conditions stated. Within the limitations of scope, schedule and budget, HWA attempted to execute these services in accordance with generally accepted professional principles and practices in the area at the time the report was prepared. No warranty, expressed or implied, is made. Experience has shown that subsurface soil and ground water conditions can vary significantly over small distances. It is always possible that contamination may exist in areas that were not sampled. HWA's findings and conclusions must not be considered as scientific or engineering certainties, but rather as our professional opinion concerning the significance of the limited data gathered and interpreted during the course of the assessment.

This report has been prepared on behalf of City of Bothell, for the specific application to the subject property. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

We appreciate the opportunity of providing these services to the City. Should you have any questions regarding this report, or require additional services, please contact me at your convenience.

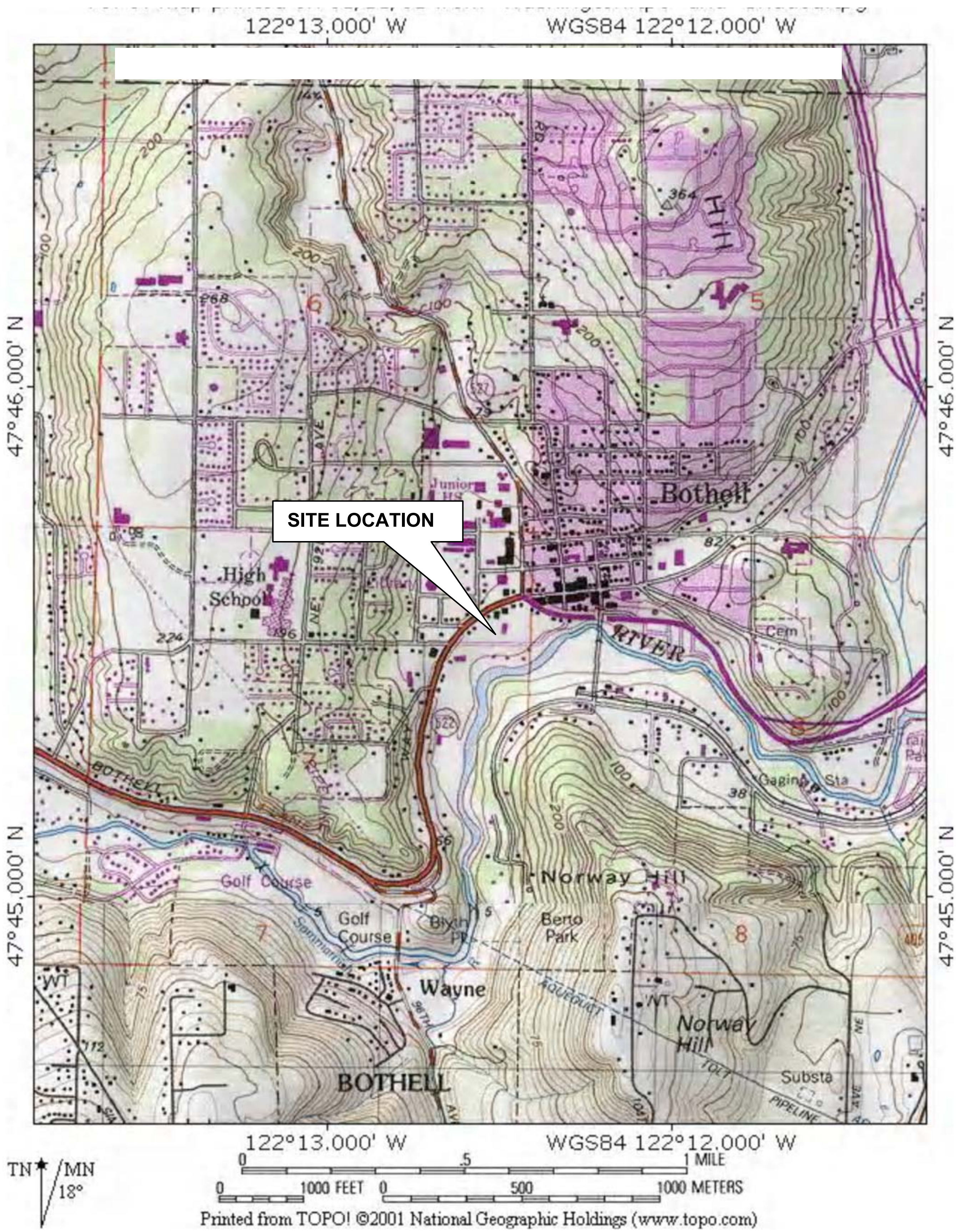
Sincerely,

HWA GEOSCIENCES INC.

State of Washington
Hydrogeologist
170
Licensed Geologist
Arnon Sugar
9-19-12
Arnie Sugar, LG, LHG
President, Environmental Geologist

State of Washington
Hydrogeologist
132
Licensed Geologist
VANCE ATKINS
9/19/12
Vance Atkins, LG, LHG
Senior Hydrogeologist

Attachments:
Figure 1 - Site Location Map
Figure 2 - Site and Exploration Plan
Appendix A - Laboratory Analytical Results



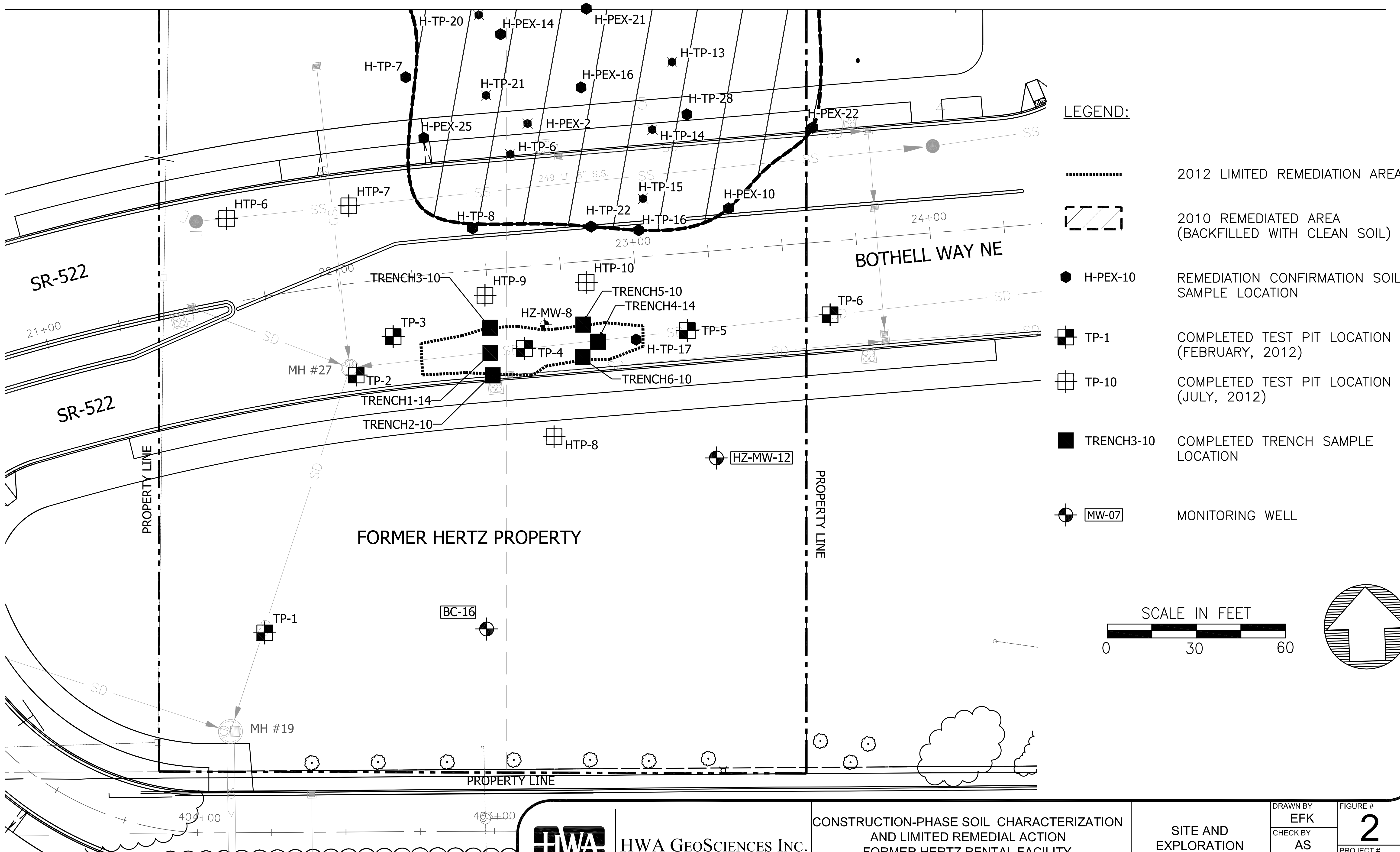
HWA GEOSCIENCES INC.

SITE VICINITY

CONSTRUCTION-PHASE SOIL CHARACTERIZATION AND LIMITED REMEDIAL ACTION
BOTHELL FORMER HERTZ FACILITY
BOTHELL, WASHINGTON

FIGURE NO.
1

PROJECT NO.
2007-098-946



BASE MAP PROVIDED BY:

HWA GEOSCIENCES INC.

CONSTRUCTION-PHASE SOIL CHARACTERIZATION
AND LIMITED REMEDIAL ACTION
FORMER HERTZ RENTAL FACILITY
BOTHELL, WASHINGTON

SITE AND
EXPLORATION
PLAN

DRAWN BY: EFK	FIGURE #: 2
CHECK BY: AS	PROJECT #: 2007-098-21 TASK T946
DATE: 09.18.12	

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T946.DWG <T946 Fig 2> Plotted: 9/20/2012 9:55 AM

APPENDIX A

ANALYTICAL LABORATORY REPORTS

OnSite
Environmental Inc.

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

February 24 2012

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project Bothell Stormwater
Laboratory Reference No. 1202-163

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on February 21, 2012.

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 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

Case Narrative

Samples were collected on February 21, 2012 and received by the laboratory on February 21, 2012. They were maintained at the laboratory at a temperature of $2^{o}C$ to $6^{o}C$.

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.

<u>NWTPH Gx/BTEX Analysis</u>

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between $-7^{o}C$ and $-20^{o}C$ until extraction or analysis.

The chromatograms for samples TP-2-4, TP-3-6 and T-P-4-8 are similar to mineral spirits.

The MTCA Method A clean-up level for Benzene could not be achieved for sample TP-7-8 due to the low dry-weight of the sample.

<u>Halogenated Volatiles EPA 8260B Analysis</u>

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between $-7^{o}C$ and $-20^{o}C$ until extraction or analysis.

Surrogate 4-Bromofluorobenzene is outside control limits for sample TP-4-8 due to co-eluting non-target analytes.

Please note that any other QA/QC issues associated with these extractions and analyses will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-3**					
Laboratory ID:	02-163-01					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.048	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.048	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.048	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.048	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	4.8	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*68-124*				
Client ID:	**TP-1-8**					
Laboratory ID:	02-163-02					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.079	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.079	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.079	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.079	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	7.9	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*68-124*				
Client ID:	**TP-2-4**					
Laboratory ID:	02-163-03					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.056	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.056	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.056	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.056	EPA 8021	2-21-12	2-21-12	
Gasoline	**12**	5.6	NWTPH-Gx	2-21-12	2-21-12	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*68-124*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-10**					
Laboratory ID:	02-163-04					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	7.2	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*68-124*				
Client ID:	**TP-3-6**					
Laboratory ID:	02-163-05					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.062	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.062	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**0.18**	0.062	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.062	EPA 8021	2-21-12	2-21-12	
Gasoline	**77**	6.2	NWTPH-Gx	2-21-12	2-21-12	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*68-124*				
	Z--The sample chromatogram is similar to mineral spirits.					
Client ID:	**TP-3-12**					
Laboratory ID:	02-163-06					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	7.2	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*68-124*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-4**					
Laboratory ID:	02-163-07					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.068	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.068	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.068	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.068	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	6.8	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*68-124*				
Client ID:	**TP-4-8**					
Laboratory ID:	02-163-08					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.078	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.078	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**0.16**	0.078	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.078	EPA 8021	2-21-12	2-21-12	
Gasoline	**130**	7.8	NWTPH-Gx	2-21-12	2-21-12	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*68-124*				

Z--The sample chromatogram is similar to mineral spirits.

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-4**					
Laboratory ID:	02-163-09					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.061	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.061	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.061	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.061	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	6.1	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*68-124*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-8**					
Laboratory ID:	02-163-10					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.065	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.065	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.065	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.065	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	6.5	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*68-124*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
Laboratory ID:	MB0221S1					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	5.0	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*68-124*				
Laboratory ID:	MB0221S2					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	5.0	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*68-124*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX
QUALITY CONTROL

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	02-163-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*97*	*98*	*68-124*			
Laboratory ID:	02-163-02										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*103*	*109*	*68-124*			
SPIKE BLANKS											
Laboratory ID:	SB0221S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.11**	**1.05**	1.00	1.00		**111**	**105**	77-114	6	9	
Toluene	**1.12**	**1.12**	1.00	1.00		**112**	**112**	80-115	0	9	
Ethyl Benzene	**1.09**	**1.08**	1.00	1.00		**109**	**108**	80-118	1	9	
m,p-Xylene	**1.09**	**1.15**	1.00	1.00		**109**	**115**	82-118	5	9	
o-Xylene	**1.05**	**1.09**	1.00	1.00		**105**	**109**	82-116	4	9	
Surrogate:											
Fluorobenzene						*96*	*88*	*68-124*			

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-3**					
Laboratory ID:	02-163-01					
Diesel Range Organics	**ND**	27	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	54	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**TP-1-8**					
Laboratory ID:	02-163-02					
Diesel Range Organics	**ND**	34	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil	**130**	68	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*76*	*50-150*				
Client ID:	**TP-2-4**					
Laboratory ID:	02-163-03					
Diesel Range Organics	**ND**	29	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil	**230**	58	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				
Client ID:	**TP-2-10**					
Laboratory ID:	02-163-04					
Diesel Range Organics	**ND**	30	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*92*	*50-150*				
Client ID:	**TP-3-6**					
Laboratory ID:	02-163-05					
Diesel Range Organics	**ND**	29	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil	**130**	59	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**TP-3-12**					
Laboratory ID:	02-163-06					
Diesel Range Organics	**ND**	31	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	63	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*89*	*50-150*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-4**					
Laboratory ID:	02-163-07					
Diesel Range Organics	**ND**	31	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**TP-4-8**					
Laboratory ID:	02-163-08					
Diesel Range Organics	**61**	32	NWTPH-Dx	2-21-12	2-22-12	M,N
Lube Oil	**220**	64	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*79*	*50-150*				
Client ID:	**TP-5-4**					
Laboratory ID:	02-163-09					
Diesel Range Organics	**ND**	29	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	58	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**TP-5-8**					
Laboratory ID:	02-163-10					
Diesel Range Organics	**ND**	30	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*92*	*50-150*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0221S2					
Diesel Range Organics	**ND**	25	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	02-163-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*96*	*104*	*50-150*			
Laboratory ID:	02-163-15							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*91*	*89*	*50-150*			

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
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Project: Bothell Stormwater

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-3**					
Laboratory ID:	02-163-01					
Dichlorodifluoromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0052	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0052	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0052	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0052	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0052	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	

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Samples Submitted: February 21, 2012
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Project: Bothell Stormwater

HALOGENATED VOLATILES by EPA 8260B
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-3**					
Laboratory ID:	02-163-01					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0052	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0052	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*84*	*63-127*				
Toluene-d8	*91*	*65-129*				
4-Bromofluorobenzene	*96*	*55-121*				

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Project: Bothell Stormwater

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-8**					
Laboratory ID:	02-163-02					
Dichlorodifluoromethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0070	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0070	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0070	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0070	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0070	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0014	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-8**					
Laboratory ID:	02-163-02					
1,1,2-Trichloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0070	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0070	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*85*	*63-127*				
Toluene-d8	*92*	*65-129*				
4-Bromofluorobenzene	*88*	*55-121*				

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HALOGENATED VOLATILES by EPA 8260B
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-4**					
Laboratory ID:	02-163-03					
Dichlorodifluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-4**					
Laboratory ID:	02-163-03					
1,1,2-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*82*	*63-127*				
Toluene-d8	*91*	*65-129*				
4-Bromofluorobenzene	*102*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-10**					
Laboratory ID:	02-163-04					
Dichlorodifluoromethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0061	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0061	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0061	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0061	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0061	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0012	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-10**					
Laboratory ID:	02-163-04					
1,1,2-Trichloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0061	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0061	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*81*	*63-127*				
Toluene-d8	*89*	*65-129*				
4-Bromofluorobenzene	*91*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-3-6**					
Laboratory ID:	02-163-05					
Dichlorodifluoromethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Chloromethane	ND	0.0051	EPA 8260	2-21-12	2-22-12	
Vinyl Chloride	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Bromomethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Chloroethane	ND	0.0051	EPA 8260	2-21-12	2-22-12	
Trichlorofluoromethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Iodomethane	ND	0.0051	EPA 8260	2-21-12	2-22-12	
Methylene Chloride	ND	0.0051	EPA 8260	2-21-12	2-22-12	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
2,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Bromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Chloroform	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Carbon Tetrachloride	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Trichloroethene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Dibromomethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Bromodichloromethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
2-Chloroethyl Vinyl Ether	ND	0.0051	EPA 8260	2-21-12	2-22-12	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-22-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-3-6**					
Laboratory ID:	02-163-05					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Tetrachloroethene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,3-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Dibromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2-Dibromoethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Chlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Bromoform	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Bromobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
2-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
4-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2-Dibromo-3-chloropropane	ND	0.0051	EPA 8260	2-21-12	2-22-12	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Hexachlorobutadiene	ND	0.0051	EPA 8260	2-21-12	2-22-12	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*73*	*63-127*				
Toluene-d8	*88*	*65-129*				
4-Bromofluorobenzene	*110*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-3-12**					
Laboratory ID:	02-163-06					
Dichlorodifluoromethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Chloromethane	ND	0.0069	EPA 8260	2-23-12	2-23-12	
Vinyl Chloride	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Bromomethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Chloroethane	ND	0.0069	EPA 8260	2-23-12	2-23-12	
Trichlorofluoromethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1-Dichloroethene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Iodomethane	ND	0.0069	EPA 8260	2-23-12	2-23-12	
Methylene Chloride	ND	0.0069	EPA 8260	2-23-12	2-23-12	
(trans) 1,2-Dichloroethene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1-Dichloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
2,2-Dichloropropane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
(cis) 1,2-Dichloroethene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Bromochloromethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Chloroform	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1,1-Trichloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Carbon Tetrachloride	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1-Dichloropropene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2-Dichloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Trichloroethene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2-Dichloropropane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Dibromomethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Bromodichloromethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
2-Chloroethyl Vinyl Ether	ND	0.0069	EPA 8260	2-23-12	2-23-12	
(cis) 1,3-Dichloropropene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
(trans) 1,3-Dichloropropene	ND	0.0014	EPA 8260	2-23-12	2-23-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-3-12**					
Laboratory ID:	02-163-06					
1,1,2-Trichloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Tetrachloroethene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,3-Dichloropropane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Dibromochloromethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2-Dibromoethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Chlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1,1,2-Tetrachloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Bromoform	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Bromobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1,2,2-Tetrachloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2,3-Trichloropropane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
2-Chlorotoluene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
4-Chlorotoluene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,3-Dichlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,4-Dichlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2-Dichlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2-Dibromo-3-chloropropane	ND	0.0069	EPA 8260	2-23-12	2-23-12	
1,2,4-Trichlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Hexachlorobutadiene	ND	0.0069	EPA 8260	2-23-12	2-23-12	
1,2,3-Trichlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*91*	*63-127*				
Toluene-d8	*92*	*65-129*				
4-Bromofluorobenzene	*91*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-4**					
Laboratory ID:	02-163-07					
Dichlorodifluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-4**					
Laboratory ID:	02-163-07					
1,1,2-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*80*	*63-127*				
Toluene-d8	*90*	*65-129*				
4-Bromofluorobenzene	*103*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-8**					
Laboratory ID:	02-163-08					
Dichlorodifluoromethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Chloromethane	ND	0.0053	EPA 8260	2-21-12	2-22-12	
Vinyl Chloride	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Bromomethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Chloroethane	ND	0.0053	EPA 8260	2-21-12	2-22-12	
Trichlorofluoromethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Iodomethane	ND	0.0053	EPA 8260	2-21-12	2-22-12	
Methylene Chloride	ND	0.0053	EPA 8260	2-21-12	2-22-12	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
2,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Bromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Chloroform	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Carbon Tetrachloride	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Trichloroethene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Dibromomethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Bromodichloromethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
2-Chloroethyl Vinyl Ether	ND	0.0053	EPA 8260	2-21-12	2-22-12	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-22-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-8**					
Laboratory ID:	02-163-08					
1,1,2-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Tetrachloroethene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,3-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Dibromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2-Dibromoethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Chlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Bromoform	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Bromobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
2-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
4-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2-Dibromo-3-chloropropane	ND	0.0053	EPA 8260	2-21-12	2-22-12	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Hexachlorobutadiene	ND	0.0053	EPA 8260	2-21-12	2-22-12	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*82*	*63-127*				
Toluene-d8	*92*	*65-129*				
4-Bromofluorobenzene	*161*	*55-121*				Q

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-4**					
Laboratory ID:	02-163-09					
Dichlorodifluoromethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0049	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0049	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0049	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0049	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0049	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.00099	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-4**					
Laboratory ID:	02-163-09					
1,1,2-Trichloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0049	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0049	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*70*	*63-127*				
Toluene-d8	*83*	*65-129*				
4-Bromofluorobenzene	*83*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-8**					
Laboratory ID:	02-163-10					
Dichlorodifluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-8**					
Laboratory ID:	02-163-10					
1,1,2-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*81*	*63-127*				
Toluene-d8	*92*	*65-129*				
4-Bromofluorobenzene	*90*	*55-121*				

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HALOGENATED VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0221S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0050	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0050	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0050	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0050	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	

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METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0221S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0050	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*87*	*63-127*				
Toluene-d8	*93*	*65-129*				
4-Bromofluorobenzene	*98*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0223S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Chloromethane	ND	0.0050	EPA 8260	2-23-12	2-23-12	
Vinyl Chloride	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Bromomethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Chloroethane	ND	0.0050	EPA 8260	2-23-12	2-23-12	
Trichlorofluoromethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1-Dichloroethene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Iodomethane	ND	0.0050	EPA 8260	2-23-12	2-23-12	
Methylene Chloride	ND	0.0050	EPA 8260	2-23-12	2-23-12	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1-Dichloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
2,2-Dichloropropane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Bromochloromethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Chloroform	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Carbon Tetrachloride	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1-Dichloropropene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2-Dichloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Trichloroethene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2-Dichloropropane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Dibromomethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Bromodichloromethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260	2-23-12	2-23-12	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-23-12	2-23-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0223S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Tetrachloroethene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,3-Dichloropropane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Dibromochloromethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2-Dibromoethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Chlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Bromoform	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Bromobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
2-Chlorotoluene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
4-Chlorotoluene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260	2-23-12	2-23-12	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Hexachlorobutadiene	ND	0.0050	EPA 8260	2-23-12	2-23-12	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*94*	*63-127*				
Toluene-d8	*99*	*65-129*				
4-Bromofluorobenzene	*97*	*55-121*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

HALOGENATED VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0221S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0371**	**0.0381**	0.0500	0.0500	74	76	70-130	3	19	
Benzene	**0.0387**	**0.0394**	0.0500	0.0500	77	79	70-125	2	15	
Trichloroethene	**0.0411**	**0.0435**	0.0500	0.0500	82	87	70-122	6	14	
Toluene	**0.0411**	**0.0425**	0.0500	0.0500	82	85	73-120	3	16	
Chlorobenzene	**0.0512**	**0.0517**	0.0500	0.0500	102	103	74-109	1	12	
Surrogate:										
Dibromofluoromethane					*75*	*79*	*63-127*			
Toluene-d8					*83*	*85*	*65-129*			
4-Bromofluorobenzene					*87*	*91*	*55-121*			

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

HALOGENATED VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	**Result**		**Spike Level**		**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
SPIKE BLANKS										
Laboratory ID:	SB0223S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0486**	**0.0501**	0.0500	0.0500	97	100	70-130	3	19	
Benzene	**0.0472**	**0.0458**	0.0500	0.0500	94	92	70-125	3	15	
Trichloroethene	**0.0464**	**0.0454**	0.0500	0.0500	93	91	70-122	2	14	
Toluene	**0.0476**	**0.0473**	0.0500	0.0500	95	95	73-120	1	16	
Chlorobenzene	**0.0505**	**0.0503**	0.0500	0.0500	101	101	74-109	0	12	
Surrogate:										
Dibromofluoromethane					*84*	*83*	*63-127*			
Toluene-d8					*86*	*88*	*65-129*			
4-Bromofluorobenzene					*88*	*87*	*55-121*			

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-01					
Client ID:	**TP-1-3**					
Arsenic	**ND**	11	6010B	2-22-12	2-22-12	
Barium	**29**	2.7	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.54	6010B	2-22-12	2-22-12	
Chromium	**26**	0.54	6010B	2-22-12	2-22-12	
Lead	**ND**	5.4	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.27	7471A	2-22-12	2-22-12	
Selenium	**ND**	11	6010B	2-22-12	2-22-12	
Silver	**ND**	0.54	6010B	2-22-12	2-22-12	
Lab ID:	02-163-02					
Client ID:	**TP-1-8**					
Arsenic	**ND**	14	6010B	2-22-12	2-22-12	
Barium	**76**	3.4	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.68	6010B	2-22-12	2-22-12	
Chromium	**41**	0.68	6010B	2-22-12	2-22-12	
Lead	**27**	6.8	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.34	7471A	2-22-12	2-22-12	
Selenium	**ND**	14	6010B	2-22-12	2-22-12	
Silver	**ND**	0.68	6010B	2-22-12	2-22-12	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-03					
Client ID:	**TP-2-4**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**54**	2.9	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.58	6010B	2-22-12	2-22-12	
Chromium	**35**	0.58	6010B	2-22-12	2-22-12	
Lead	**10**	5.8	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.29	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.58	6010B	2-22-12	2-22-12	

Lab ID:	02-163-04					
Client ID:	**TP-2-10**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**73**	3.0	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.61	6010B	2-22-12	2-22-12	
Chromium	**47**	0.61	6010B	2-22-12	2-22-12	
Lead	**ND**	6.1	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.30	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.61	6010B	2-22-12	2-22-12	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-05					
Client ID:	**TP-3-6**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**150**	2.9	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.59	6010B	2-22-12	2-22-12	
Chromium	**70**	0.59	6010B	2-22-12	2-22-12	
Lead	**18**	5.9	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.29	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.59	6010B	2-22-12	2-22-12	

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-06					
Client ID:	**TP-3-12**					
Arsenic	**ND**	13	6010B	2-22-12	2-22-12	
Barium	**92**	3.1	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.63	6010B	2-22-12	2-22-12	
Chromium	**34**	0.63	6010B	2-22-12	2-22-12	
Lead	**ND**	6.3	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.31	7471A	2-22-12	2-22-12	
Selenium	**ND**	13	6010B	2-22-12	2-22-12	
Silver	**ND**	0.63	6010B	2-22-12	2-22-12	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-07					
Client ID:	**TP-4-4**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**79**	3.1	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.61	6010B	2-22-12	2-22-12	
Chromium	**38**	0.61	6010B	2-22-12	2-22-12	
Lead	**6.2**	6.1	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.31	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.61	6010B	2-22-12	2-22-12	

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-08					
Client ID:	**TP-4-8**					
Arsenic	**ND**	13	6010B	2-22-12	2-22-12	
Barium	**84**	3.2	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.64	6010B	2-22-12	2-22-12	
Chromium	**47**	0.64	6010B	2-22-12	2-22-12	
Lead	**ND**	6.4	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.32	7471A	2-22-12	2-22-12	
Selenium	**ND**	13	6010B	2-22-12	2-22-12	
Silver	**ND**	0.64	6010B	2-22-12	2-22-12	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-09					
Client ID:	**TP-5-4**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**53**	2.9	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.58	6010B	2-22-12	2-22-12	
Chromium	**35**	0.58	6010B	2-22-12	2-22-12	
Lead	**ND**	5.8	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.29	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.58	6010B	2-22-12	2-22-12	

Lab ID:	02-163-10					
Client ID:	**TP-5-8**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**63**	3.0	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.60	6010B	2-22-12	2-22-12	
Chromium	**42**	0.60	6010B	2-22-12	2-22-12	
Lead	**6.3**	6.0	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.30	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.60	6010B	2-22-12	2-22-12	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 2-22-12
Date Analyzed: 2-22-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0222SM1&MB0222S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 2-22-12
Date Analyzed: 2-22-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-163-15

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**44.9**	**41.8**	7	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**32.6**	**29.6**	10	0.50	
Lead	**ND**	**ND**	NA	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 2-22-12
Date Analyzed: 2-22-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-163-15

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**91.7**	92	**90.9**	91	1	
Barium	100	**136**	91	**136**	91	0	
Cadmium	50.0	**44.8**	90	**44.7**	89	0	
Chromium	100	**123**	90	**115**	82	7	
Lead	250	**235**	94	**236**	94	0	
Mercury	0.500	**0.501**	100	**0.510**	102	2	
Selenium	100	**91.3**	91	**89.9**	90	2	
Silver	25.0	**22.2**	89	**22.2**	89	0	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

% MOISTURE

Date Analyzed: 2-21-12

Client ID	Lab ID	% Moisture
TP-1-3	02-163-01	7
TP-1-8	02-163-02	26
TP-2-4	02-163-03	13
TP-2-10	02-163-04	17
TP-3-6	02-163-05	15
TP-3-12	02-163-06	20
TP-4-4	02-163-07	18
TP-4-8	02-163-08	21
TP-5-4	02-163-09	14
TP-5-8	02-163-10	17
TP-6-4	02-163-11	31
TP-6-10	02-163-12	22
TP-7-4	02-163-13	11
TP-7-8	02-163-14	54
TP-8-4	02-163-15	6
TP-8-8	02-163-16	15

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits.

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

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

Chain of Custody

Page 1 of 2

Laboratory Number: 02-163

Company: HWA
Project Number:
Project Name: Boeing Stormwater
Project Manager: Akins
Sampled by: "

Turnaround Request (in working days)
(Check One)
- [ ] Same Day
- [x] 1 Day
- [ ] 2 Days
- [ ] 3 Days
- [ ] Standard (7 Days) (TPH analysis 5 Days)
- [ ] ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664					% Moisture
1	TP-1-3	2/21	900	S	5		/		/		/							/								X
2	TP-1-8		905				/		/		/							/								
3	TP-2-4		915				/		/		/							/								
4	TP-2-10		920				/		/		/							/								
5	TP-3-6		930				/		/		/							/								
6	TP-3-12		935				/		/		/							/								
7	TP-4-4		945				/		/		/							/								
8	TP-4-8		950				/		/		/							/								
9	TP-5-4		1000				/		/		/							/								
10	TP-5-8		1005				/		/		/							/								

	Signature	Company	Date	Time
Relinquished	[signature]	HWA	2/21/12	1405
Received	[signature]	OSE	2/21/12	1405
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

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Chain of Custody

Laboratory Number: 02-163

Company: HWA
Project Number:
Project Name: Bothell Stormwater
Project Manager: Atkins
Sampled by: "

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☑ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☐ Standard (7 Days) (TPH analysis 5 Days)
- ☐ ________ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664					% Moisture
11	TP-6-4	2/21/12	1015	S	5		/		/		/							/								X
12	TP-6-10		1020				/		/		/							/								
13	TP-7-4		1030				/		/		/							/								
14	TP-7-8		1035				/		/		/							/								
15	TP-8-4		1043				/		/		/							/								
16	TP-8-8		1045				/		/		/							/								

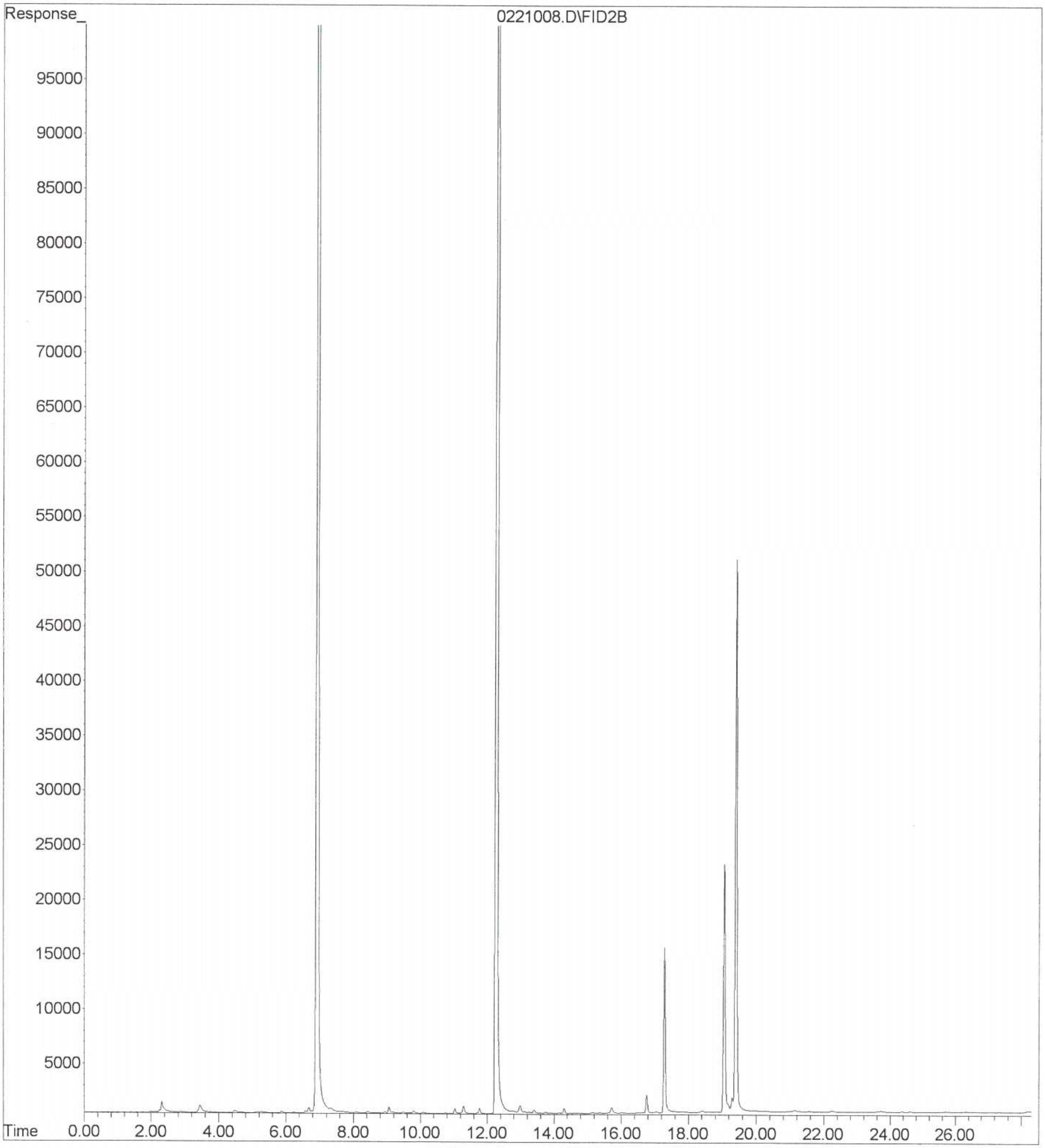
	Signature	Company	Date	Time
Relinquished	[signature]	HWA	2/21/12	1405
Received	[signature]	OSE	2/21/12	1405
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions:

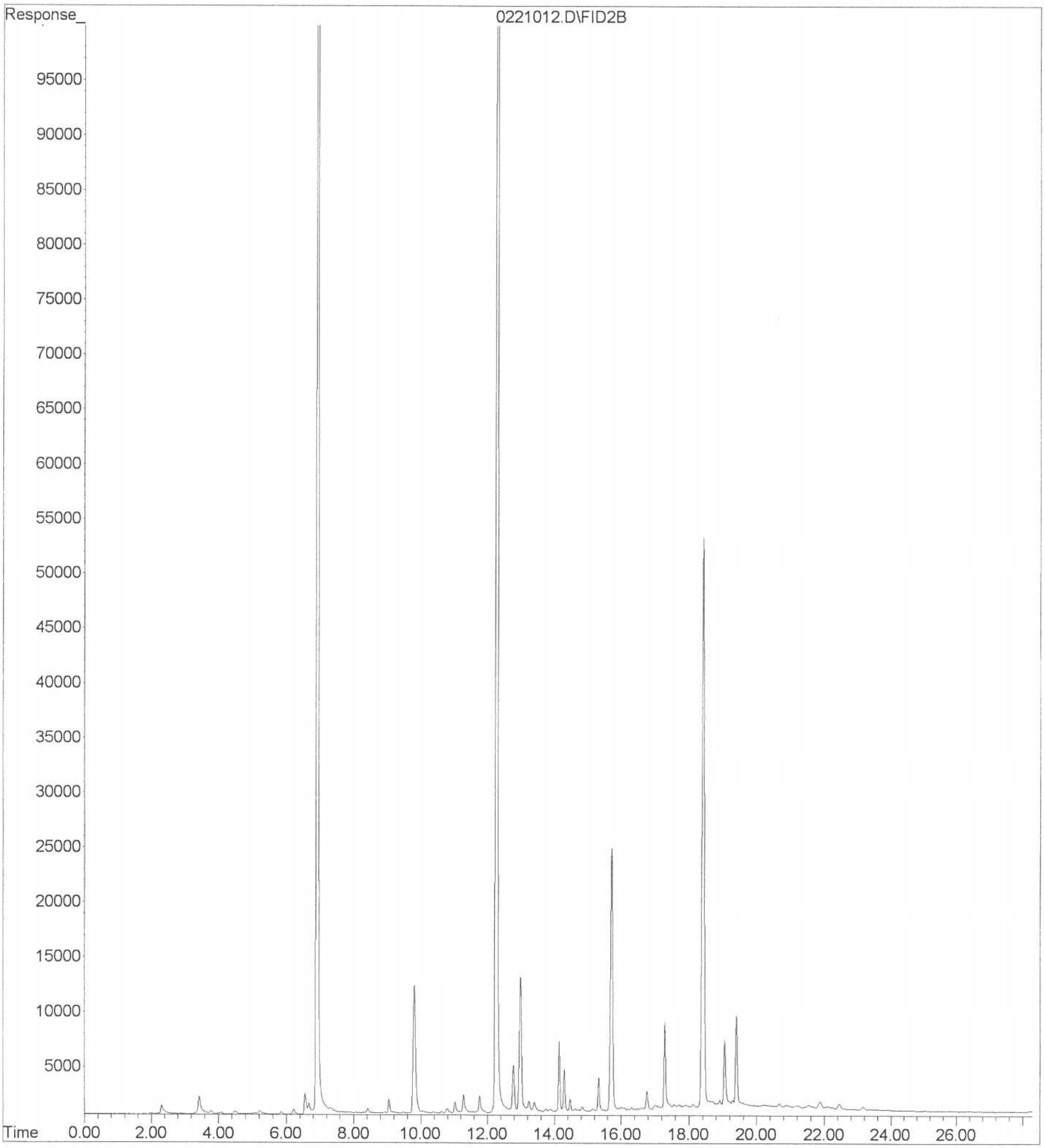
Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ________

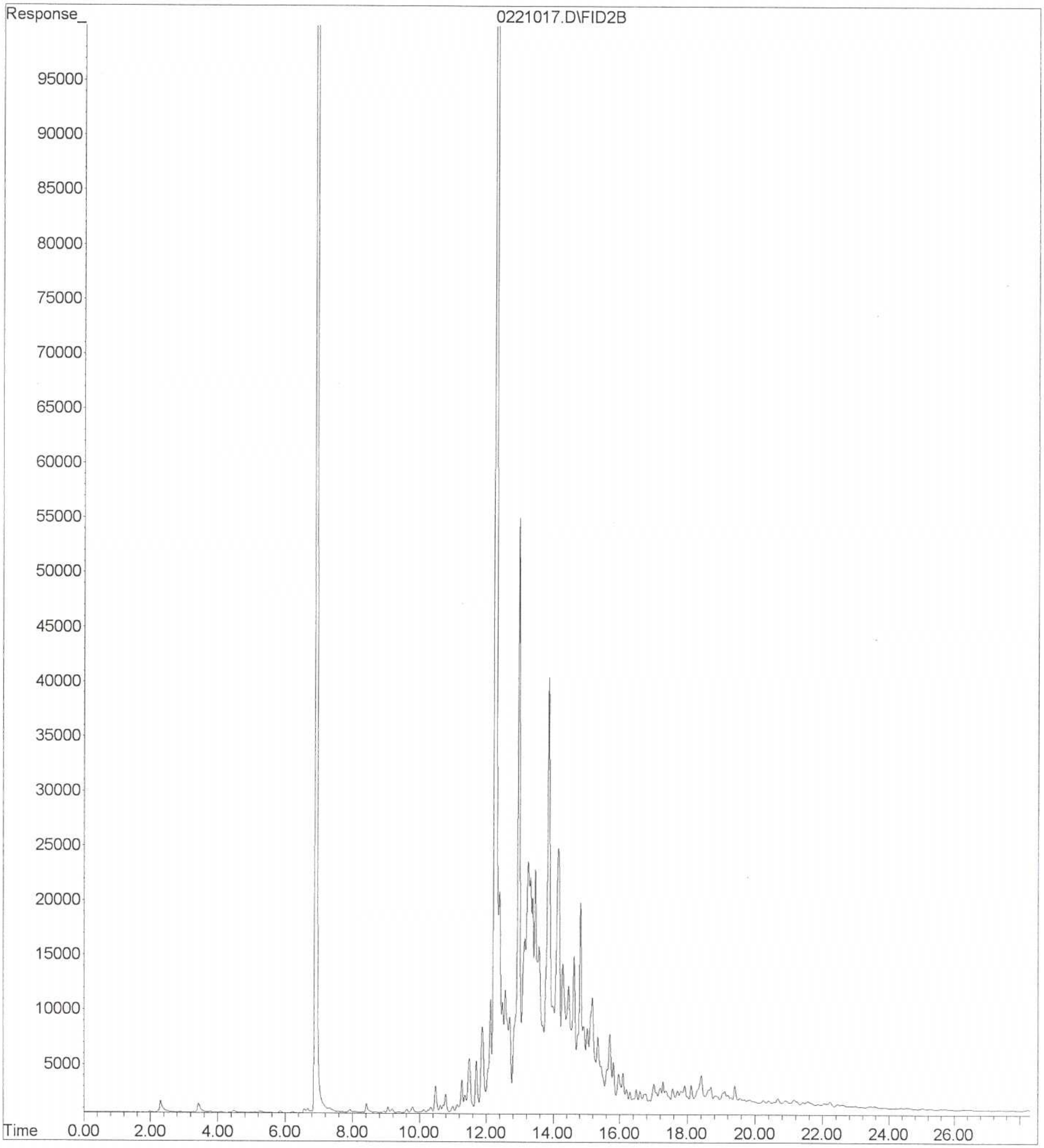
File : X:\BTEX\DARYL\DATA\D120221\0221008.D
Operator :
Acquired : 21 Feb 2012 18:10 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 02-163-01s
Misc Info : V2-27-25
Vial Number: 8



File : X:\BTEX\DARYL\DATA\D120221\0221012.D
Operator :
Acquired : 21 Feb 2012 20:27 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 02-163-02s
Misc Info : V2-27-25
Vial Number: 12



File : X:\BTEX\DARYL\DATA\D120221\0221017.D
Operator :
Acquired : 21 Feb 2012 23:18 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 02-163-03s
Misc Info : V2-27-25
Vial Number: 17



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File          : X:\BTEX\DARYL\DATA\D120221\0221018.D
Operator      :
Acquired      : 21 Feb 2012  23:52      using AcqMethod 120110B.M
Instrument :    Daryl
Sample Name: 02-163-04s
Misc Info  : V2-27-25
Vial Number: 18
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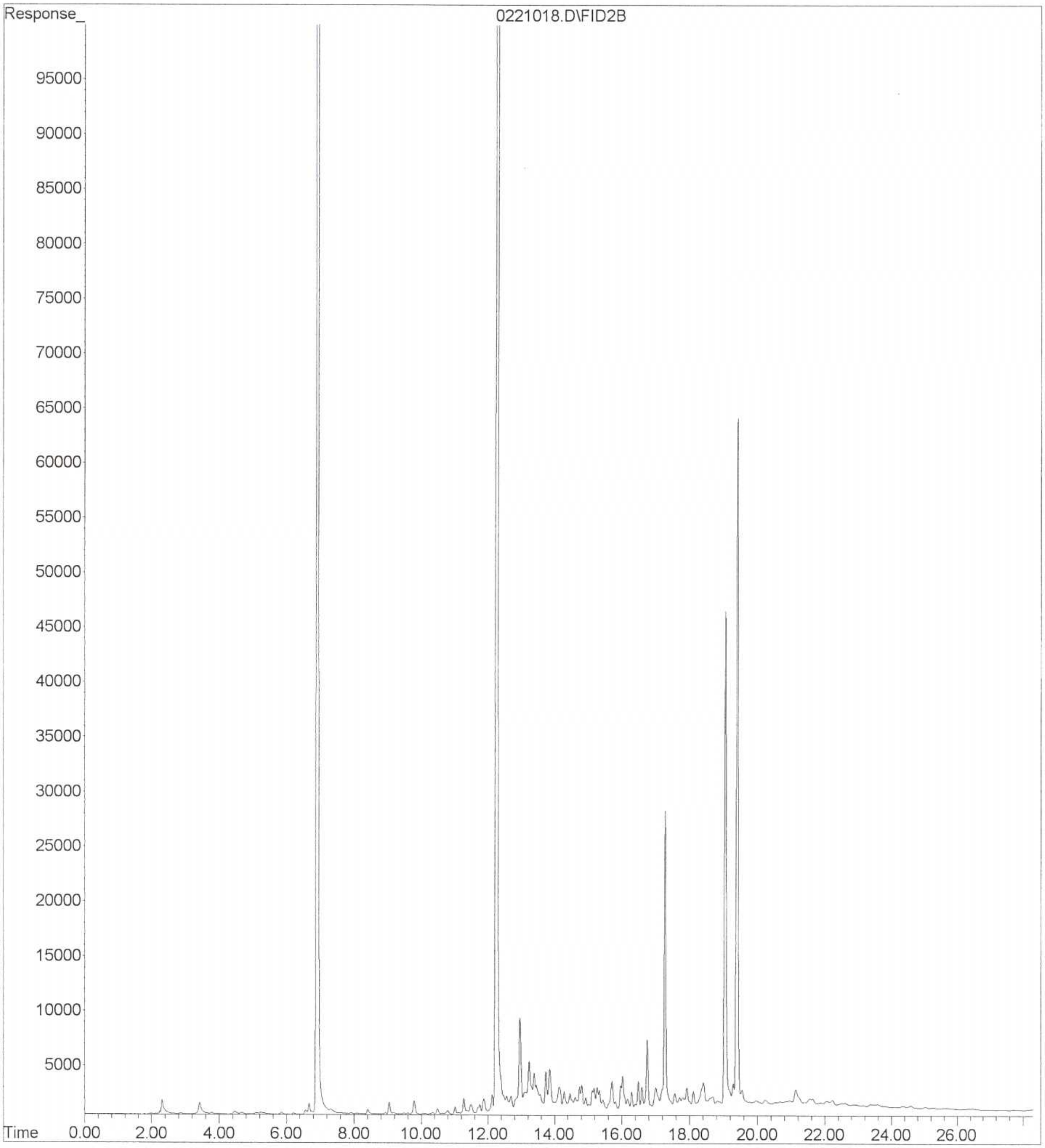
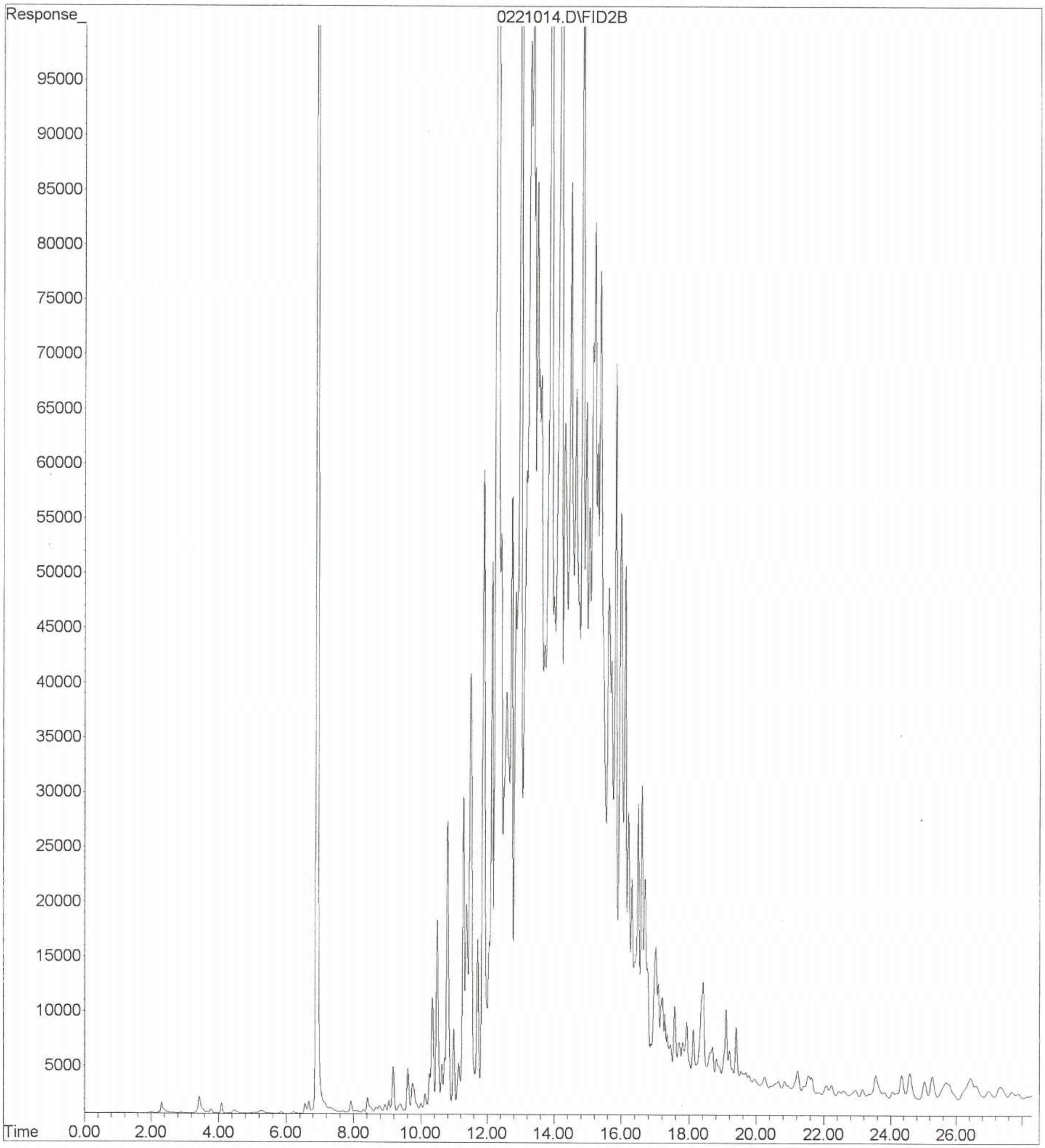
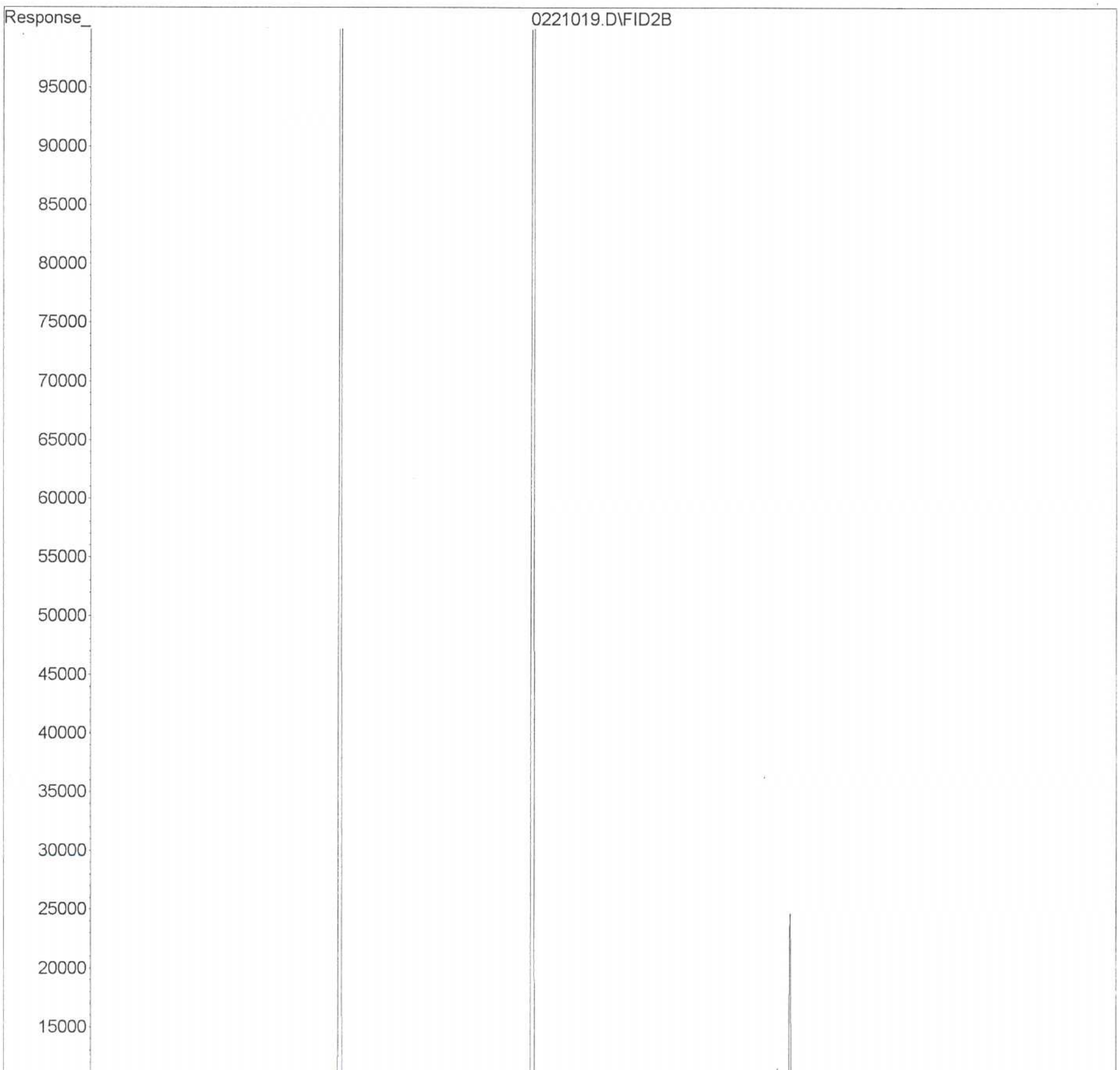


File   : X:\BTEX\DARYL\DATA\D120221\0221014.D
Operator   :
Acquired   : 21 Feb 2012 21:36   using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 02-163-05s
Misc Info   : V2-27-25
Vial Number: 14



File   : X:\BTEX\DARYL\DATA\D120221\0221019.D
Operator   :
Acquired   : 22 Feb 2012 00:26   using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 02-163-06s
Misc Info : V2-27-25
Vial Number: 19



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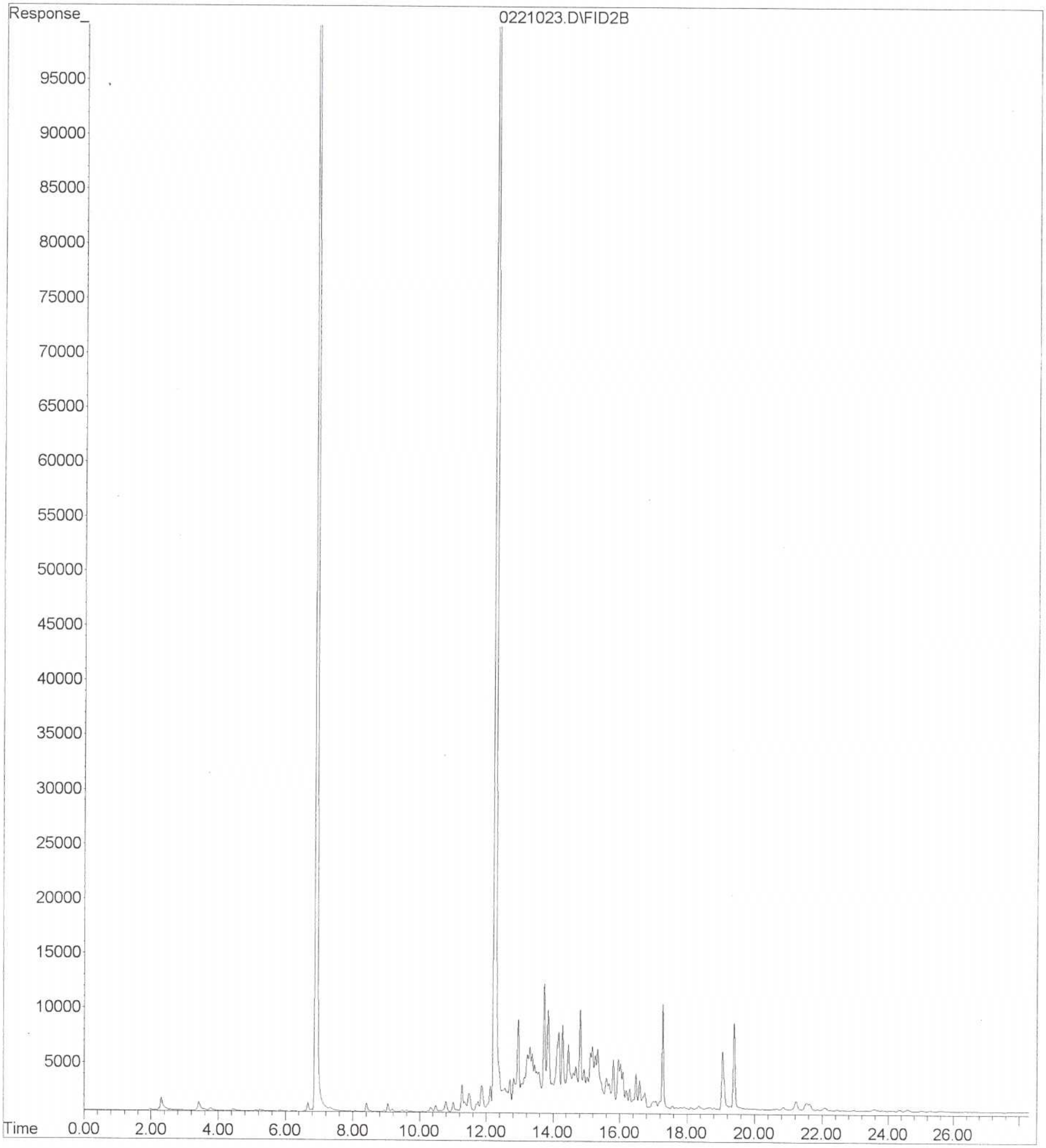
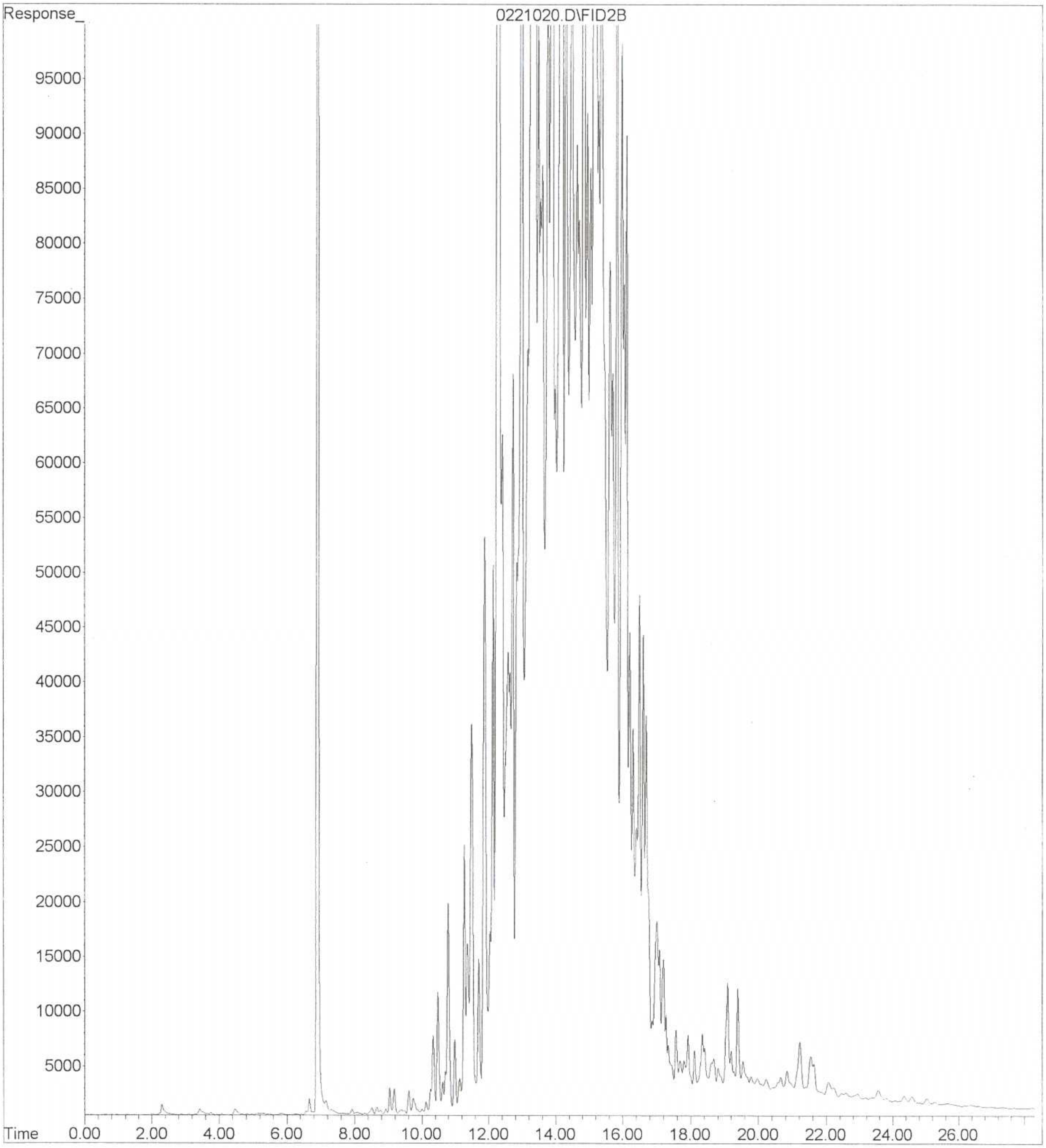
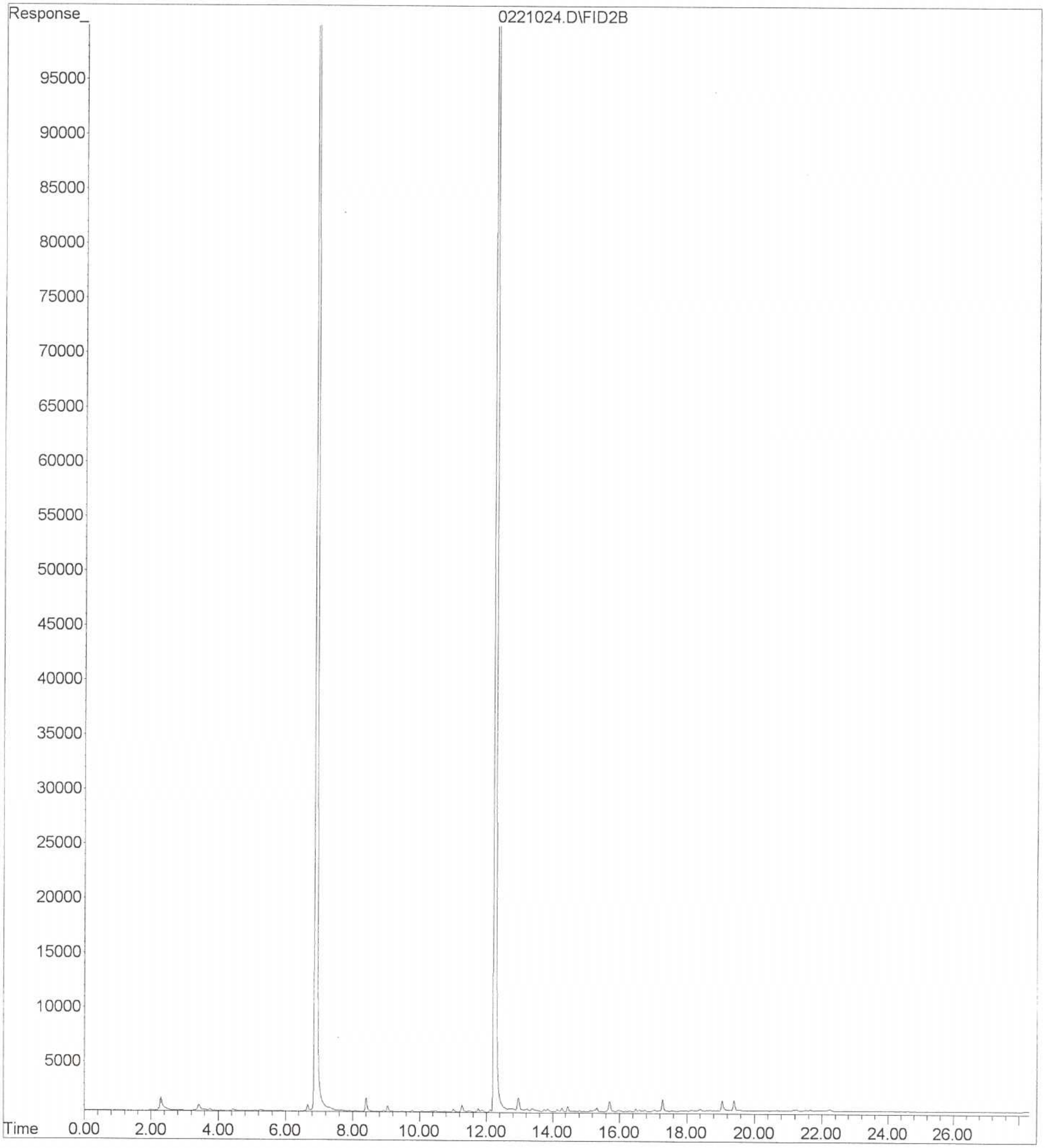
File          : X:\BTEX\DARYL\DATA\D120221\0221023.D
Operator      :
Acquired      : 22 Feb 2012   2:41     using AcqMethod 120110B.M
Instrument :    Daryl
Sample Name: 02-163-07s
Misc Info    : V2-27-25
Vial Number: 23
```



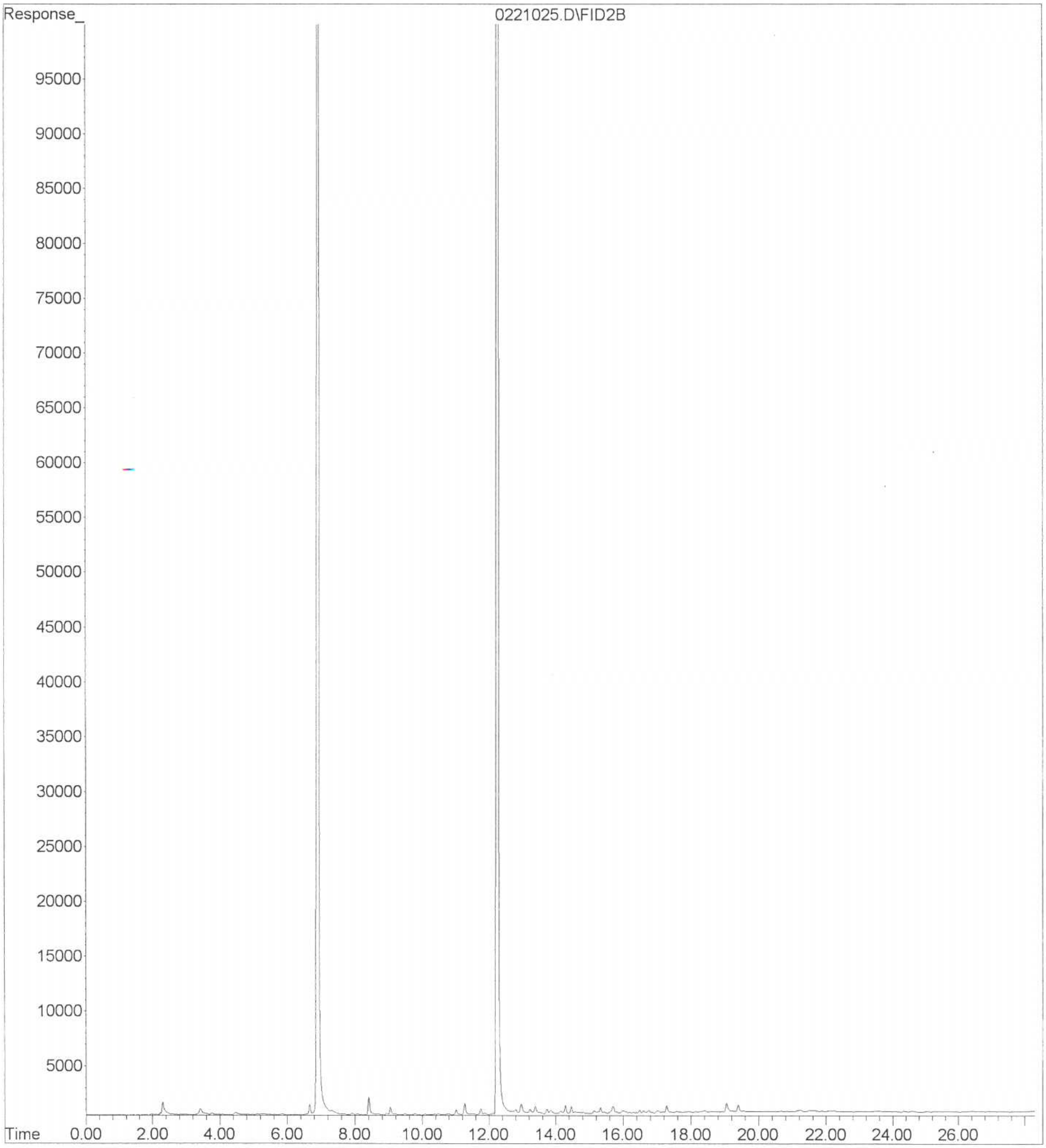
File   : X:\BTEX\DARYL\DATA\D120221\0221020.D
Operator   :
Acquired   : 22 Feb 2012   1:00   using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 02-163-08s
Misc Info   : V2-27-25
Vial Number: 20



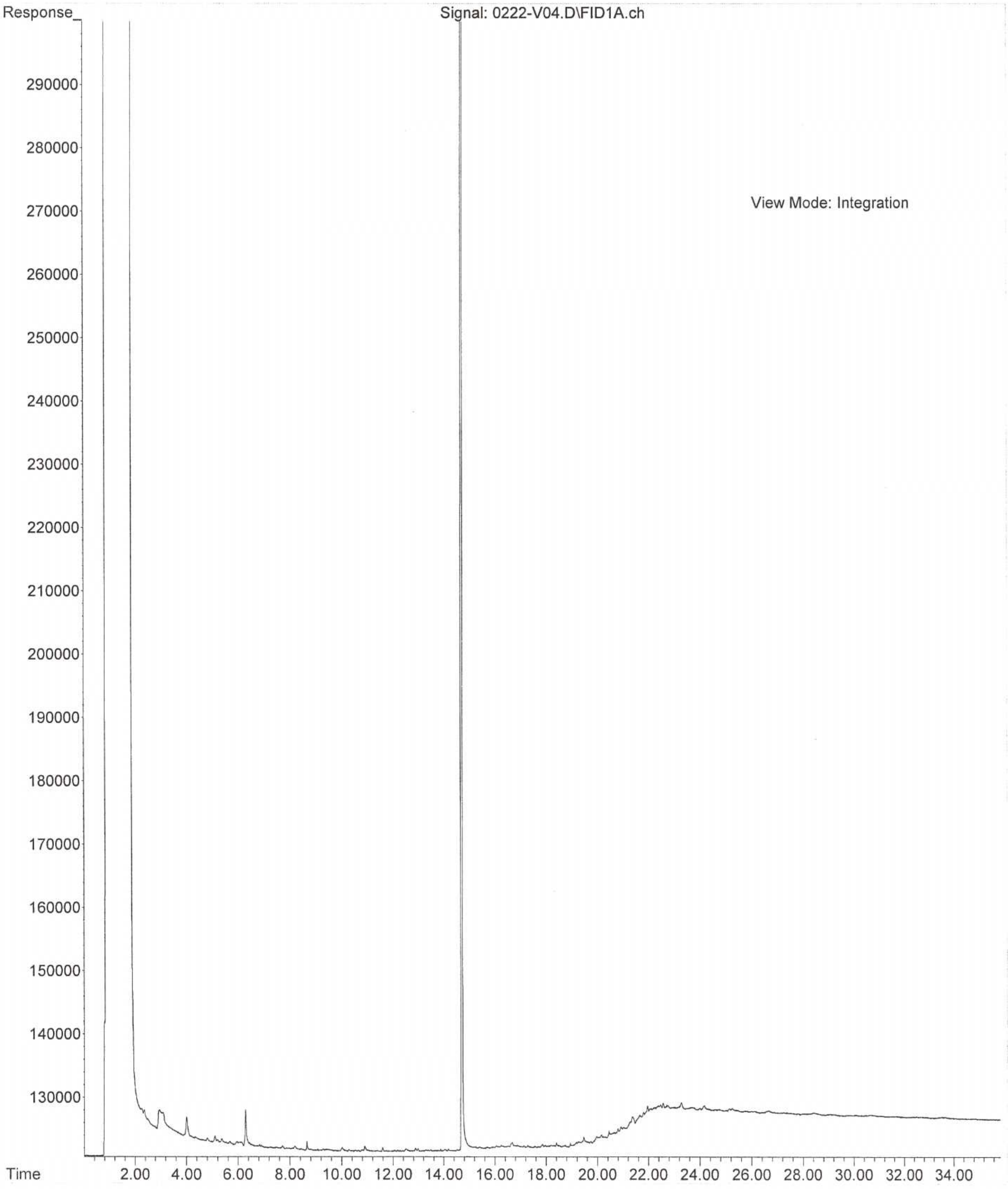
File   : X:\BTEX\DARYL\DATA\D120221\0221024.D
Operator   :
Acquired   : 22 Feb 2012   3:15   using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 02-163-09s
Misc Info   : V2-27-25
Vial Number: 24



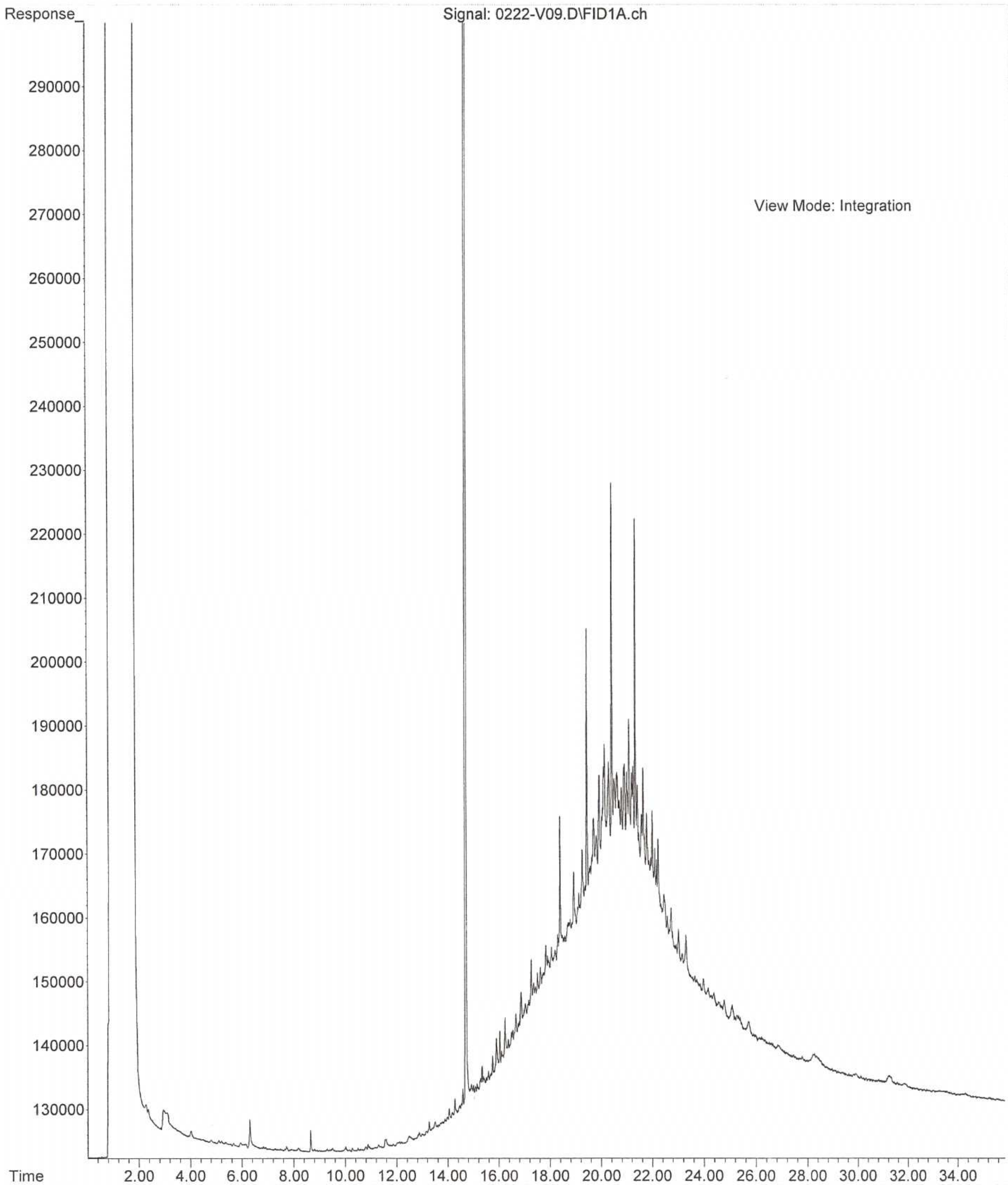
```
File        : X:\BTEX\DARYL\DATA\D120221\0221025.D
Operator    :
Acquired    : 22 Feb 2012   3:49     using AcqMethod 120110B.M
Instrument  :   Daryl
Sample Name: 02-163-10s
Misc Info   : V2-27-25
Vial Number: 25
```



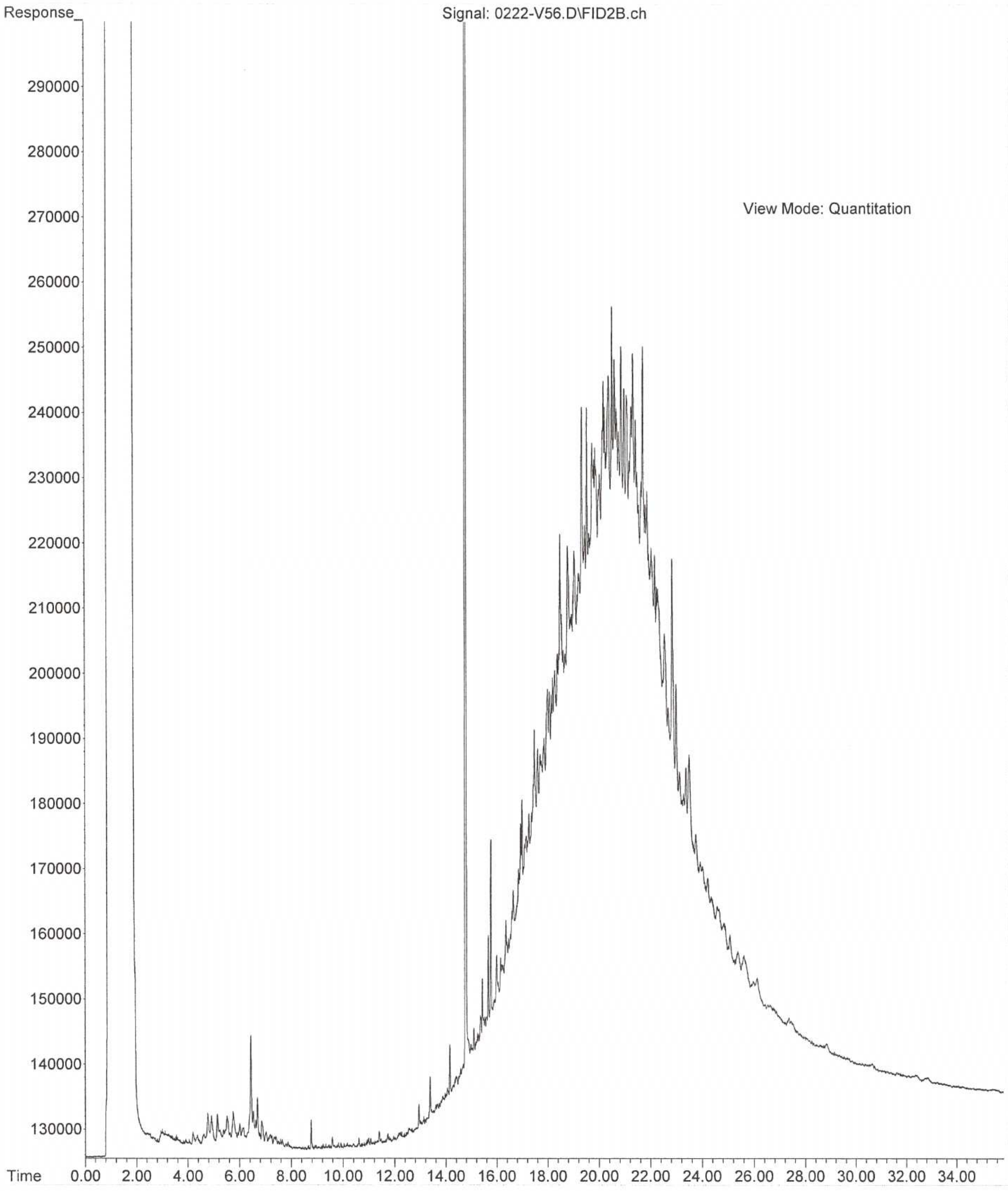
```
File        :C:\msdchem\2\DATA\V120222\0222-V04.D
Operator    :
Acquired    : 22 Feb 2012   9:43     using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 02-163-01
Misc Info   :
Vial Number: 4
```



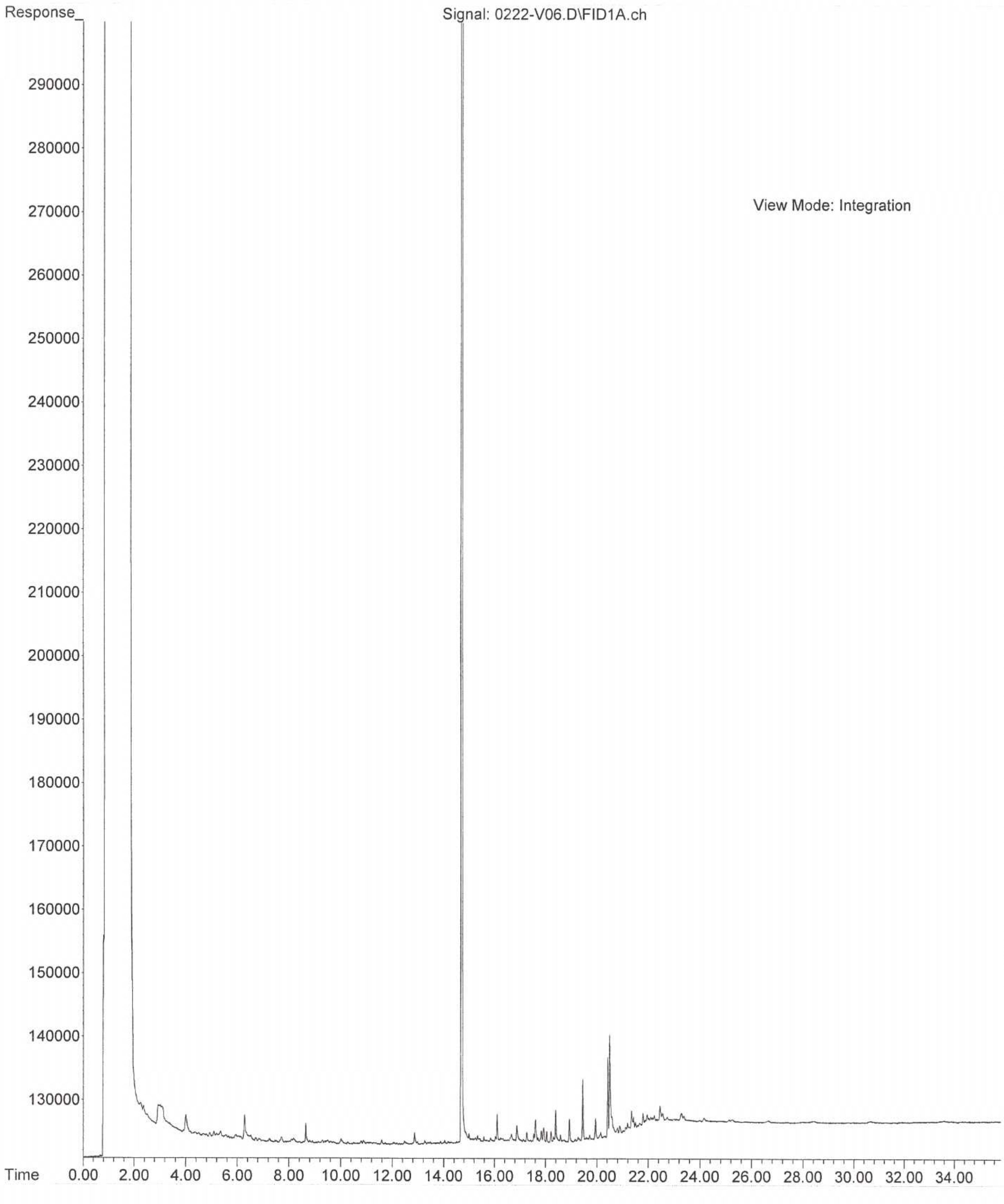
```
File         :C:\msdchem\2\DATA\V120222\0222-V09.D
Operator     :
Acquired     : 22 Feb 2012  13:05      using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 02-163-02
Misc Info  :
Vial Number: 9
```



```
File        :C:\msdchem\2\DATA\V120222.SEC\0222-V56.D
Operator    :
Acquired    : 22 Feb 2012  11:03     using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 02-163-03
Misc Info   :
Vial Number: 56
```



File   :C:\msdchem\2\DATA\V120222\0222-V06.D
Operator   :
Acquired   : 22 Feb 2012 11:03   using AcqMethod V120125F.M
Instrument :   VIGO
Sample Name: 02-163-04
Misc Info   :
Vial Number: 6



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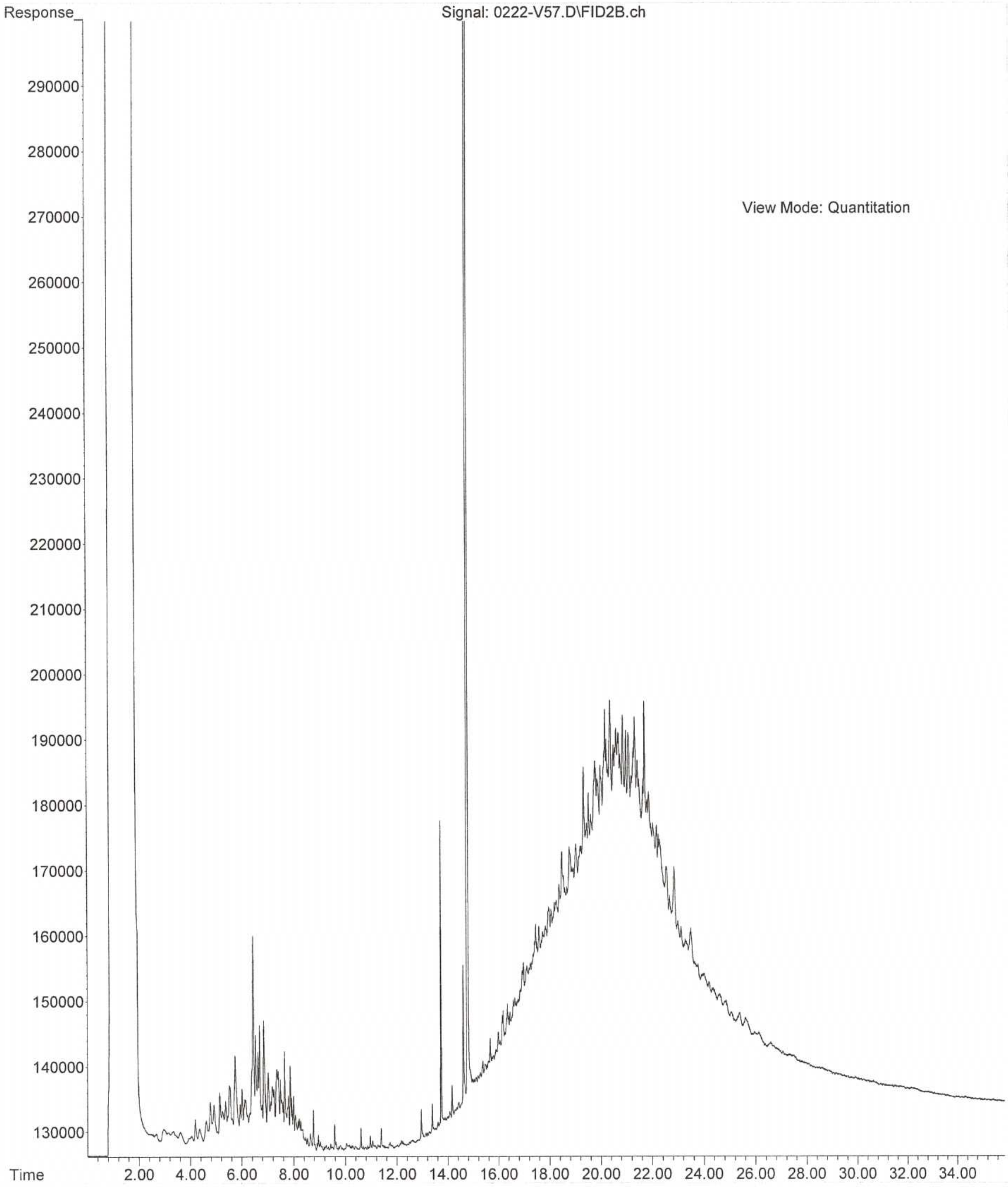
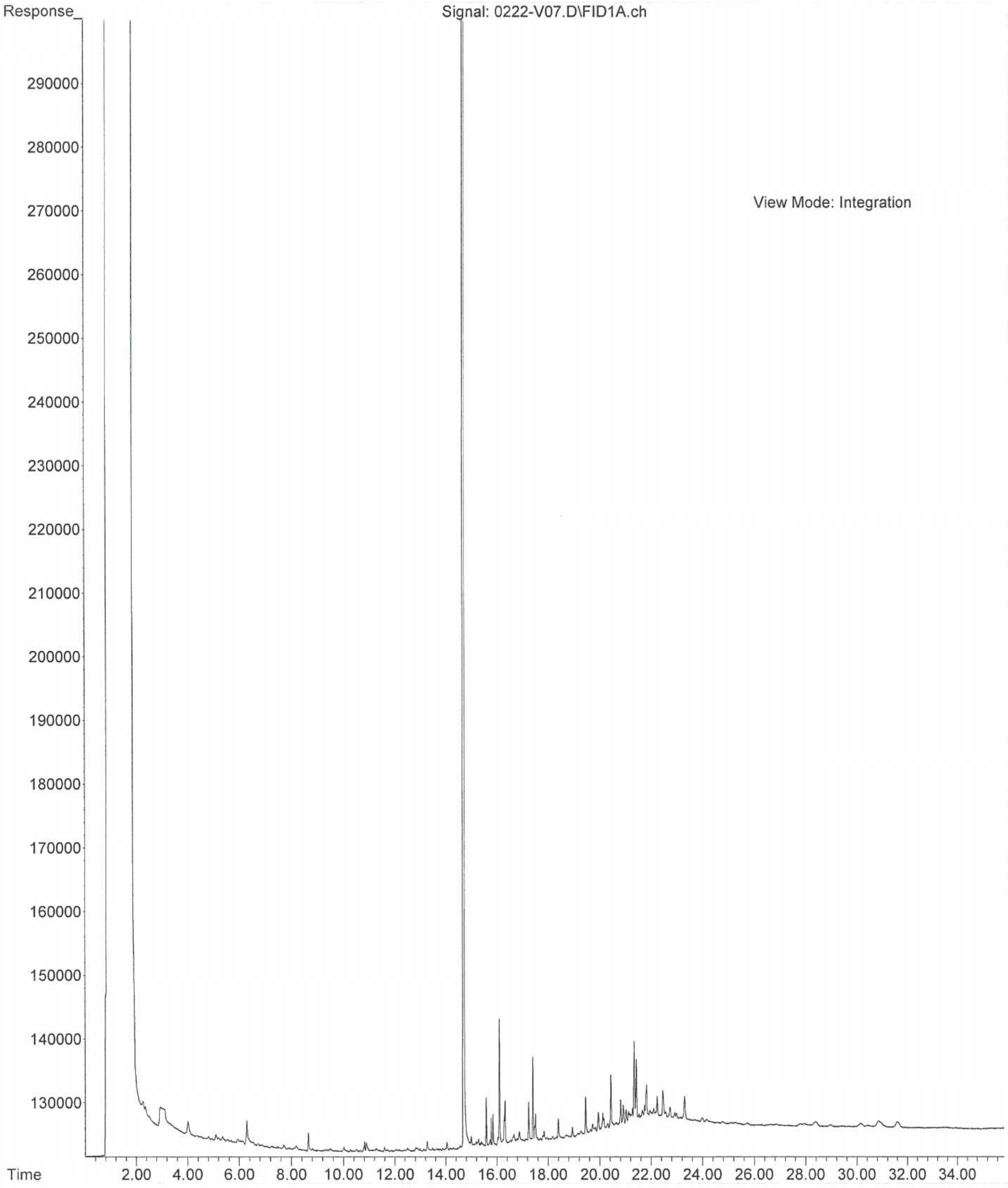
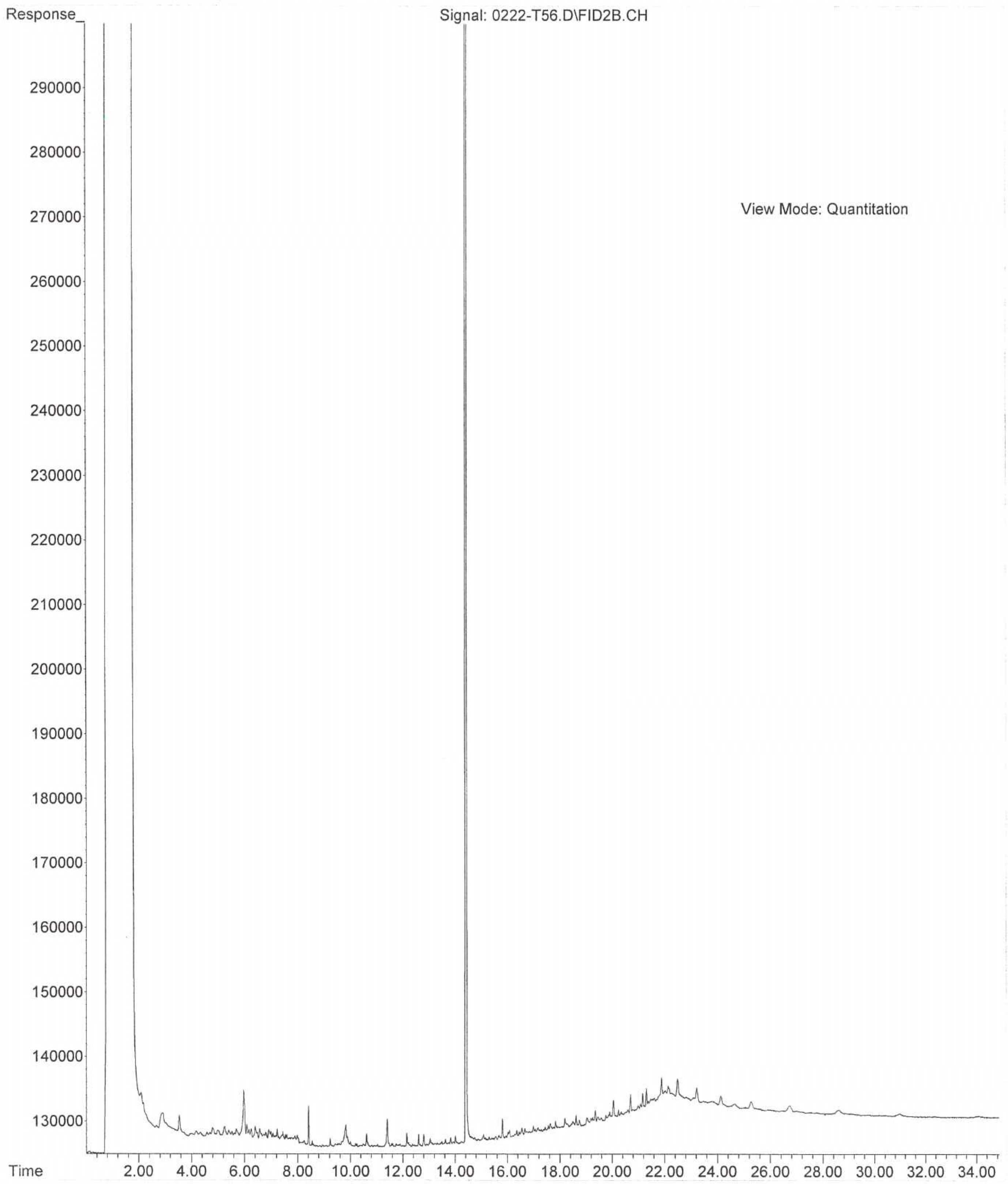
Operator   :
Acquired   : 22 Feb 2012 11:43   using AcqMethod V120125F.M
Instrument :   VIGO
Sample Name: 02-163-05
Misc Info   :
Vial Number: 57



File   :C:\msdchem\2\DATA\V120222\0222-V07.D
Operator   :
Acquired   : 22 Feb 2012 11:43   using AcqMethod V120125F.M
Instrument :   VIGO
Sample Name: 02-163-06
Misc Info   :
Vial Number: 7



File   :C:\msdchem\1\DATA\T120222.SEC\0222-T56.D
Operator   : ZT
Acquired   : 22 Feb 2012 11:28   using AcqMethod T120124F.M
Instrument :   Teri
Sample Name: 02-163-07
Misc Info   :
Vial Number: 56



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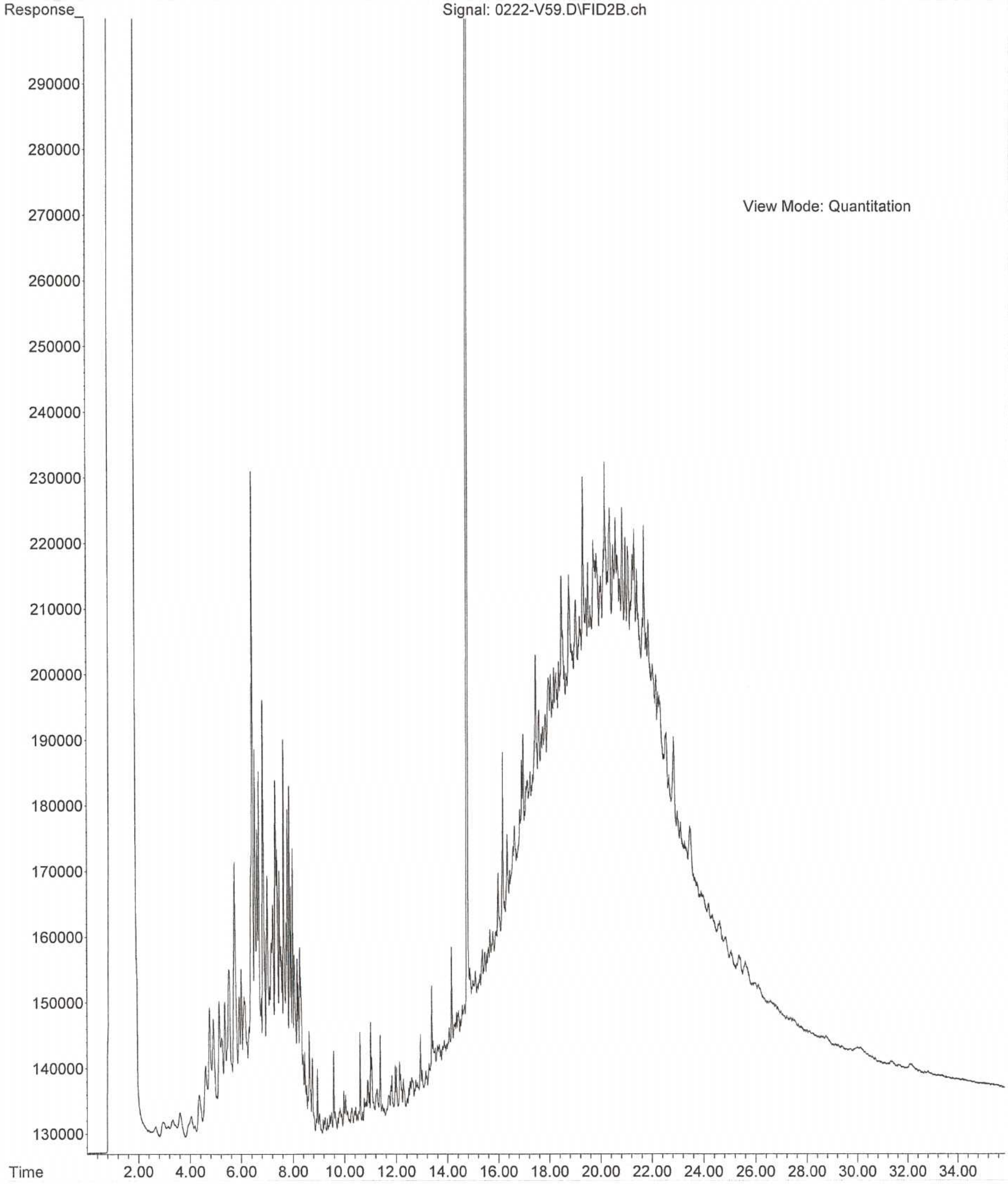
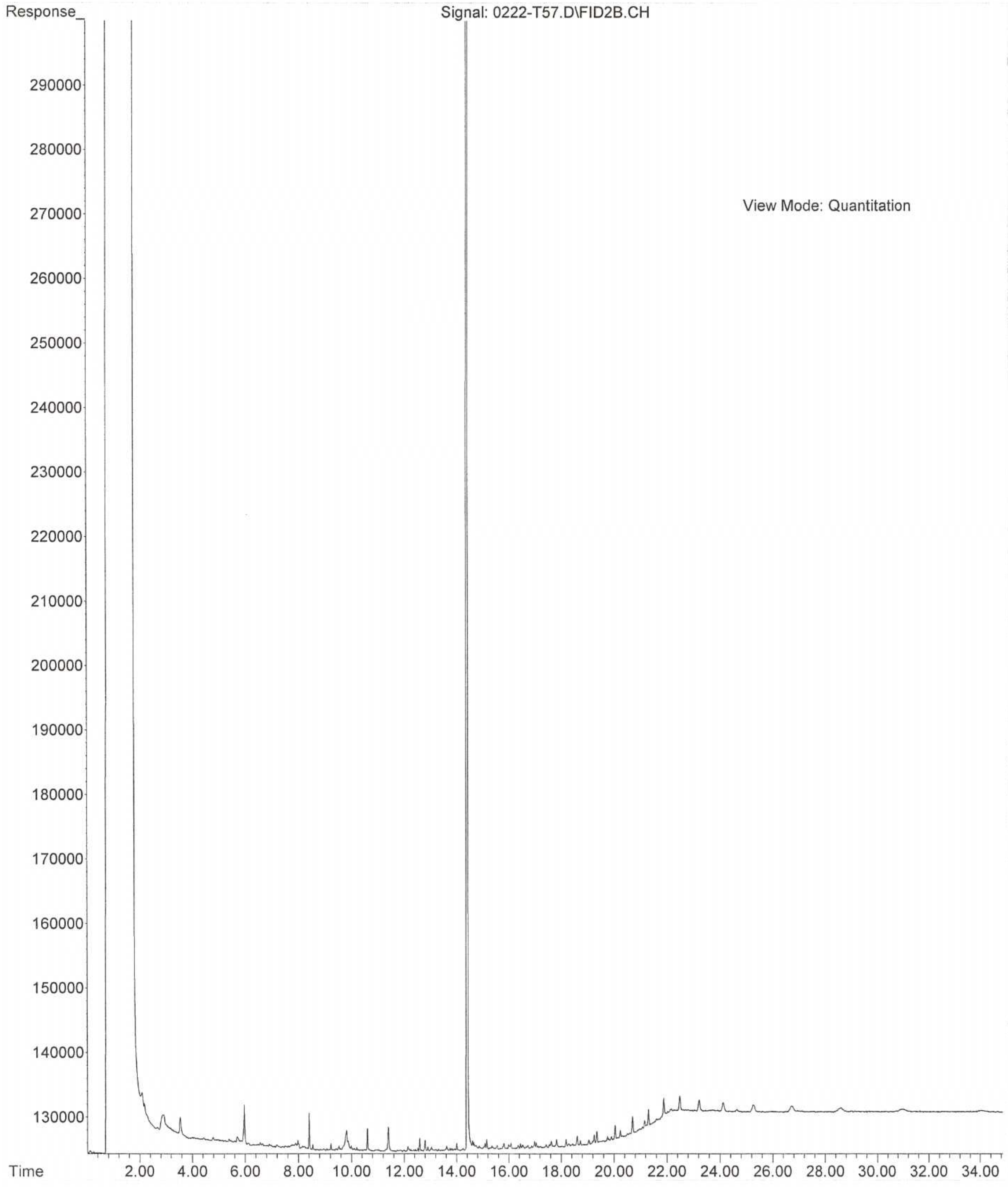
File          :C:\msdchem\2\DATA\V120222.SEC\0222-V59.D
Operator      :
Acquired      : 22 Feb 2012  13:05      using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 02-163-08
Misc Info   :
Vial Number: 59
```



```
File        :C:\msdchem\1\DATA\T120222.SEC\0222-T57.D
Operator    : ZT
Acquired    : 22 Feb 2012  12:11     using AcqMethod T120124F.M
Instrument  :   Teri
Sample Name: 02-163-09
Misc Info   :
Vial Number: 57
```



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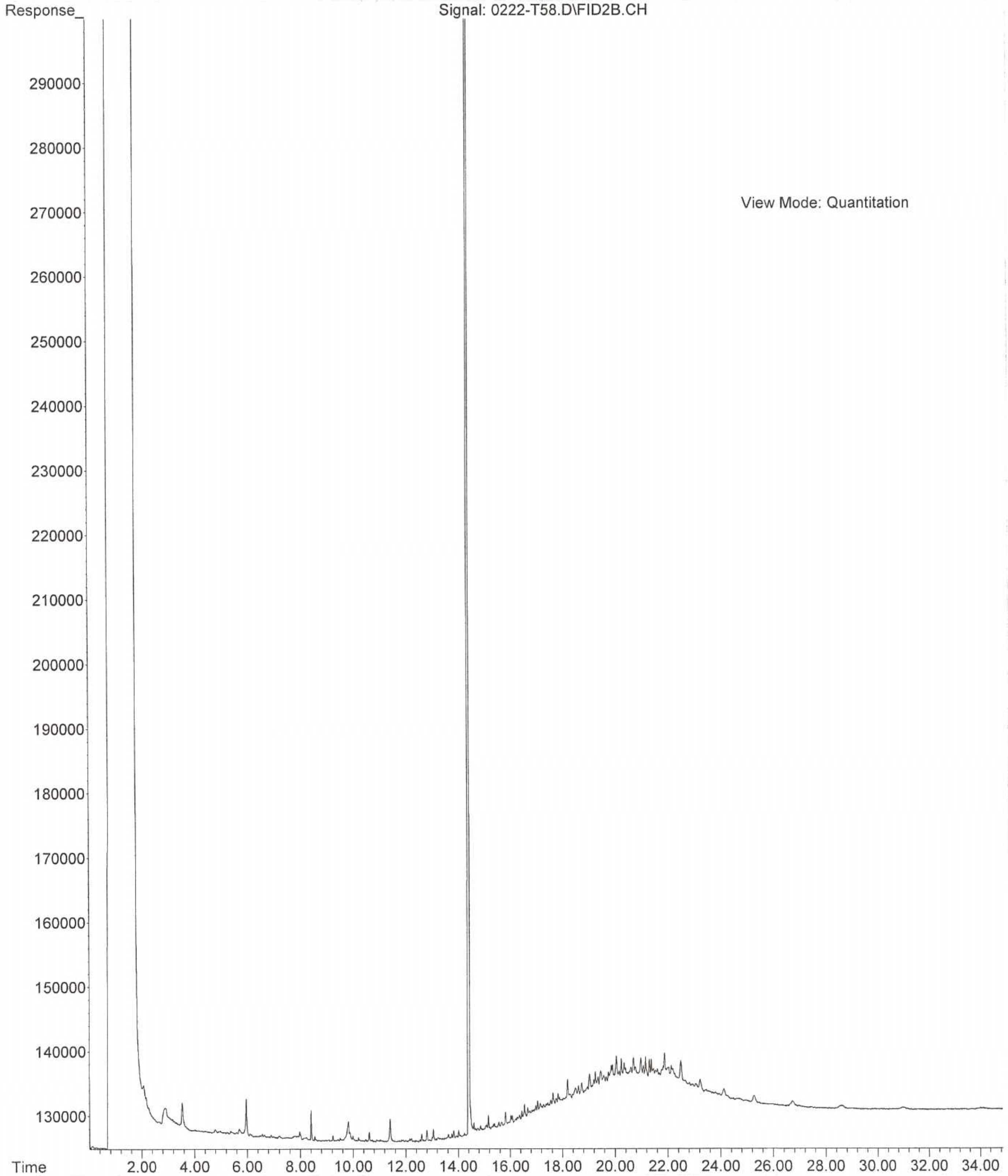
Operator    : ZT
Acquired    : 22 Feb 2012  12:53     using AcqMethod T120124F.M
Instrument :   Teri
Sample Name: 02-163-10
Misc Info  :
Vial Number: 58
```



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

March 13, 2012

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project Bothell Stormwater
Laboratory Reference No. 1203-054

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on March 7, 2012.

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: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

Case Narrative

Samples were collected on March 6 and 7, 2012 and received by the laboratory on March 7, 2012. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

The chromatogram for sample Trench-3-10 is similar to mineral spirits with diesel range organics.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trench-1-15**					
Laboratory ID:	03-054-01					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.062	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.062	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.062	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.062	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	6.2	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*68-124*				
Client ID:	**Trench-2-10**					
Laboratory ID:	03-054-02					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.066	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.066	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.066	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.066	EPA 8021	3-8-12	3-8-12	
Gasoline	**7.6**	6.6	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*68-124*				
Client ID:	**Trench-3-10**					
Laboratory ID:	03-054-03					
Benzene	**ND**	0.022	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.11	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**0.13**	0.11	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**0.58**	0.11	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.11	EPA 8021	3-8-12	3-8-12	
Gasoline	**360**	27	NWTPH-Gx	3-8-12	3-9-12	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*68-124*				

Date of Report: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0308S2					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	5.0	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*68-124*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-056-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*101*	*104*	*68-124*			
SPIKE BLANKS											
Laboratory ID:	SB0308S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.11**	**1.11**	1.00	1.00		**111**	**111**	77-114	0	9	
Toluene	**1.12**	**1.13**	1.00	1.00		**112**	**113**	80-115	1	9	
Ethyl Benzene	**1.09**	**1.10**	1.00	1.00		**109**	**110**	80-118	1	9	
m,p-Xylene	**1.08**	**1.11**	1.00	1.00		**108**	**111**	82-118	3	9	
o-Xylene	**1.05**	**1.08**	1.00	1.00		**105**	**108**	82-116	3	9	
Surrogate:											
Fluorobenzene						*95*	*96*	*68-124*			

Date of Report: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trench-1-15**					
Laboratory ID:	03-054-01					
Diesel Range Organics	**ND**	30	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*80*	*50-150*				
Client ID:	**Trench-2-10**					
Laboratory ID:	03-054-02					
Diesel Range Organics	**ND**	31	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil	**69**	62	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**Trench-3-10**					
Laboratory ID:	03-054-03					
Diesel Range Organics	**130**	29	NWTPH-Dx	3-8-12	3-8-12	M
Lube Oil	**520**	58	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*88*	*50-150*				

Date of Report: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0308S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	03-056-03							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*118*	*111*	*50-150*			

Date of Report: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

% MOISTURE

Date Analyzed: 3-8-12

Client ID	Lab ID	% Moisture
Trench-1-15	03-054-01	17
Trench-2-10	03-054-02	19
Trench-3-10	03-054-03	13

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits with diesel range organics.

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

Page ______ of ______

Laboratory Number: 03-054

Company: HWA
Project Number:
Project Name: Bothell Storm Water
Project Manager: Atkins
Sampled by: Atkins

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ ________ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	% Moisture
1	Trench-1-15	3/6/12	1150	S	2		X		X													X
2	Trench-2-10	3/7/12	1130	〃	〃		X		X													〃
3	Trench-3-10		1140	〃	〃		X		X													〃

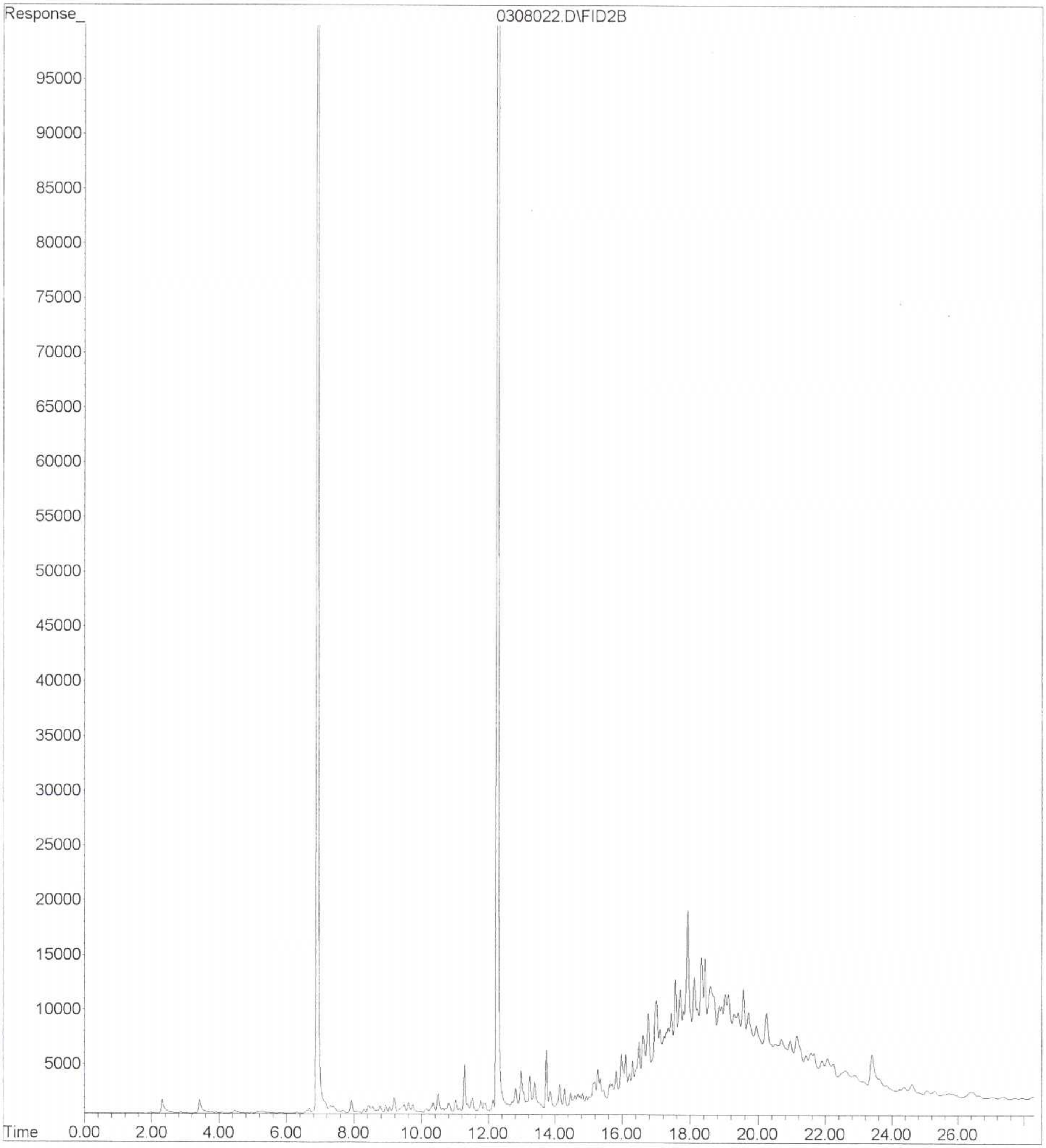
	Signature	Company	Date	Time
Relinquished	[signature]	HWA	3/7/12	1450
Received	[signature]	OnSite Env	3/7/12	1450
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

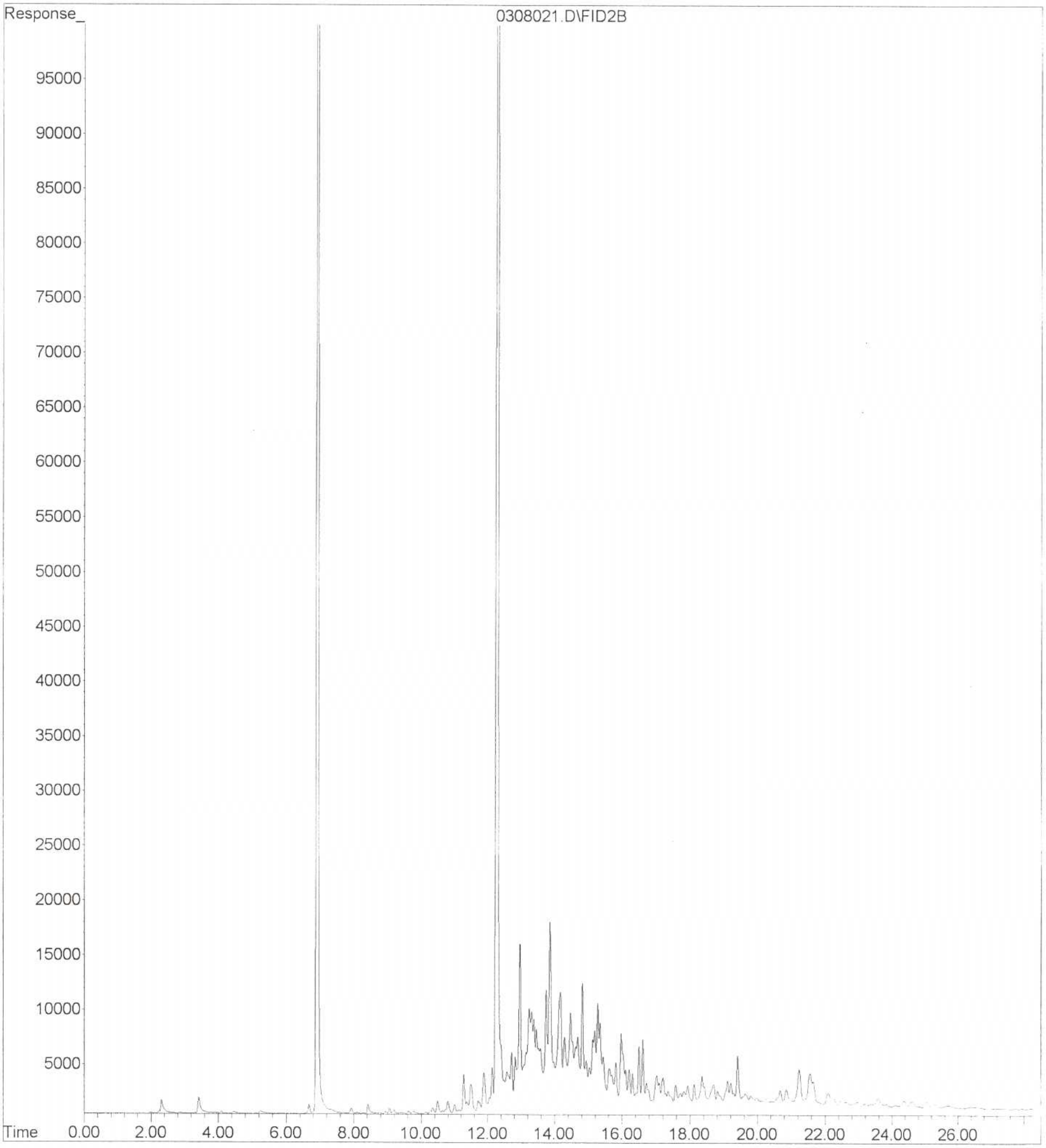
Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ________

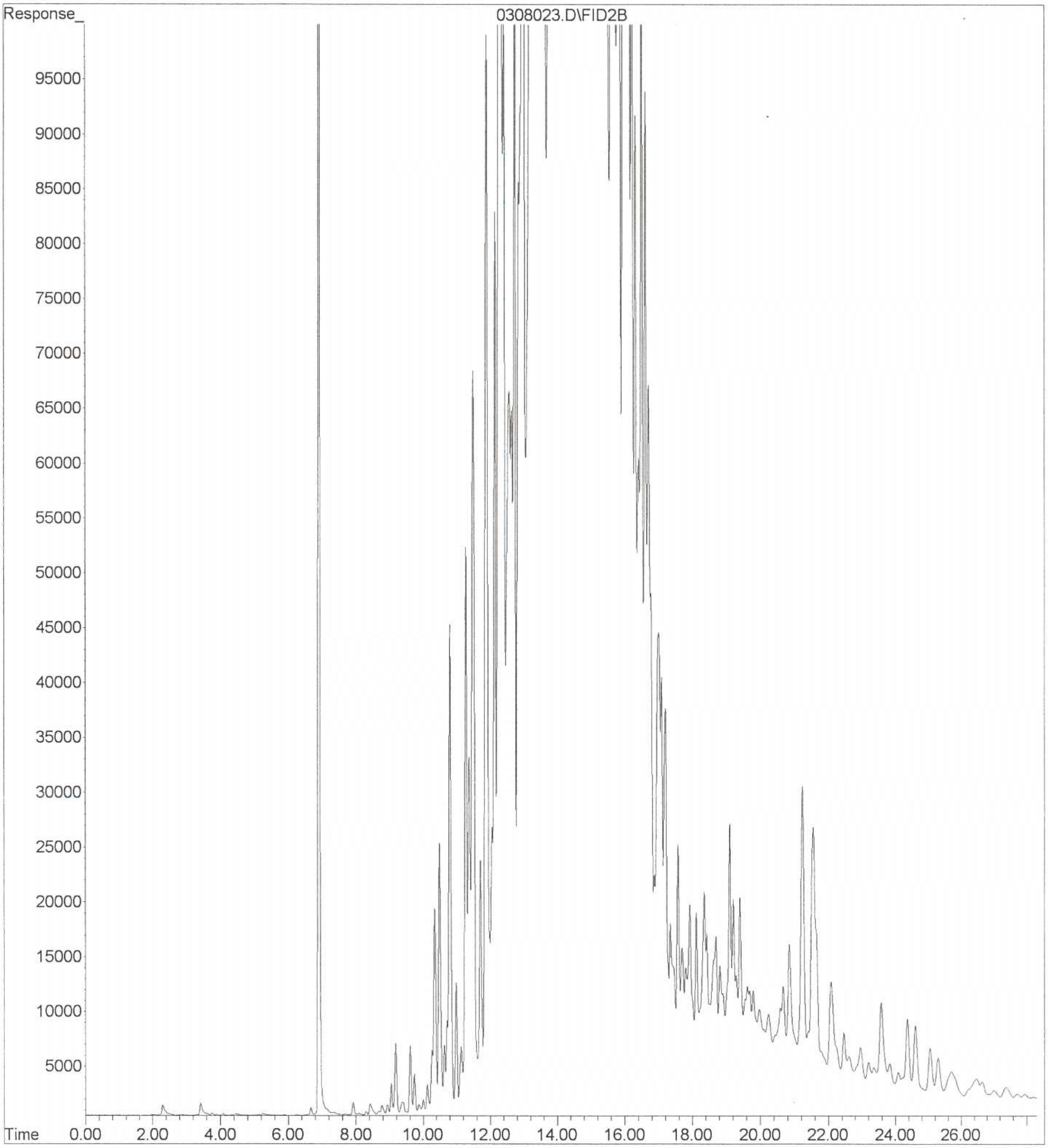
```
File         : X:\BTEX\DARYL\DATA\D120308\0308022.D
Operator     :
Acquired     :  9 Mar 2012   1:52     using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 03-054-01s
Misc Info   : V2-27-25
Vial Number: 22
```



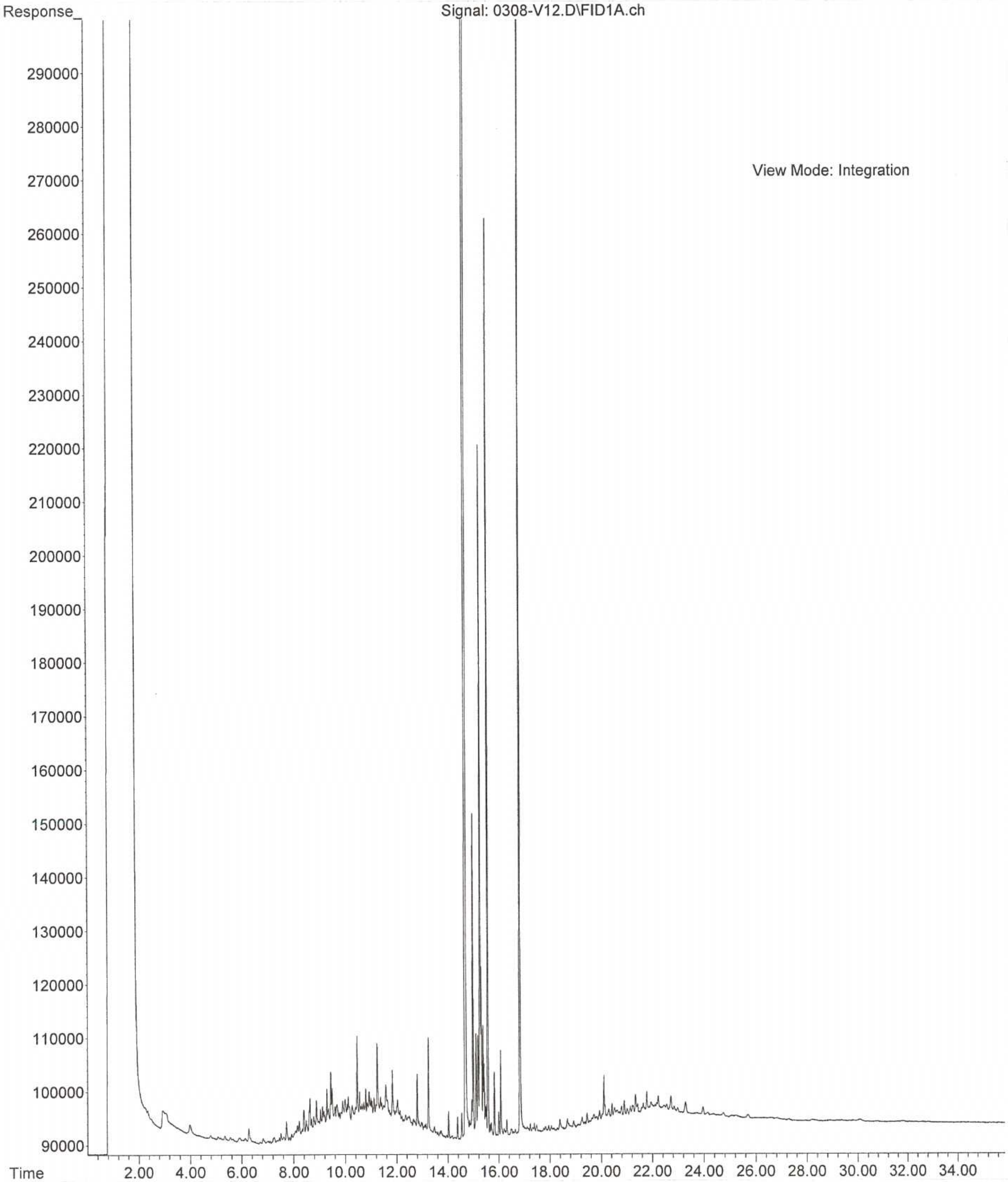
File   : X:\BTEX\DARYL\DATA\D120308\0308021.D
Operator   :
Acquired   : 9 Mar 2012   1:18   using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 03-054-02s
Misc Info : V2-27-25
Vial Number: 21



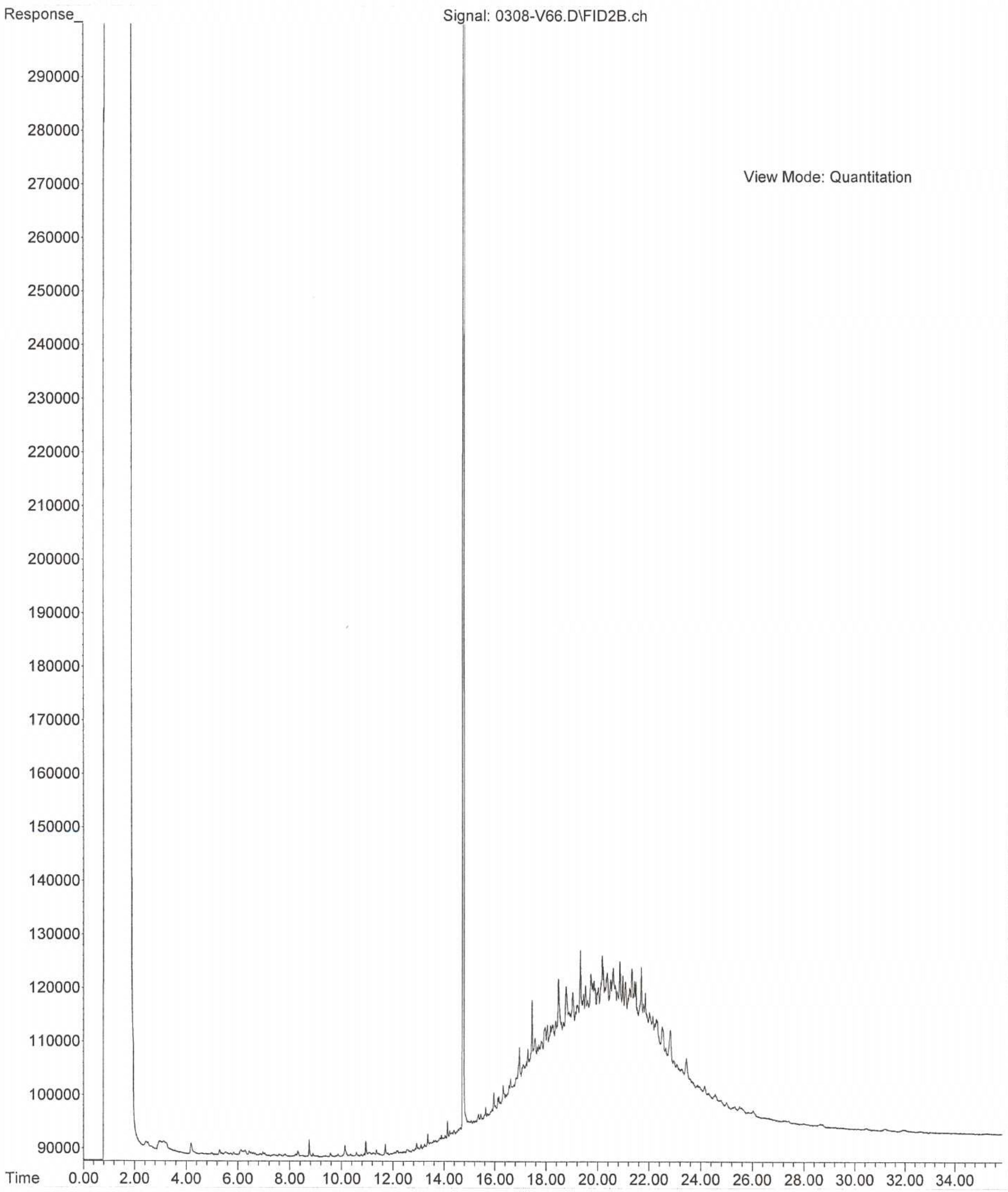
File : X:\BTEX\DARYL\DATA\D120308\0308023.D
Operator :
Acquired : 9 Mar 2012 2:25 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 03-054-03s 1:100
Misc Info : V2-27-25
Vial Number: 23



File   :C:\msdchem\2\DATA\V120308\0308-V12.D
Operator   :
Acquired   : 8 Mar 2012 17:43   using AcqMethod V120125F.M
Instrument :   VIGO
Sample Name: 03-054-01
Misc Info   :
Vial Number: 12



File   :C:\msdchem\2\DATA\V120308.SEC\0308-V66.D
Operator   :
Acquired   : 8 Mar 2012 20:23   using AcqMethod V120125F.M
Instrument :   VIGO
Sample Name: 03-054-02
Misc Info   :
Vial Number: 66



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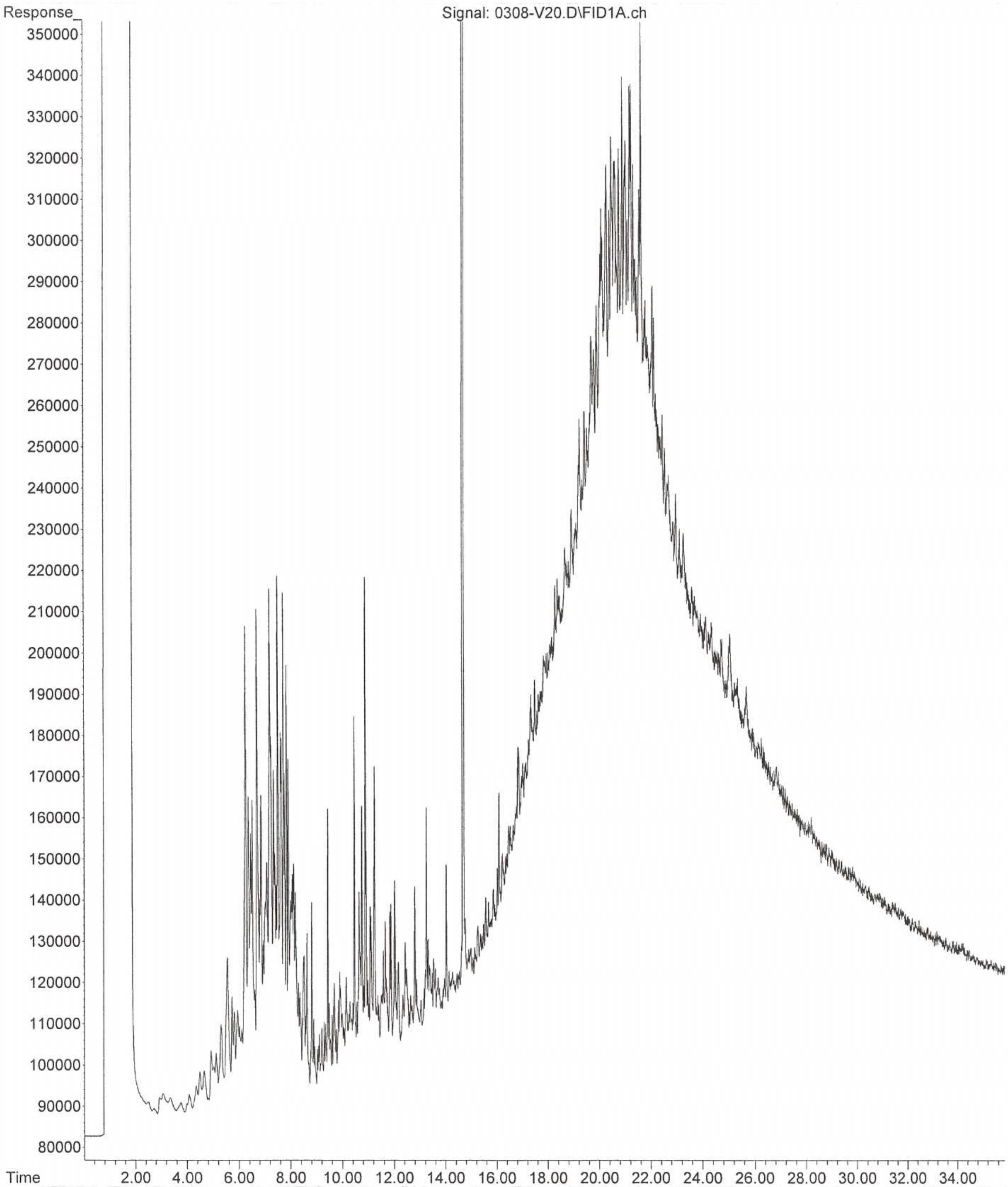
File         :C:\msdchem\2\DATA\V120308\0308-V20.D
Operator     :
Acquired     :  8 Mar 2012  23:01     using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 03-054-03
Misc Info    :
Vial Number: 20
```



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

March 13, 2012

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project Bothell Stormwater
Laboratory Reference No. 1203-063

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on March 8, 2012.

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: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

Case Narrative

Samples were collected on March 8, 2012 and received by the laboratory on March 8, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trench-4-14**					
Laboratory ID:	03-063-01					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.071	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.071	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.071	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.071	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	7.1	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*68-124*				
Client ID:	**Trench-5-10**					
Laboratory ID:	03-063-02					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.059	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.059	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.059	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.059	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	5.9	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*68-124*				
Client ID:	**Trench-6-10**					
Laboratory ID:	03-063-03					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.054	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.054	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.054	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.054	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	5.4	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*68-124*				

Date of Report: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0308S2					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	5.0	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*68-124*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-056-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*101*	*104*	*68-124*			
SPIKE BLANKS											
Laboratory ID:	SB0308S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.11**	**1.11**	1.00	1.00		**111**	**111**	77-114	0	9	
Toluene	**1.12**	**1.13**	1.00	1.00		**112**	**113**	80-115	1	9	
Ethyl Benzene	**1.09**	**1.10**	1.00	1.00		**109**	**110**	80-118	1	9	
m,p-Xylene	**1.08**	**1.11**	1.00	1.00		**108**	**111**	82-118	3	9	
o-Xylene	**1.05**	**1.08**	1.00	1.00		**105**	**108**	82-116	3	9	
Surrogate:											
Fluorobenzene						*95*	*96*	*68-124*			

Date of Report: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trench-4-14**					
Laboratory ID:	03-063-01					
Diesel Range Organics	**ND**	32	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil Range Organics	**ND**	64	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*90*	*50-150*				
Client ID:	**Trench-5-10**					
Laboratory ID:	03-063-02					
Diesel Range Organics	**ND**	49	NWTPH-Dx	3-8-12	3-8-12	U1
Lube Oil	**530**	56	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**Trench-6-10**					
Laboratory ID:	03-063-03					
Diesel Range Organics	**ND**	29	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil Range Organics	**ND**	57	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*94*	*50-150*				

Date of Report: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0308S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	03-063-02							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	U1
Lube Oil	**470**	**402**				16	NA	
Surrogate:								
o-Terphenyl			*97*	*88*	*50-150*			

Date of Report: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

% MOISTURE

Date Analyzed: 3-8-12

Client ID	Lab ID	% Moisture
Trench-4-14	03-063-01	22
Trench-5-10	03-063-02	11
Trench-6-10	03-063-03	13

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

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: 03-063

Company: HWA

Project Number: ~~Z~~

Project Name: Bothell Stormwater

Project Manager: Atkins

Sampled by: Atkins

Turnaround Request (in working days)

(Check One)

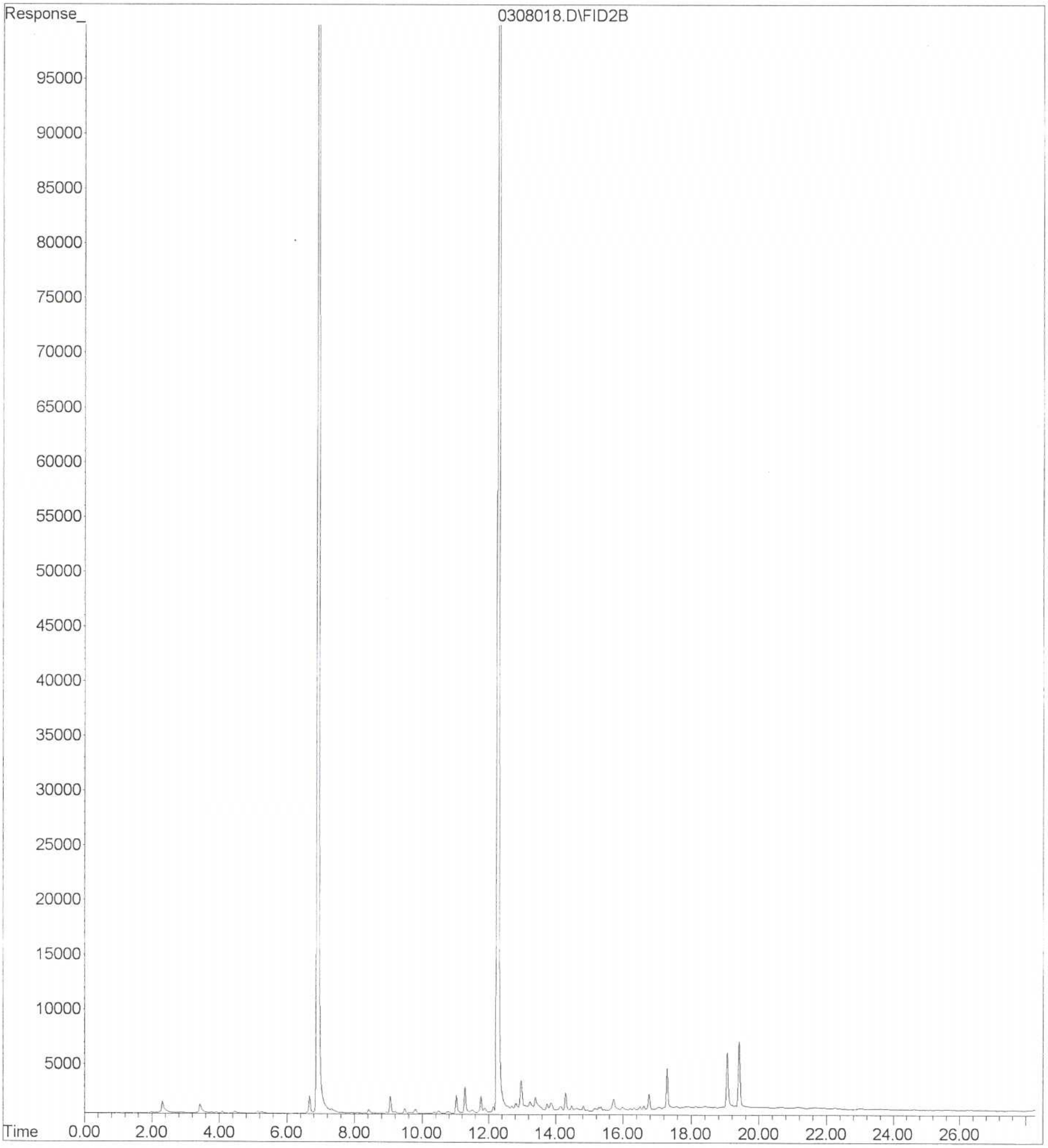
- [ ] Same Day
- [ ] 1 Day
- [ ] 2 Days
- [ ] 3 Days
- [x] Standard (7 Days) (TPH analysis 5 Days)
- [ ] ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664					% Moisture
1	Trench-4-14	3/8/12	800	S	2		\		\																	\
2	Trench-5-10	"	805	"	"		\		\																	\
3	Trench-6-10	"	810	"	"		\		\																	\

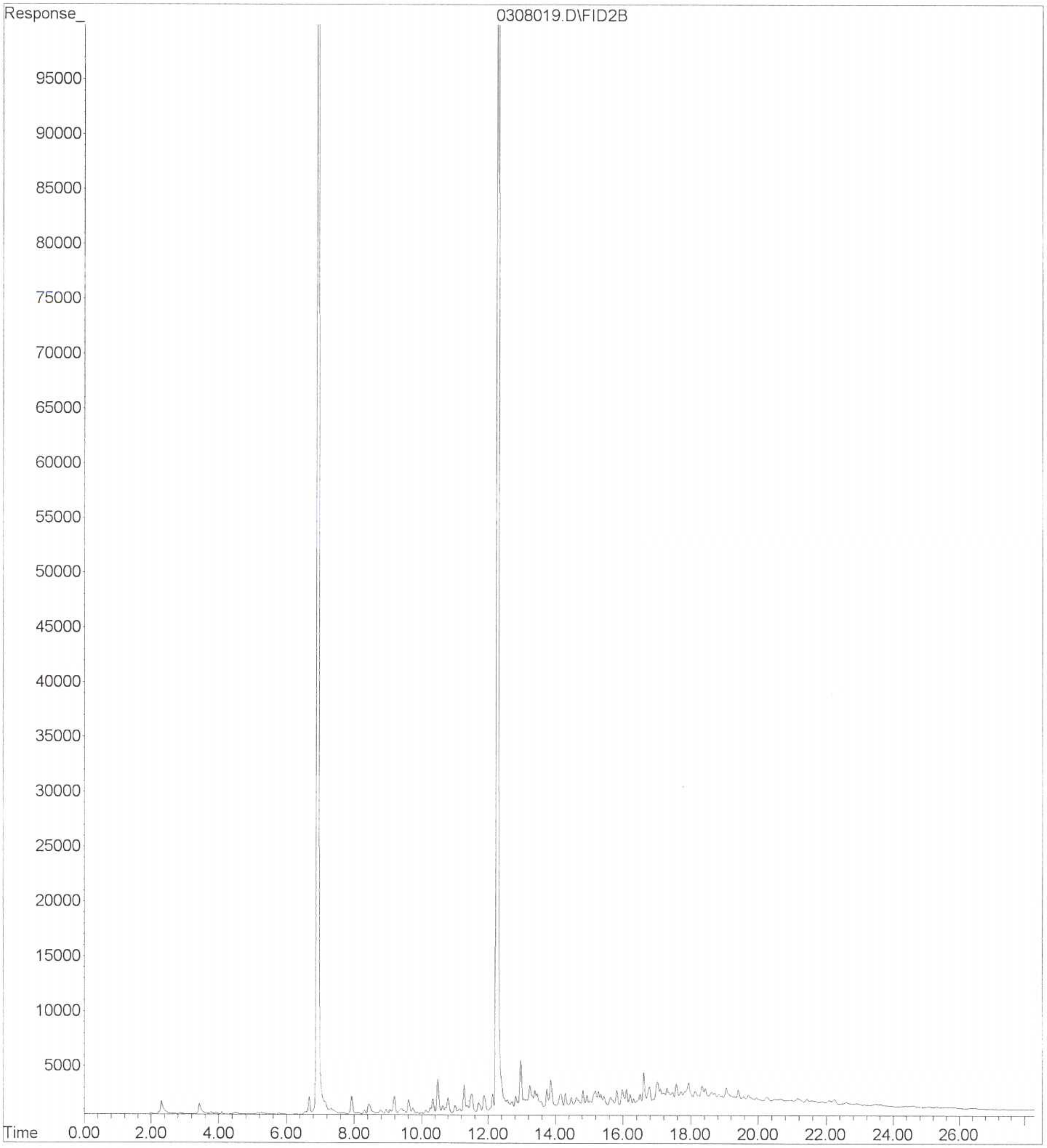
	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	J. Gillie	HWA GeoSciences	3/8/12	0:47	
Received	Dirk Pay	Speedy Messenger	3-8-12	10:47	
Relinquished	Dirk Pay	Speedy Messenger	3-8-12	12:26	
Received	[signature]	OSE	3/8/12	1226	
Relinquished					
Received					
Reviewed/Date		Reviewed/Date			Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

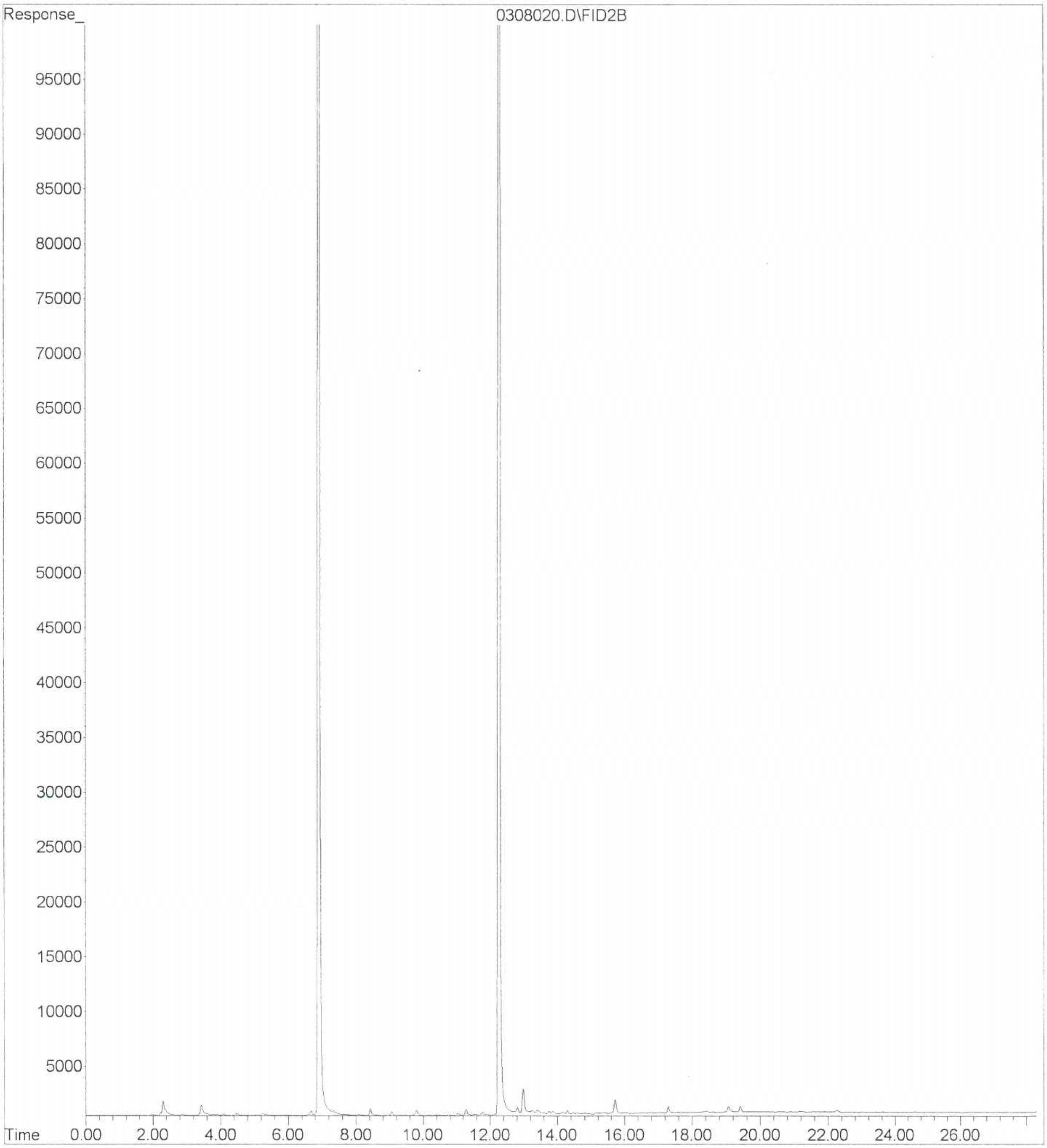
```
File         : X:\BTEX\DARYL\DATA\D120308\0308018.D
Operator     :
Acquired     :  8 Mar 2012  23:36      using AcqMethod 120110B.M
Instrument :    Daryl
Sample Name: 03-063-01s
Misc Info   : V2-27-25
Vial Number: 18
```



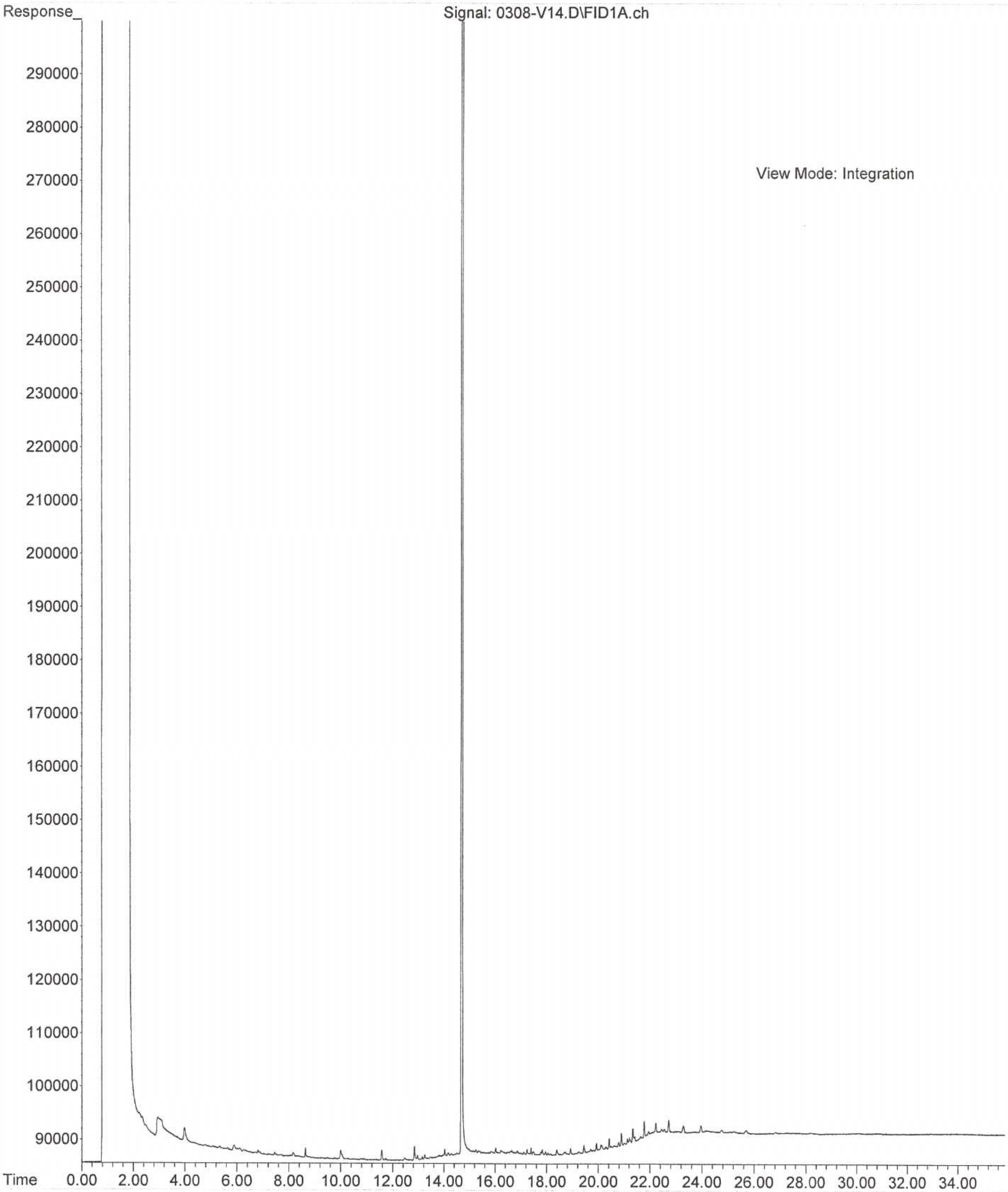
File : X:\BTEX\DARYL\DATA\D120308\0308019.D
Operator :
Acquired : 9 Mar 2012 00:10 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 03-063-02s
Misc Info : V2-27-25
Vial Number: 19



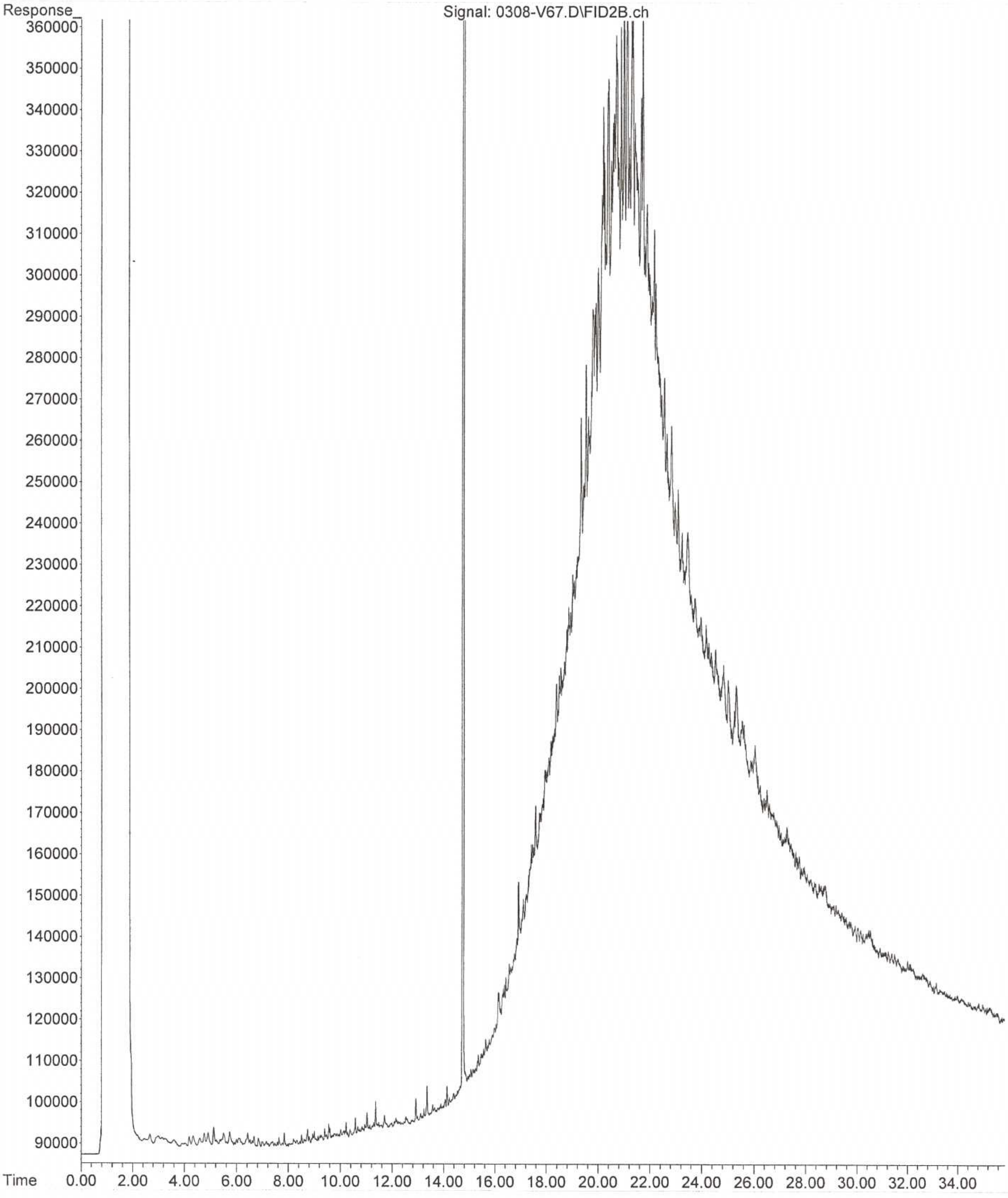
```
File        : X:\BTEX\DARYL\DATA\D120308\0308020.D
Operator    :
Acquired    :  9 Mar 2012  00:44     using AcqMethod 120110B.M
Instrument  :   Daryl
Sample Name: 03-063-03s
Misc Info   : V2-27-25
Vial Number: 20
```



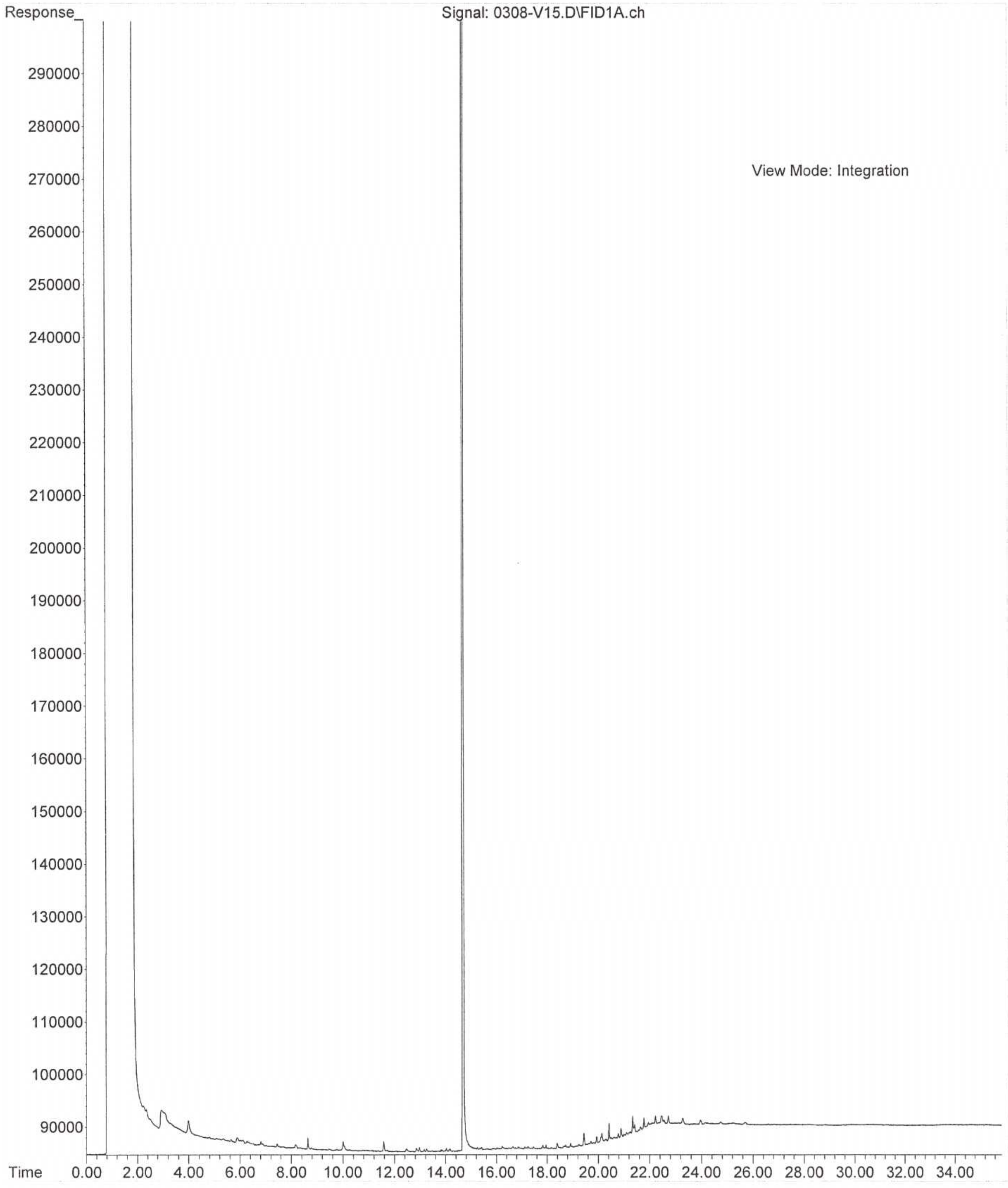
```
File        :C:\msdchem\2\DATA\V120308\0308-V14.D
Operator    :
Acquired    :  8 Mar 2012  19:03     using AcqMethod V120125F.M
Instrument  :   VIGO
Sample Name: 03-063-01
Misc Info   :
Vial Number: 14
```



File :C:\msdchem\2\DATA\V120308.SEC\0308-V67.D
Operator :
Acquired : 8 Mar 2012 21:02 using AcqMethod V120125F.M
Instrument : VIGO
Sample Name: 03-063-02
Misc Info :
Vial Number: 67



File   :C:\msdchem\2\DATA\V120308\0308-V15.D
Operator   :
Acquired   : 8 Mar 2012 19:43   using AcqMethod V120125F.M
Instrument :   VIGO
Sample Name: 03-063-03
Misc Info   :
Vial Number: 15



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Environmental Inc.

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July 11, 2012

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1207-014

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on July 3, 2012.

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: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

Case Narrative

Samples were collected on July 2, 2012 and received by the laboratory on July 3, 2012. They were maintained at the laboratory at a temperature of $2^{o}C$ to $6^{o}C$.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between $-7^{o}C$ and $-20^{o}C$ until extraction or analysis.

The chromatogram for sample HTP-8-10 is similar to mineral spirits.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-6-3**					
Laboratory ID:	07-014-01					
Diesel Range Organics	**ND**	28	NWTPH-Dx	7-9-12	7-9-12	
Lube Oil	**470**	56	NWTPH-Dx	7-9-12	7-9-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*128*	*50-150*				
Client ID:	**HTP-6-7**					
Laboratory ID:	07-014-02					
Diesel Range Organics	**ND**	32	NWTPH-Dx	7-9-12	7-9-12	
Lube Oil	**130**	63	NWTPH-Dx	7-9-12	7-9-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				
Client ID:	**HTP-7-4**					
Laboratory ID:	07-014-03					
Diesel Range Organics	**ND**	28	NWTPH-Dx	7-9-12	7-9-12	
Lube Oil Range Organics	**ND**	55	NWTPH-Dx	7-9-12	7-9-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*112*	*50-150*				
Client ID:	**HTP-8-7**					
Laboratory ID:	07-014-04					
Diesel Range Organics	**ND**	28	NWTPH-Dx	7-9-12	7-9-12	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	7-9-12	7-9-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*95*	*50-150*				
Client ID:	**HTP-8-10**					
Laboratory ID:	07-014-05					
Diesel Range Organics	**ND**	31	NWTPH-Dx	7-9-12	7-10-12	
Lube Oil	**86**	63	NWTPH-Dx	7-9-12	7-10-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**HTP-9-10**					
Laboratory ID:	07-014-06					
Diesel Range Organics	**ND**	30	NWTPH-Dx	7-9-12	7-10-12	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	7-9-12	7-10-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*91*	*50-150*				

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-10-7**					
Laboratory ID:	07-014-07					
Diesel Range Organics	**ND**	29	NWTPH-Dx	7-9-12	7-10-12	
Lube Oil	**250**	58	NWTPH-Dx	7-9-12	7-10-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-10-11**					
Laboratory ID:	07-014-08					
Diesel Range Organics	**360**	150	NWTPH-Dx	7-9-12	7-10-12	N
Lube Oil	**3400**	290	NWTPH-Dx	7-9-12	7-10-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*114*	*50-150*				

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0709S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	7-9-12	7-10-12	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	7-9-12	7-10-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*120*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	07-014-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil	**417**	**70.9**				142	NA	
Surrogate:								
o-Terphenyl			*128*	*88*	*50-150*			

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-6-3**					
Laboratory ID:	07-014-01					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.060	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.060	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.060	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.060	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	6.0	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*70-132*				
Client ID:	**HTP-6-7**					
Laboratory ID:	07-014-02					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.064	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.064	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.064	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.064	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	6.4	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*70-132*				
Client ID:	**HTP-7-4**					
Laboratory ID:	07-014-03					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.7	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*89*	*70-132*				

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-8-7**					
Laboratory ID:	07-014-04					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.059	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.059	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.059	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.059	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.9	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*70-132*				
Client ID:	**HTP-8-10**					
Laboratory ID:	07-014-05					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.063	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.063	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.063	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.063	EPA 8021	7-6-12	7-6-12	
Gasoline	**11**	6.3	NWTPH-Gx	7-6-12	7-6-12	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*70-132*				
Client ID:	**HTP-9-10**					
Laboratory ID:	07-014-06					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.7	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*70-132*				

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-10-7**					
Laboratory ID:	07-014-07					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.055	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.055	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.055	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.055	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.5	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*70-132*				
Client ID:	**HTP-10-11**					
Laboratory ID:	07-014-08					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.054	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.054	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.054	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.054	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.4	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*70-132*				

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0706S1					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.050	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.050	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.050	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.050	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.0	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*89*	*70-132*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	07-014-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*93*	*97*	*70-132*			
SPIKE BLANKS											
Laboratory ID:	SB0706S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.906**	**0.873**	1.00	1.00		**91**	**87**	71-125	4	11	
Toluene	**0.931**	**0.897**	1.00	1.00		**93**	**90**	77-125	4	11	
Ethyl Benzene	**0.948**	**0.910**	1.00	1.00		**95**	**91**	76-125	4	10	
m,p-Xylene	**0.955**	**0.914**	1.00	1.00		**96**	**91**	78-124	4	9	
o-Xylene	**0.940**	**0.903**	1.00	1.00		**94**	**90**	77-123	4	9	
Surrogate:											
Fluorobenzene						*88*	*85*	*70-132*			

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	07-014-01					
Client ID:	**HTP-6-3**					
Arsenic	**ND**	11	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.56	6010B	7-10-12	7-10-12	
Chromium	**44**	0.56	6010B	7-10-12	7-10-12	
Lead	**20**	5.6	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.28	7471A	7-10-12	7-10-12	
Lab ID:	07-014-02					
Client ID:	**HTP-6-7**					
Arsenic	**ND**	13	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.63	6010B	7-10-12	7-10-12	
Chromium	**42**	0.63	6010B	7-10-12	7-10-12	
Lead	**14**	6.3	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.31	7471A	7-10-12	7-10-12	
Lab ID:	07-014-03					
Client ID:	**HTP-7-4**					
Arsenic	**ND**	11	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.55	6010B	7-10-12	7-10-12	
Chromium	**48**	0.55	6010B	7-10-12	7-10-12	
Lead	**12**	5.5	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.28	7471A	7-10-12	7-10-12	

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	07-014-04					
Client ID:	**HTP-8-7**					
Arsenic	**ND**	11	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.56	6010B	7-10-12	7-10-12	
Chromium	**38**	0.56	6010B	7-10-12	7-10-12	
Lead	**ND**	5.6	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.28	7471A	7-10-12	7-10-12	
Lab ID:	07-014-05					
Client ID:	**HTP-8-10**					
Arsenic	**ND**	13	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.63	6010B	7-10-12	7-10-12	
Chromium	**38**	0.63	6010B	7-10-12	7-10-12	
Lead	**13**	6.3	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.31	7471A	7-10-12	7-10-12	
Lab ID:	07-014-06					
Client ID:	**HTP-9-10**					
Arsenic	**ND**	12	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.59	6010B	7-10-12	7-10-12	
Chromium	**57**	0.59	6010B	7-10-12	7-10-12	
Lead	**13**	5.9	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.29	7471A	7-10-12	7-10-12	

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	07-014-07					
Client ID:	**HTP-10-7**					
Arsenic	**ND**	12	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.58	6010B	7-10-12	7-10-12	
Chromium	**53**	0.58	6010B	7-10-12	7-10-12	
Lead	**ND**	5.8	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.29	7471A	7-10-12	7-10-12	

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	07-014-08					
Client ID:	**HTP-10-11**					
Arsenic	**ND**	12	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.59	6010B	7-10-12	7-10-12	
Chromium	**39**	0.59	6010B	7-10-12	7-10-12	
Lead	**25**	5.9	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.29	7471A	7-10-12	7-10-12	

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	7-10-12
Date Analyzed:	7-10-12
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0710SM1&MB0710S4

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 7-10-12
Date Analyzed: 7-10-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 07-012-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**25.0**	**24.5**	2	0.50	
Lead	**ND**	**ND**	NA	5.0	
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 7-10-12
Date Analyzed: 7-10-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 07-012-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**93.7**	94	**94.5**	94	1	
Cadmium	50.0	**48.4**	97	**48.3**	97	0	
Chromium	100	**124**	99	**124**	99	0	
Lead	250	**240**	96	**243**	97	1	
Mercury	0.500	**0.469**	94	**0.465**	93	1	

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

% MOISTURE

Date Analyzed: 7-6-12

Client ID	Lab ID	% Moisture
HTP-6-3	07-014-01	11
HTP-6-7	07-014-02	21
HTP-7-4	07-014-03	9
HTP-8-7	07-014-04	10
HTP-8-10	07-014-05	20
HTP-9-10	07-014-06	15
HTP-10-7	07-014-07	14
HTP-10-11	07-014-08	15

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits.

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

HWA GEOSCIENCES INC.

21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

Chain of Custody and Laboratory Anaylsis Request

DATE: 7/2/12
PAGE: ___ of ___

PROJECT NAME: Bothell ~~Ramp~~ Hertz #: 2007 098
SAMPLERS NAME: Atkins PHONE: ___
SAMPLERS SIGNATURE: ___ DATE: ___
HWA CONTACT: ___ PHONE: ___

07-014

TURNAROUND TIME
☐ DAYS
☒ STANDARD

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH-Gx/BTEX	MTCA METALS	% MOISTURE	EDD	REMARKS
HTP-6-3	7/2/12	1020	S	1	2	X	X	X	6	X	
HTP-6-7		1030		2							
HTP-7-4		1050		3	1						
HTP-8-7		1120		4							
HTP-8-10		1130		5							
HTP-9-10		1150		6							
HTP-10-7		1205		7							
HTP-10-11		1210		8							

EDDS

PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by: Chrissi Fisk	C Fisk	HWA GeoSciences	7/3/12	1:05 pm	
Received by: Van	Spdy		7/3/12	1:05	
Relinquished by: Van	Spdy		7/3	130	
Received by: M. Voun		OSE	7/3/12	1330	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

APPENDIX J

INTERIM ACTION CLEANUP REPORT, BOTHELL FORMER HERTZ FACILITY, BOTHELL, WASHINGTON, 2014

(on CD)

INTERIM ACTION CLEANUP REPORT
BOTHELL FORMER HERTZ FACILITY
BOTHELL, WASHINGTON

HWA PROJECT NO. 2007-098-921

Prepared for
City of Bothell
April 7, 2014

HWA GEOSCIENCES INC.

- *Geotechnical Engineering*
- *Hydrogeology*
- *Geoenvironmental Services*
- *Inspection & Testing*

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INTERIM ACTION SOIL CLEANUP
BOTHELL FORMER HERTZ FACILITY
BOTHELL, WASHINGTON

1.0 INTRODUCTION

This report documents the results of the soil cleanup conducted between September 2010 and March 2013 by the City of Bothell (City) at the Bothell Former Hertz Facility (Site). The City owns the Site, part of which now accommodates the recently realigned State Route (SR) 522, (Bothell Crossroads Project). Figure 1 is a vicinity map and Figure 2 depicts the alignment of SR 522 through the Site and adjacent properties.

The initial (2010) soil cleanup was performed as an independent remedial action; after which the City entered into an Agreed Order (number DE 8375, dated May 12, 2011) with the Washington Department of Ecology (Ecology) to conduct a remedial investigation (RI), feasibility study (FS), perform interim actions, prepare RI/FS Report, and draft cleanup action plan (DCAP). Additional esoil cleanup was done at discrete locations under the old vacated roadway as part of the interim action. Phasing of the soil cleanup was necessary in order to effectively manage access to contaminated soils beneath the old roadway, with minimal impacts to traffic.

Tasks performed to date at the Site include:

1. Phase II Environmental Site Assessment (HWA, 2008b)
2. Preparation and submittal to Ecology of the *Limited Remedial Investigation and Feasibility Study Work Plan* (HWA, 2010a)
3. Preparation and submittal to Ecology of an *Interim Action Work Plan* (HWA, 2010b)
4. Preparation and submittal to Ecology of a *Remedial Investigation Feasibility Study Final Work Plan* (HWA, 2012, 2012b)
5. Test pit sampling Results for Construction - Soil Characterization & Limited Remedial Action (September 19, 2012)
6. Completion of interim action soil cleanup, described herein

Remaining tasks to fulfill terms and conditions of the Agreed Order include preparation of a final RI/FS Report, and draft cleanup action plan (dCAP) that address remaining ground water contamination at the Site.

1.1 SITE LOCATION AND DESCRIPTION

The City acquired the Former Hertz Facility from Odegard and Boseck, LLC in June 2009. The Site is generally located at 18030 Bothell Way NE in Bothell, Washington between downtown Bothell and the Sammamish River (Figure 1). The Site is listed by

Ecology under Facility Site ID No. 11687976 as the AA Rentals of Bothell facility; the Site is also known as the former Hertz Rentals Property because Hertz Equipment Rentals Corporation was the last tenant. The latitude of the site is 47.75899 and the longitude is -122.20927. The King County Tax Parcel number of the Site is 945720005004.

The 1.92-acre Site is an approximately rectangular lot formerly located south of Bothell Way Northeast (SR 522) but now bisected by the realigned SR 522. The property was formerly developed with a combined office warehouse and shop building that occupied approximately one quarter of the property, as well as three smaller buildings along the east side of the property, with asphalt-paved parking and storage constituting most of the remainder of the property. All buildings were demolished in May 2010, in advance of the soil cleanup work and subsequent construction of a new roadway. The Site is being redeveloped as part of the City's overall Downtown Revitalization Plan and will mostly accommodate the realigned SR 522 roadway which roughly bisects the property. The City plans to redevelop remnant portions of the property north and south of the new roadway.

1.2 AUTHORIZATION / SCOPE OF WORK

HWA GeoSciences' (HWA) work for this project was authorized under an On-Call Hazardous Materials Services Consultant Agreement with the City dated April 2010. HWA's scope of work for this portion of the project included:

- Perform environmental assessments, prepare technical documentation and develop remedial designs for cleanup of contaminated downtown properties
- Provide permitting support
- Provide contract bid services
- Assist in coordinating with State and Federal environmental regulatory agencies.
- Conduct cleanup monitoring, confirmation sampling, backfill & compaction monitoring during construction
- Prepare Interim Action soil cleanup report. This report incorporates by reference, the "*Test pit sampling Results for Construction - Soil Characterization & Limited Remedial Action (September 19, 2012)*", previously submitted to Ecology

1.3 OBJECTIVES

The objective of the soil cleanup was to reduce the threat to the environment and human health posed by petroleum hydrocarbon impacted soil in areas that were accessible to the maximum extent possible consistent with the requirements of Washington's Model Toxics Control Act (MTCA) cleanup regulations (Chapter 173-340 WAC).

1.4 HISTORIC PROPERTY USE AND PREVIOUS SITE ASSESSMENTS

Details of historic property use and the site assessments performed to date at the Site can be found in ECOSS (2006), DLH (1993a, b; 2007), and HWA (2008a, b). The following is a summary of those assessments.

According to historical information and interviews, the Site has been developed since 1918; businesses operating at the Site included automobile repair and dealerships, fueling, and equipment rental (ECOSS, 2008). In 1993 three leaking underground storage tanks (LUSTs) were removed from the property followed by site assessments (DLH, 1993a, b; 2007). With reference to Figure 3; these were:

1. A tank containing less than 1,100 gallons of kerosene located in the northwestern area of the Site
2. A 500-gallon diesel fuel tank located in the east-central area of the site
3. A 7,000-gallon leaded gasoline tank co-located in the same excavation as the diesel fuel UST

To the north of the Site, Simon and Sons Fine Dry Cleaning (Bothell Service Center) (18107 Bothell Way NE) is listed on Ecology's Confirmed or Suspected Contaminated Sites List (CSCSL). This former dry cleaning facility had releases of chlorinated solvents to ground water with off-site migration of contamination in the direction of the Bothell Former Hertz Facility.

The Phase II Environmental Site Assessment (HWA, 2008b) did not identify any USTs remaining at the Site. Soils in the northern and eastern portions of the Site in the vicinity of the three former LUSTs contained petroleum hydrocarbons exceeding Ecology MTCA Method A cleanup levels, and associated volatile organic compounds (VOCs) below cleanup levels. Ground water in several areas of the Site, including near the LUSTs, also contained petroleum hydrocarbons and VOCs exceeding MTCA Method A cleanup levels. Petroleum hydrocarbons detected in soil and ground water at the Site appeared to be from multiple releases, as several petroleum types were identified (i.e., gasoline, diesel, oil). Some of the VOCs detected in ground water at the Site are typically associated with petroleum products, while some chlorinated VOCs detected in ground water likely originated at the nearby Simon and Sons Fine Dry Cleaning facility. Other investigations in the vicinity have also confirmed off-site impacts from the Simon and Sons Fine Dry Cleaning facility.

1.5 CURRENT AND PLANNED SITE USE

Following building demolition and initial soil cleanup (2010 independent remedial action), a new storm utility was installed in 2012, followed by construction of the new SR522 roadway in the 2013 / 2014 construction season. Remnant portions of the site not occupied by the roadway will be redeveloped as part of the City's overall Downtown Revitalization Plan.

2.0 ENVIRONMENTAL SETTING

2.1 PHYSICAL CONDITIONS / TOPOGRAPHY

Figure 3 shows the site plan prior to the soil cleanup. The former Hertz property was approximately 1.92 acres in area. The property is generally flat with an elevation of approximately 30 feet above mean sea level. The surrounding land is generally flat or slopes down to the south towards the Sammamish River.

2.2 GEOLOGY

Surficial soils in the vicinity of the Site are primarily recent alluvium (Booth and others, 2004) most likely deposited by the adjacent Sammamish River. Per HWA (2008b), soil at the site typically consists of approximately two to seven feet of silty sand fill over alluvial soil consisting of interbedded silt and silty sand. Much of the fill material is likely dredged spoils placed on the property from realignment of the Sammamish River in the 1960s. Peat or silt beds with high organic content up to four feet thick are present in alluvial soils generally below 14 feet below ground surface (bgs). These organic-rich beds may not represent a contiguous layer. Interbedded alluvial sand and silty sand typically occurs below 15 feet.

2.3 HYDROGEOLOGY

The water table at the Site is approximately 5 and 8 feet bgs with a higher surface occurring in the wet season. Based on water level surveys of the area, ground water flow is to the east-southeast, toward the Sammamish River located approximately 300 feet to the southeast. The measured ground water gradient, i, ranged from 0.035 to 0.06 feet per foot. The estimated hydraulic conductivity, K, for the water-bearing zone ranged from 6.8 x 10^{-4} to 1.1 x 10^{-3} feet per minute (0.98 to 1.58 feet per day) based on slug testing (Parametrix, 2009). Assuming an effective porosity, n_e, of 0.2 for the aquifer materials at the site, ground water flow velocities in the water-bearing zone, based on the relationship $V = Ki / n_e$ are estimated to range from:

0.98 ft/d x 0.03536 / 0.2 = 0.17 feet/day = 63 feet/year to
1.58 ft/d x 0.0576 / 0.2 = 0.45 feet/day = 166 feet/year.

3.0 NATURE AND EXTENT OF CONTAMINATION

3.1 CHEMICALS OF POTENTIAL CONCERN

Based on the RI Work Plan (HWA, 2012), chemicals of potential concern (COPCs) present in Site soils include:

- Total petroleum hydrocarbons (gasoline-, diesel- and motor oil-range)
- Aromatic hydrocarbons / BTEX (benzene, toluene, ethylbenzene, xylenes)
- Chlorinated VOCs (primarily PCE, TCE, (cis)-1,2-DCE, and VC)

COPCs present in Site ground water are associated with 1) former leaking USTs, 2) chlorinated solvent releases originating at the nearby Bothell Service Center facility, and 3) arsenic either naturally occurring, or mobilized as a result of reducing conditions caused by the presence of organics in the aquifer. COPCs either known or expected to be found in ground water at the former Hertz Site are:

- Total petroleum hydrocarbons (gasoline-, diesel- and motor oil-range)
- Aromatic hydrocarbons (BTEX)
- Chlorinated VOCs
- Arsenic

PAHs are not considered a COPC for soil or ground water. PAHs were detected once in a ground water sample during the Phase II ESA, at a concentration around half the MTCA cleanup level (HWA, 20008c; Table 2a). During the soil cleanup, seven of the most impacted TPH soil samples representing different TPH sources, (out of 89 samples collected) were tested for PAHs; none of the samples exceeded PAH soil cleanup levels. Based on the site history, there is no known source of PAHs or cPAHs other than those found at low concentration in diesel fuel and other heavy petroleum products. Cleanup levels for TPH in the diesel and oil ranges will conservatively address any PAHs which may be present.

Samples collected during the soil cleanup were analyzed for additional (previously non COC) compounds (i.e., RCRA metals, PCBs, PAHs) due to the discovery of previously unknown sources (i.e., hydraulic lifts and a stormwater sump). None of these compounds were found to exceed cleanup levels, and the COC list was not modified after soil cleanup. Findings are discussed in Section 4 and Table 4.

HZ-B7 free product issue: The following observations document the suspected and later reported presence of non aqueous phase liquid (NAPL) at the site.

- On August 29, 2008 a small amount of oil was observed in the peristaltic pump tubing as the HCID ground water sample was being collected, therefore the presence of NAPL was noted in the report.
- The (semi quantitative) HCID result for ground water for this sample was estimated by the lab at >4000 micrograms per liter (µg/L)
- Continued pumping to fill the TPH-G and VOC VOA vials showed no oil; the quantitative TPH results were: TPH-G=810, TPH-D = <260, and TPH-O = <420 µg/L. Due to this apparent discrepancy, the higher initial HCID estimate was reported in the Phase II report, to be conservative.
- Subsequent NAPL testing and bailing of the well revealed no NAPL
- Mass excavation of this area during soil cleanup in September 2010 revealed some rubble fill with voids, which may have explained the small amount of oil originally observed, that was not impacting dissolved ground water concentrations.

Based on these observations, there is no reason to believe there was any NAPL in ground water prior to the soils cleanup; none was observed during the cleanup, and none remains after the soil cleanup.

3.2 EXTENT OF CONTAMINATION

Soils in the northern and eastern portions of the Site in the vicinity of the three former LUSTs contained petroleum hydrocarbons exceeding Ecology MTCA Method A cleanup levels, and associated aromatic hydrocarbons below cleanup levels. Ground water in several areas of the Site, including near the LUSTs, also contained petroleum hydrocarbons and aromatic hydrocarbons exceeding MTCA Method A cleanup levels. Petroleum hydrocarbons detected in soil and ground water at the Site appeared to be from multiple releases, as several petroleum types were identified (i.e., gasoline, diesel, oil).

Some of the aromatic hydrocarbons detected in ground water at the Site (e.g., BTEX) are typically associated with petroleum products. Chlorinated VOCs detected in ground water (e.g., vinyl chloride (VC)) likely originated at the nearby Simon and Sons Fine Dry Cleaning facility; other investigations in the vicinity have also confirmed off-site impacts from that facility.

3.3 CLEANUP STANDARDS

Remediation levels proposed in the *Interim Action Work Plan* (HWA, 2010b) and utilized during the cleanups included:

- MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (WAC 173-340, Table 740-1)

- MTCA Method B Soil TPH Cleanup Levels for direct contact and protection of ground water

In order to evaluate whether the standard MTCA Method A soil cleanup levels were appropriate for the Site compared to MTCA Method B risk-based soil TPH cleanup levels, results of petroleum hydrocarbon fractionation analyses (NWVPH/NWEPH analysis) were input into Ecology's MTCATPH11.1 spreadsheet model (Ecology, 2007) to determine TPH soil cleanup levels protective of human health via direct contact and via leaching to a source of potable ground water. HWA's evaluation of MTCA Method B risk-based cleanup levels for TPH-impacted soil at the site is presented in Appendix A of this report. Table 1 summarizes the results of the analysis. The calculated Method B TPH cleanup levels for diesel- and oil-range petroleum hydrocarbons, including kerosene, at the Site range between 220 to 13,263 milligrams per kilogram (mg/kg) depending on the mixture of hydrocarbon fractions and specific compounds, particularly carcinogenic polynuclear aromatic hydrocarbons (cPAHs). The MTCA Method A soil cleanup level for diesel- and oil-range petroleum hydrocarbons is 2,000 mg/kg. The calculated Method B soil cleanup level for gasoline-range petroleum hydrocarbons at the Site is 3,504 mg/kg; compared to the MTCA Method A cleanup level of 100 mg/kg for soil having no benzene present and if the total of ethylbenzene, toluene, and xylenes is less than one percent of the gasoline mixture. The MTCA Method cleanup level for gasoline-range petroleum hydrocarbons is 30 mg/kg for all other mixtures.

The resulting soil remediation levels used (i.e., the more stringent of Method A or B) are extremely conservative, as following redevelopment most of the site will be covered by pavement and buildings, eliminating the direct contact pathway, and reducing ground water recharge by precipitation. These remediation levels meet all the requirements of WAC 173-340-720 through 173-340-760 and should be considered the Site cleanup levels.

3.4 Remedial Action Objectives

The following remedial action objectives (RAOs) were established for the cleanup (HWA, 2010b):

- Achieve MTCA Method A and B soil cleanup levels at the point of compliance, thus reducing or eliminating human exposure through direct contact and inhalation of vapors.
- Use permanent solutions to the maximum extent practicable (which includes consideration of cost-effectiveness).
- Properly manage contaminated ground water that may be generated during site development activities, and ensure that activities at the site do not result in exposure to the contaminated ground water that has migrated onto the site.
- Use confirmation sampling in excavations to determine remaining contamination at that portion of the site. The location of confirmation samples above cleanup

levels will also determine the direction further characterization and remediation must go.

4.0 INTERIM ACTION SOIL CLEANUP

The cleanup for contaminated soil at the Site included excavation and off-site disposal of all accessible impacted soils. The following sections describe the cleanup.

2010 cleanup action - The City engaged a construction contractor, Hos Brothers Construction of Woodinville, Washington, to perform the soil cleanup from August through October 2010; HWA personnel monitored the cleanup activities and sampled soil to confirm successful cleanup. Prior to site cleanup, the Hos Brothers personnel demolished all the building slabs and parking lots (Photo 1 in Appendix D) and cleared and grubbed the Site in preparation for the soil cleanup and subsequent construction of the SR 522 realignment.

2012 cleanup action - The City engaged a construction contractor, KLB of Everett, Washington to perform additional limited soil cleanup during the 2012 construction season, as part of and during construction of the new storm water line that was installed prior to roadway work in the area. HWA personnel monitored the cleanup activities and sampled soil. Remnant petroleum-contaminated soil in exceedance of MTCA cleanup limits was identified, but further soil excavation was postponed until later construction phases (below).

2013 cleanup action - The City engaged a construction contractor, Guy Atkinson of Renton, Washington to perform additional limited soil cleanup during the 2013/2014 construction season, as part of and during construction of the new SR522 roadway. HWA personnel monitored the cleanup activities and sampled soil to confirm successful cleanup.

4.1 PRE-CLEANUP CHARACTERIZATION

2010 pre-cleanup action - Prior to large scale excavation activities at the Site, HWA personnel conducted test pit characterization (i.e., "pot holing") to delineate clean overburden soils at the Site, and to assess the lateral and vertical extent of TPH-impacted soils with respect to previous investigations.

HWA's test pit characterization activities included collecting samples of TPH-impacted soil for analysis of petroleum hydrocarbon fractionation and other target compounds in order to calculate MTCA Method B risk-based soil cleanup levels for protection of human health and potable ground water (see Section 3.3 above). The results of the of the Method B risk analysis are presented in Appendix A and summarized in Table 1.

Prior to the independent remedial action, twenty nine test pits were excavated between August 30th and September 16th 2010 using a rubber-tired backhoe operated by Hos

Brothers personnel; Figure 4 shows test pit locations. Test pits were excavated to a maximum depth of 10 feet bgs. HWA personnel collected 55 representative soil samples at various depths within the test pits for chemical analysis. The test pit data indicated that 1,302 cubic yards (approximately 2,080 tons) of soil could be stockpiled on site for later reuse. Subsequent sampling and analyses of the soil stockpiles confirmed that the soil was chemically and structurally suitable for reuse; the analytical data for the stockpiled soil are summarized at the bottom of Table 2.

OnSite Environmental Inc. of Redmond, Washington, an Ecology accredited laboratory, performed all soil chemical analyses; laboratory reports are presented in Appendix B. Appendix C presents a project quality assurance audit including verification of the analytical data; the audit found that with minor exceptions, all reported data should be considered valid as qualified and acceptable for further use.

2012 pre-cleanup action - Prior to installation of the new storm line, HWA sampled soils during construction to characterize trench spoils for disposal. HWA sampled characterization test pits on the former Hertz property with the assistance of KLB in February and March, 2012. Ten test pits were located along planned utility alignments (Figure 4). Petroleum exceeding cleanup levels was identified at one test pit (TP-4). Test pit depths were selected to be representative of required construction excavation depths. The test pit results indicated soils with petroleum exceeding MTCA cleanup levels at one location along the new utility alignment.

2013 pre-cleanup action - Prior to construction of new/realigned roadway, HWA sampled characterization test pits on the former Hertz property with the assistance of KLB in July 2012. This work was done in anticipation of the limited cleanup action scheduled for 2013. Ten test pits were completed on the parcel for characterization purposes, and three of these pits (HTP-8,-9,and -10) were located north and south of the storm water line to delineate potential contaminated soils identified in 2012 (Figure 4). Petroleum exceeding cleanup levels was identified at HTP-10. Test pit depths were selected to be representative of required construction excavation depths.

4.2 Soil Excavation

2010 cleanup action - Hos Brothers personnel excavated contaminated soil at the Site between September 8 and September 22, 2010. HWA personnel directed the cleanup based upon prior sampling, as well as field screening information such as soil color, odor, and photoionization detector readings. When the screening information indicated clean soil, HWA collected confirmation samples for laboratory analysis to document that the soils left in place met the Site cleanup levels. Where confirmation sample results exceeded cleanup levels, Hos Brothers personnel and HWA performed additional excavation and sampling until the cleanup goals were achieved.

Soil excavation generally proceeded from north to south. Contaminated soil was excavated generally down to the contact with a peat layer underlying the site (Photos 2 and 3 in Appendix D), which was found to meet the cleanup levels. The approximate limits of soil excavation are shown on Figure 4. The final excavation was approximately 180 by 180 feet in its maximum width and length. The depth of the excavation ranged from about 5 to 16 feet bgs.

A total of 11,182.41 tons of soil were excavated and transported to the CEMEX USA soil remediation facility in Everett, Washington. Assuming a bulk density of 1.6 tons per bank cubic yard, the volume of soil excavated and transported to CEMEX was approximately 6,989 cubic yards. A copy of the CEMEX Release of Liability/Certificate of Disposal for the soil is presented in Appendix E.

Four buried hydraulic lifts and their associated oil reservoirs were removed early into the cleanup (Photos 4 and 5 in Appendix D). The lifts consisted of vertical steel tubular vessels within which the hydraulic cylinders are housed. The cylinders did not appear to be breached or leaking. The lifts and oil reservoirs were decontaminated, and the housings recycled along with rebar and other steel reclaimed during site demolition.

On September 13th a small old wooden catch basin was unearthed in the northeastern extent of the excavation at the location shown on Figure 3. The catch basin held lube oil floating on top of water (Photos 6 and 7 in Appendix D), and did not appear to have a functional outlet or connect to any other utilities. Nor did it appear to have been in service for many years as indicated by the limited extent of oil impacted soil surrounding the catch basin. HWA collected a sample of the petroleum impacted soil adjacent to the catch basin and submitted it to OnSite Environmental for analysis (sample P-PEX-11 in Table 2). On September 14th an industrial vacuum truck service pumped water and oil out of the catch basin and transported it to a petroleum reclamation facility. Hos Brothers personnel subsequently excavated the catch basin components and the short lengths of associated drain pipe and transported them with petroleum impacted soil to the CEMEX facility for thermal treatment.

2012 cleanup action - During test pit excavation prior to storm line installation (Drainage Improvements Project), petroleum hydrocarbons (in the gasoline range) exceeding MTCA cleanup levels were detected in one sample collected at test pit TP-4 (TP-4-8). This sample was collected from fill soils near the ground water interface that exhibited hydrocarbon staining and odors. HWA recommended overexcavation of the trench by approximately five feet on either side in order to remove impacted soils and prevent the need for shoring/supporting and/or compromising the newly constructed storm water pipe during future construction activities.

The contractor conducted the trench over-excavation during pipe installation. Figure 4 shows the overexcavated areas. All other areas along the 36-inch diameter pipe alignment were excavated to depths of eight to fifteen feet, in a trench generally around five feet wide. The area of overexcavation (beyond that normally required for utility installation) was approximately 60 feet long and ten to 15 feet wide (Figure 4).

Approximately 781 tons of excavated petroleum-affected soils from the area around TP-4 were disposed of off-site at Allied Waste's Subtitle D Roosevelt Regional Landfill during the drainage improvements project, in March 2012. Disposal documentation for the soil is presented in Appendix E.

2013 cleanup action - HWA recommended additional lateral trench overexcavation in the vicinity of test pit TP-4 north of the new stormwater conveyance, where gasoline-range and oil-range hydrocarbons exceeding MTCA Method A cleanup level had been detected (Figure 4, Table 2). HWA recommended overexcavation of an area north of the stormwater trench toward the former Hertz soil remediation area approximately five feet on either side in order to remove remnant impacted soils and prevent the need for shoring/supporting and/or compromising the newly constructed storm water pipe during future construction activities in the vicinity.

On March 6, 2013, HWA and the city's contractor excavated the area of remnant petroleum-affected soils. Figure 4 shows the overexcavated area. Approximately 306 tons of excavated petroleum-affected soils from the area around H-TP-11 were disposed of off-site at Cemex' Thermal Treatment Facility during the 2013 cleanup action. Disposal documentation for the soil is presented in Appendix E.

HTP-10

4.3 Confirmation Sampling

HWA personnel collected 17 excavation sidewall and 21 excavation bottom samples to confirm soil cleanup (Table 2). Figure 4 depicts confirmation sample locations. Laboratory certificates are included in Appendix B. Ten pre-excavation test pit samples collected at the extents of the excavation, and in some cases beyond, are included in Table 2 as confirmation samples because the soils represented by those samples did not contain chemicals of potential concern at concentrations exceeding site cleanup levels. Table 2 confirms that the cleanup achieved the site cleanup levels. In particular, the calculated Method B TPH soil cleanup level of 220 mg/kg for kerosene-impacted soil was achieved in the vicinity of the former kerosene LUST (samples H-PEX-4, H-PEX-7, H-PEX-8, and H-PEX-17).

4.4 Ground Water Management

2010 cleanup action - Minor ground water seepage was present at approximately 8 to 10 feet below original grade at the Site (Photos 2 and 3 in Appendix D). Ground water flow into the excavation was managed by creating sumps and ponding the water behind soil berms. Accumulated water was removed with a gasoline powered 'trash' pump for temporary storage and settling in an on-site 20,000 gallon storage tank. This dewatering effluent was stored, tested, and discharged under a King County Industrial Waste Division temporary dewatering discharge permit to sanitary sewer, for treatment at King County's wastewater treatment plant.

2012 cleanup action - Ground water was encountered at approximately eight to ten feet bgs, and was dewatered by a combination of well points outside of the excavation and sumps within the excavation. Ground water was pumped to on-site storage tanks for holding and testing prior to discharge to sanitary sewer per the King County discharge permit issued for the project.

2013 cleanup action - Ground water was encountered at approximately ten feet bgs, but was limited to seeps and dewatering was not required as part of the excavation.

4.5 ORC PLACEMENT

2010 cleanup action - To facilitate bioremediation of ground water following soil removal, Hos Brothers personnel applied 1,416 pounds of Oxygen Release Compound® (ORC) along the excavation sidewalls and bottom. The ORC was prepared by mixing the powdered compound with water in an excavator bucket to form a slurry. HWA estimates that the ORC slowly released dissolved oxygen to ground water following the cleanup thus encouraging destruction of residual hydrocarbons in soil and ground water by naturally-occurring aerobic bacteria in the soil, and reducing the possibility of re-contamination of clean fill.

2012 cleanup action – The 2012 cleanup action was limited to overexcavation of the storm water lain installation. No ORC was used.

2013 cleanup action - The 2013 excavation proceeded northwards located and removed the polyethylene sheeting placed in 2010 until cleanup levels were met, therefore no ORC was used.

4.6 WELL DECOMMISSIONING

Prior to cleanup actions at the Site, Slead Construction Inc, a Washington State licensed well drilling contractor under subcontract to Hos Brothers, decommissioned ground water monitoring wells HZ-MW-8, HZ-MW-10, HZ-MW-11, and HZ-MW-13 in accordance with WAC 173-160-381. These wells were decommissioned because of their locations within the cleanup excavation. Slead Construction personnel also decommissioned monitoring well HZ-MW-08 following the cleanup; although not within the cleanup excavation footprint, this well was decommissioned because it would eventually be covered by the new roadway.

No other wells on the site were impacted during the 2012 or 2013 cleanups.

4.7 SITE RESTORATION

2010 cleanup action - After excavation of contaminated soil and receipt of confirmation sample analytical results, Hos Brothers personnel backfilled and compacted the excavation with a combination of clean imported structural fill soils meeting the requirements of Select Borrow, per WSDOT Standard Specification 2-03.3(14)K, and 1,302 cubic yards of previously excavated soils from the Site that were tested and found to meet Site cleanup levels. The imported select borrow was obtained from CEMEX, who mined the sandy soils from a quarry in Granite Falls, Washington (i.e., not excavated or reused from any developed property).

The select borrow and native soils were compacted to Method B of WSDOT Standard Specification 2-03.3(14)C, i.e., 90 percent of maximum dry density as determined using test method ASTM D 1557 (Modified Proctor) below two feet bgs, and 95 percent of maximum dry density for the upper two feet.

The backfilling occurred in stages as portions of the Site were confirmed to have been cleaned up. The excavation was generally backfilled from the northwest to southeast as contaminated soil was removed from the Site. The remediation area was then hydro-seeded for erosion control.

2012 cleanup action – The 2012 excavation was backfilled with clean imported structural fill soils meeting the requirements of Gravel Borrow, per WSDOT Standard Specification 2-03.3(14)J.

2013 cleanup action – The 2013 excavation was also backfilled with clean imported structural fill soils meeting the requirements of Select Borrow, per WSDOT Standard Specification 2-03.3(14)K.

4.8 Summary

The 2010 through 2013 soil cleanups and interim actions were successfully completed, with all confirmation sampling reaching the Site cleanup levels.

5.0 REFERENCES

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6.0 LIMITATIONS

The conclusions expressed by HWA are based solely on material referenced in this report. Observations were made under the conditions stated. Within the limitations of scope, schedule and budget, HWA attempted to execute these services in accordance with generally accepted professional principles and practices in the area at the time the report was prepared. No warranty, expressed or implied, is made. Experience has shown that subsurface soil and ground water conditions can vary significantly over small distances. It is always possible that contamination may exist in areas that were not sampled. HWA's findings and conclusions must not be considered as scientific or engineering certainties, but rather as our professional opinion concerning the significance of the limited data gathered and interpreted during the course of the assessment.

This study and report have been prepared on behalf of City of Bothell, for the specific application to the subject property. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

We appreciate the opportunity to provide professional services on this project. Please feel free to call us if you have any questions or need more information.

Sincerely,

HWA GEOSCIENCES INC.

State of Washington
Hydrogeologist
132
Licensed Geologist
VANCE ATKINS
4/7/14

State of Washington
Hydrogeologist
170
Licensed Geologist
Arnon Sugar
4-7-14

Vance Atkins, LG, LHG
Senior Hydrogeologist

Arnie Sugar, LG, LHG
President

Table 1
Summary of Method B Soil TPH Risk Calculations
Bothell Former Hertz Facility

Release area	**Former USTs**	**Former UST**		**Wooden storm drain catch basin**
TPH Type	**Gasoline and diesel**	**Kerosene**		**Diesel and lube oil range hydrocarbons**
Sample	**H-PEX-1-6**	**H-PEX-2-6**	**H-PEX-3-4**	**H-PEX-11-6**
Calculated Method B TPH cleanup level for direct skin contact (mg/Kg)	3,504	4,035	2,505	2,954
Most stringent soil risk criterion for direct skin contact	Hazard Index	Hazard Index	cPAHs mixture	Hazard Index
Method B soil TPH concentration protective of ground water (mg/Kg)	13,263	220	100% NAPL[1]	100% NAPL
Most stringent soil risk criterion for protection of ground water	Total risk = 1E-5	Hazard Index Risk 1E-6	Hazard Index Total risk 1E-5 cPAHs mixture	Hazard Index Total risk 1E-5 cPAHs mixture
Method A soil cleanup levels (mg/Kg)	30[2] (G) 2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)	2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)		

Notes:
1 - 100% NAPL means soil containing free product would not produce a TPH concentration $\geq$800 µg/L in ground water
2 - Cleanup level for gasoline mixtures with benzene

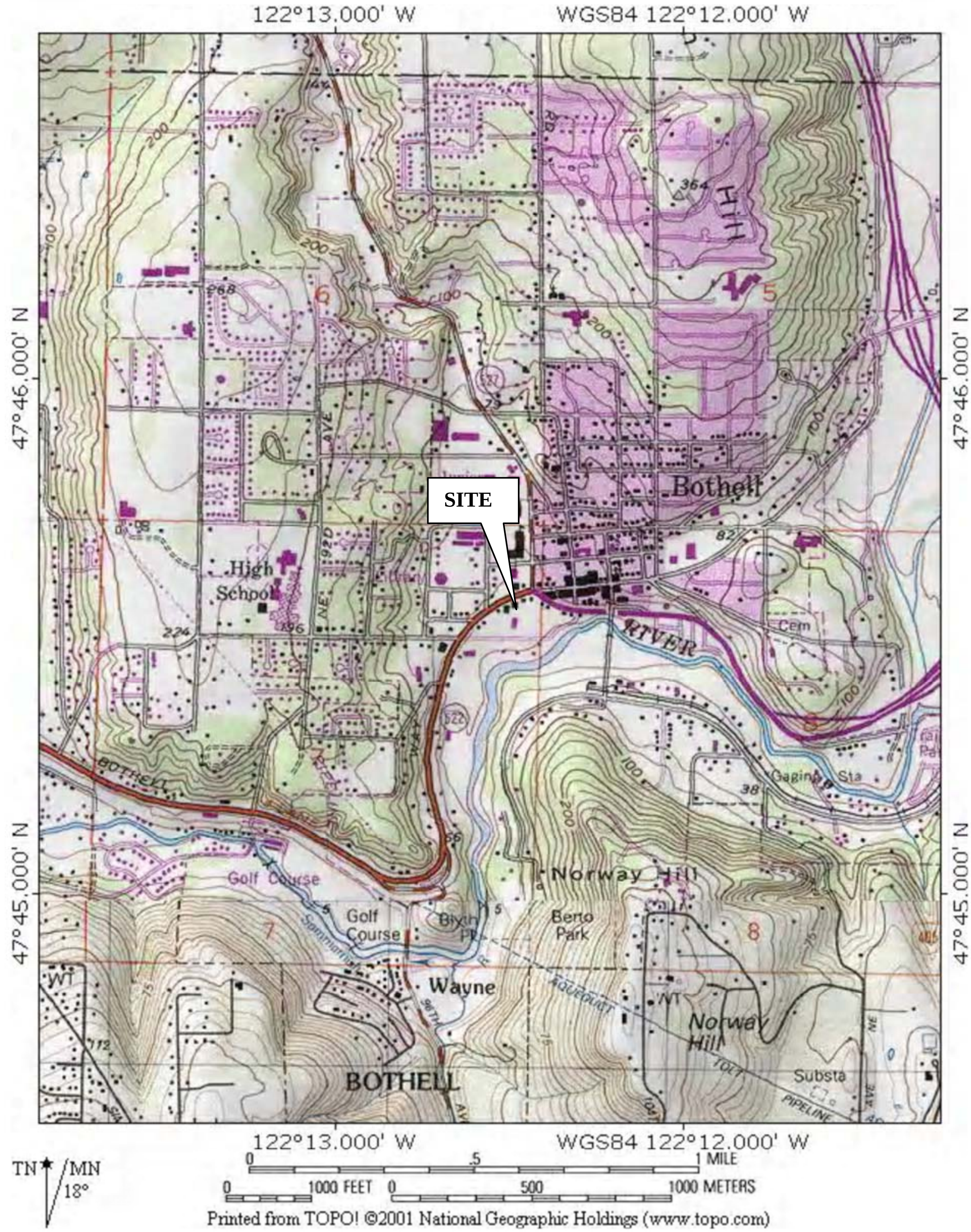
TABLE 2
SOIL CLEANUP ANALYTICAL RESULTS
BOTHELL FORMER HERTZ FACILITY
(all results in milligrams per kilogram (mg/kg))

		Confirmation Sample[1]																					
Sample location	Sample Depth ft bgs	Sidewall	Bottom	Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Total Naphthalenes[2]	cPAHs TEC[3]	PCBs	HVOCs	Notes
H-TP-1-3	3			<29	<58	<6.5	<0.02	<0.065	<0.065	<0.065													
H-TP-1-8	8			25000	<610	<71	<0.14	<0.71	2.1	9.4													
H-TP-2-4	4			<27	<55	<5.5	<0.02	<0.055	<0.055	<0.055													
H-TP-2-10	10			<33	<66	<7.3	<0.02	<0.073	<0.073	<0.073													
H-TP-3-3	3	X		<29	140	<7	<0.02	<0.07	<0.07	<0.07													
H-TP-3-8	8		X	<32	<64	<7.4	<0.02	<0.074	<0.074	<0.074													
H-TP-4-3	3	X		<29	<58	<4.6	<0.02	<0.046	<0.046	<0.046													
H-TP-4-7	7		X	<31	<61	<6.5	<0.02	<0.065	<0.065	<0.065													
H-TP-5-4	4			<27	<54	<6.3	<0.02	<0.063	<0.063	<0.063													
H-TP-5-7	7			<32	<63	<6.4	<0.02	<0.064	<0.064	<0.064													
H-TP-6-3	3			2700	11000	150	<0.02	<0.054	0.055	0.23													
H-TP-6-6	6			1600	7500	200	<0.023	<0.12	<0.12	0.26													
H-TP-6-7	4			70	420	10	<0.02	<0.074	<0.074	<0.074													
H-TP-7-5	5			<28	<56	<5.7	<0.02	<0.057	<0.057	<0.057													
H-TP-7-7	7			<32	110	<7	<0.02	<0.07	<0.07	<0.07													
H-TP-8-5	5	X		<28	120	6.2	<0.02	<0.058	<0.058	<0.058													
H-TP-8-7	7		X	<30	<60	<6	<0.02	<0.06	<0.06	<0.06													
H-TP-9-4	4			<28	<56	<7.3	<0.02	<0.073	<0.073	<0.073	<11	43	<0.56	27	<5.6	<0.28	<11	<0.56					
H-TP-9-7	7			92	<60	<6.6	<0.02	<0.066	<0.066	<0.066	<12	73	<0.60	42	7.6	<0.3	<12	<0.60					
H-TP-10-3	3			<28	<56	<6.5	<0.02	<0.065	<0.065	<0.065	<11	46	<0.56	31	<5.6	<0.28	<11	<0.56					
H-TP-10-7	7			1900	<65	<16	<0.033	<0.16	1	7.59	<13	53	<0.65	28	<6.5	<0.33	<13	<0.65					
H-TP-11-4	4	X		<30	<60	<7.3	<0.02	<0.073	<0.073	<0.073	<12	95	<0.60	29	<6	<0.3	<12	<0.60					
H-TP-11-7	7		X	<32	<64	<6.4	<0.02	<0.064	<0.064	<0.064	<13	56	<0.63	39	<6.3	<0.32	<13	<0.63					
H-TP-12-3	3			<28	<57	<5.9	<0.02	<0.059	<0.059	<0.059	<11	70	<0.57	30	<5.7	<0.28	<11	<0.57					
H-TP-12-7	7			<30	<60	<6.9	<0.02	<0.069	<0.069	<0.069	<12	40	<0.60	21	<6	<0.3	<12	<0.60					
H-TP-13-3	3			<820	2200	750	<0.047	<0.24	0.67	1.9	<11	44	<0.56	31	7.1	<0.28	<11	<0.56					
H-TP-13-8	8			6100	5400	1700	<0.1	<0.52	1.1	2.9	<12	58	<0.60	24	58	<0.3	<12	<0.60					
H-TP-14-3	3			<28	<56	<5	<0.02	<0.05	<0.05	<0.05	<11	41	<0.56	28	<5.6	<0.28	<11	<0.56					
H-TP-14-8	8			<510	1200	2100	0.079	<0.11	0.37	4.1	<12	41	<0.59	33	9.5	<0.3	<12	<0.59					
H-TP-15-3	3			<620	2300	<5.5	<0.02	<0.055	0.11	0.38	<11	45	<0.55	31	24	<0.28	<11	<0.55					
H-TP-15-8	8			<110	280	120	<0.02	<0.051	0.7	0.18	<11	42	<0.56	26	<5.6	<0.28	<11	<0.56					
H-TP-16-3	3	X		<30	190	57	<0.02	<0.076	<0.076	0.15													
H-TP-16-7	7		X	<140	290	72	<0.02	<0.066	<0.066	<0.066													
H-TP-17-3	3	X		<31	99	<7.5	<0.02	<0.075	<0.075	<0.075													
H-TP-17-6	6		X	<31	<62	<7.3	<0.02	<0.073	<0.073	<0.073													
H-TP-18-3	3			<28	<56	<5.3	<0.02	<0.053	<0.053	<0.053													
H-TP-18-7	7			<1600	2300	1900	<0.058	<0.29	0.95	5.7													
H-TP-19-4	4			<130	450	<6.2	<0.02	<0.062	<0.062	<0.062													
H-TP-19-6	6			<55	220	<5.8	<0.02	<0.058	<0.058	<0.058													
H-TP-20-3	3			<27	<54	<5.5	<0.02	<0.055	<0.055	<0.055													
H-TP-20-6	6			<1700	5800	18	<0.028	0.83	<0.14	<0.14													
H-TP-21-2	2			<580	2300	20	<0.02	<0.061	<0.061	<0.061													
H-TP-21-7	7			<29	110	<5.4	<0.02	<0.054	<0.054	<0.054													
H-TP-22-8	8		X	<63	300	12	<0.020	<0.064	0.27	1.39													
H-TP-23-7	7			5400	680	<30	<0.060	<0.30	0.65	0.72													
H-TP-24-3	3	X		<55	200	<6.4	<0.02	<0.064	<0.064	<0.064													
H-TP-24-8	8		X	<29	<58	<5.1	<0.02	<0.051	<0.051	<0.051													
H-TP-25-2	2			<28	<56	<6.3	<0.02	<0.063	<0.063	<0.063													
H-TP-25-8	8			5400	1700	<16	<0.032	<0.16	0.31	0.42													
H-TP-26-4	4			<28	150	<6.0	<0.020	<0.060	<0.060	<0.060													
H-TP-26-9	9			3600	1800	<28	<0.056	<0.28	0.53	0.72													
H-TP-27-5	5	X		<30	<59	<5.7	<0.020	<0.057	<0.057	<0.057													
H-TP-27-9	9		X	<31	<62	<6.8	<0.020	<0.068	<0.068	<0.068													
H-TP-28-9	9		X	<29	<59	<5.1	<0.020	<0.051	<0.051	<0.051													
H-TP-29-6	6	X		<31	<62	<4.6	<0.020	<0.046	<0.046	<0.046													
H-PEX-1-6	6			220	280	270	0.0013	<0.0053	0.015	<0.0011	<12	69	<0.6	35	<6	<0.3	<12	<0.60	0.181	0.000	<0.060		EPH VPH Analyses
H-PEX-2-6	6			<400	720	390	<0.0014	<0.0068	<0.0014	0.0021	<11	41	<0.56	27	18	<0.28	<11	<0.56	0.054	0.000	<0.056		EPH VPH Analyses
H-PEX-3-4	4			1800	7300	22	<0.0011	<0.0055	<0.0011	0.0015	<12	79	<0.61	26	130	<0.3	<12	<0.61	2.893	0.085	<0.061		EPH VPH Analyses
H-PEX-4-8	8		X			<8.4	<0.020	<0.084	<0.084	<0.084	<14												
H-PEX-5-8	8		X			<31	<0.31	<0.31	<0.31	<0.31	<17												
H-PEX-6-4	4		X			<6.2	<0.020	<0.062	<0.062	<0.062	<12												
H-PEX-7-5	5	X				<7.9	<0.020	<0.079	<0.079	<0.079	<13												
H-PEX-8-6	6	X				<10	<0.021	<0.10	<0.10	<0.10	<11												
H-PEX-9-5	5		X	820	<110	<14	<0.027	<0.14	<0.14	<0.14													
H-PEX-10-7	7	X		600	86	<12	<0.023	<0.12	<0.12	<0.12													
H-PEX-11-6	6			1900	2700	<13	<0.027	<0.13	<0.13	0.38	<11	50	<0.57	23	37	<0.29	<11	<0.57	23.8	0.061	<0.057		EPH VPH analyses of soil next to buried wood catch basin
H-PEX-12-12	12	X		<31	<61	<5.7	<0.020	<0.057	<0.057	<0.057													
H-PEX-13-14	14			<120	700	15	<0.029	<0.15	<0.15	<0.15													Removed
H-PEX-14-14	14		X	<91	390	<32	<0.32	<0.32	<0.32	<0.32													
H-PEX-15-10	10		X	<33	<65	<7.2	<0.020	<0.072	<0.072	<0.072													
H-PEX-16-14	14		X	<130	980	30	<0.053	<0.27	<0.27	0.94													
H-PEX-17-7	7	X		<31	<61	<7.2	<0.020	<0.072	<0.072	<0.072													

TABLE 2
SOIL CLEANUP ANALYTICAL RESULTS
BOTHELL FORMER HERTZ FACILITY
(all results in milligrams per kilogram (mg/kg))

Sample location	Sample Depth ft bgs	Confirmation Sample[1] Sidewall	Confirmation Sample[1] Bottom	Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Total Naphthalenes[2]	cPAHs TEC[3]	PCBs	HVOCs	Notes
H-PEX-18-11	11		X	**300**	**320**	<6.9	<0.020	<0.069	<0.069	<0.069													
H-PEX-19-6	6			**320**	**740**	<7.0	<0.020	<0.070	<0.070	<0.070													Removed
H-PEX-20-6	6		X	<32	<64	<7.3	<0.020	<0.073	<0.073	<0.073													
H-PEX-21-16	16		X	<33	<65	<6.8	<0.020	<0.068	<0.068	<0.068													Over excavation of H-PEX-13-14
H-PEX-22-12	12		X	<30	<60	<6.3	<0.020	<0.063	<0.063	<0.063													
H-PEX-23-9	9			<310	**1600**	**12**	<0.020	<0.061	<0.061	<0.061													Removed
H-PEX-24-6	6	X		<27	**58**	<5.7	<0.020	<0.057	<0.057	<0.057	<11	**49**	<0.55	**25**	**28**	<0.27	<11	<0.55					Over excavation of H-PEX-19-6
H-PEX-25-6	6	X		**41**	**220**	<6.5	<0.020	<0.065	<0.065	<0.065	<11	**49**	<0.56	**23**	**22**	<0.28	<11	<0.56					
H-PEX-26-8	8	X		<30	**81**																		Over excavation of H-PEX-23-9
Stockpiles																							
H-SP-1				<28	<56	<5.5	<0.020	<0.055	<0.055	<0.055	<11	**37**	<0.56	**21**	**8.2**	<0.28	<11	<0.56	0.000	0.000			
H-SP-2				**55**	**250**	<7.2	<0.020	<0.072	<0.072	<0.072	<12	**48**	<0.61	**25**	**31**	<0.31	<12	<0.61	**0.710**	**0.081**			
H-SP-3				<28	**250**	<5.1	<0.020	<0.051	<0.051	<0.051	<11	**34**	<0.56	**17**	**19**	<0.28	<11	<0.56	**0.037**	**0.020**			
HZ-SP-101110-1				<29	<57						<11		<0.57	**31**	<5.7	<0.29							
HZ-SP-101110-2				<29	**100**						<12		<0.59	**30**	**13**	<0.29							
HZ-SP-101110-3				<33	**230**						<12		<0.58	**24**	**14**	<0.29							
HZ-SP-101110-4				<52	**320**						<12		<0.62	**30**	**91**	<0.31							
HZ-SP-101110-5				<31	**220**						<12		<0.62	**30**	**28**	<0.31							
Drainage Improvements - Pre-Construction Characterization Samples, February, 2012																							
TP-1-3	3			<27	<54	<4.8	<0.02	<0.048	<0.048	<0.048		**29**		**26**	<5.4							ND	
TP-1-8	8			<34	**130**	<7.9	<0.02	<0.079	<0.079	<0.079		**76**		**41**	**27**							ND	
TP-2-4	4			<29	**230**	**12**	<0.02	<0.056	<0.056	<0.056		**54**		**35**	**10**							ND	
TP-2-10	10			<30	<61	<7.2	<0.02	<0.072	<0.072	<0.072		**73**		**47**	<6.1							ND	
TP-3-6	6			<29	**130**	**77**	<0.02	<0.062	<0.062	**0.18**		**150**		**70**	**18**							ND	
TP-3-12	12			<31	<63	<7.2	<0.02	<0.072	<0.072	<0.072		**92**		**34**	<6.3							ND	
TP-4-4	4			<31	<61	<6.8	<0.02	<0.068	<0.068	<0.068		**76**		**38**	**6.2**							ND	Removed during March, 2012 storm
TP-4-8	8			**61**	**221**	**130**	<0.02	<0.078	<0.078	**0.16**		**84**		**47**	<6.4							ND	water line installation
TP-5-4	4			<29	<58	<6.1	<0.02	<0.061	<0.061	<0.061		**53**		**35**	<5.8							ND	
TP-5-8	8			<30	<60	<6.5	<0.02	<0.065	<0.065	<0.065		**63**		**42**	**6.3**							ND	
Limited Remediation Confirmation Samples, March 2012																							
Trench-1-15	15		X	<30	<60	<6.2	<0.02	<0.062	<0.062	<0.062													
Trench-2-10	10	X		<31	**69**	**7.6**	<0.02	<0.066	<0.066	<0.066													
Trench-3-10	10			**130**	**520**	**360**	<0.022	**0.13**	<0.11	**0.58**													Over excavated in March, 2013
Trench 4-14	14		X	<32	<64	<7.1	<0.02	<0.071	<0.071	<0.071													
Trench-5-10	10	X		<49	**530**	<5.9	<0.02	<0.059	<0.059	<0.059													Over excavated in March, 2013
Trench 6-10	10	X		<29	<57	<5.4	<0.02	<0.054	<0.054	<0.054													
Crossroads Phase III - Pre-Construction Characterization Samples, July, 2012																							
HTP-6-3	3			<28	**470**	<6.0	<0.02	<0.06	<0.06	<0.06				**44**	**20**								
HTP-6-7	7			<32	**130**	<6.4	<0.02	<0.064	<0.064	<0.064				**42**	**14**								
HTP-7-4	4			<28	<55	<5.7	<0.02	<0.057	<0.057	<0.057				**48**	**12**								
HTP-8-7	7			<28	<56	<5.9	<0.02	<0.059	<0.059	<0.059				**38**	<5.6								
HTP-8-10	10			<31	**86**	**11**	<0.02	<0.063	<0.063	<0.063				**38**	**13**								
HTP-9-10	10	X		<30	<59	<5.7	<0.02	<0.057	<0.057	<0.057				**57**	**13**								
HTP-10-7	7			<29	**250**	<5.5	<0.02	<0.055	<0.055	<0.055				**53**	<5.8								Over excavated in March, 2013
HTP-10-11	11			**360**	**3400**	<5.4	<0.02	<0.054	<0.054	<0.054				**39**	**25**								Over excavated in March, 2013
Limited Soil Remediation, February 2013																							
HR-1-12	12		X	<63	<31	<6.5	<0.020	<0.065	<0.065	<0.065		**100**		**59**	<6.3								
HR-2-12	12		X	<59	<29	<5.4	<0.020	<0.054	<0.054	<0.054		**78**		**66**	<5.9								
HR-3-10	10	X		<62	<31	<7.3	<0.020	<0.073	<0.073	<0.073		**110**		**60**	<6.2								
HR-4-10	10	X		<60	<30	<6.0	<0.020	<0.060	<0.060	<0.060		**76**		**61**	<6.0								
HR-5-10	10	X		<59	<30	<5.7	<0.020	<0.057	<0.057	<0.057		**87**		**63**	<5.9								
MTCA Method A Cleanup Level[4]				2000		100/30[5]	0.03	7	6	9	20	NA	2	2000/19[6]	250	2	NA	NA	5	0.100	1		
MTCA Method B Cleanup Level[7]				2954 - 4035 (220 for kerosene)		3504	18	6,400	800	160,000	24	16,000	80	120,000	NA	24	400	400			0.5		
Background[8]				NA		NA	NA	NA	NA	NA	7	255	1	48	24	0.07	0.78	0.61	NA	NA	NA		

Notes:
< - Not detected at laboratory's reporting limit
Blank - Sample was not analyzed for this constituent
NA - Not applicable
Bold - Analyte Detected
Bold/Highlighted - Analyte detected above MTCA Method A soil cleanup level
- Sample in area that was subsequently excavated
1 - Confirmation that soil remaining in place meets MTCA cleanup levels or was left in place at the limits of excavation adjacent to SR 522
2 - Sum of Napthalene + 1-Methylnaphthalene + 2-Methylnaphthalene
3 - Toxic Equivalent Concentration of carcinogenic polynuclear aromatic hydrocarbons (cPAHs) per WAC 173-340-708(e)
4 - Washington Model Toxics Control Act Method A (Table 740-1) soil cleanup levels for unrestricted land use
5 - The MTCA Method A soil cleanup level is 100 mg/kg for gasoline mixtures without benzene and if the total of ethylbenzene, toluene, plus xylenes is less than 1% of the gasoline mixture. The soil cleanup level for all other gasoline mixtures is 30 mg/kg
6 - The MTCA Method A soil cleanup level for trivalent chromium is 2,000 mg/kg. Geochemical conditions on site would not cause oxidation to hexavalent chromium having a cleanup level
7 - Method B TPH cleanup levels are site specific values calculated using MTCATPH1.1. Method B cleanup levels for metals are from Ecology's CLARC (Cleanup Level & Risk Calculations) database for non-carcinogens
8 - Background metals concentrations per *Natural Background Soil Metals Concentrations in Washington State* (Ecology, 1994) for the Puget Sound area



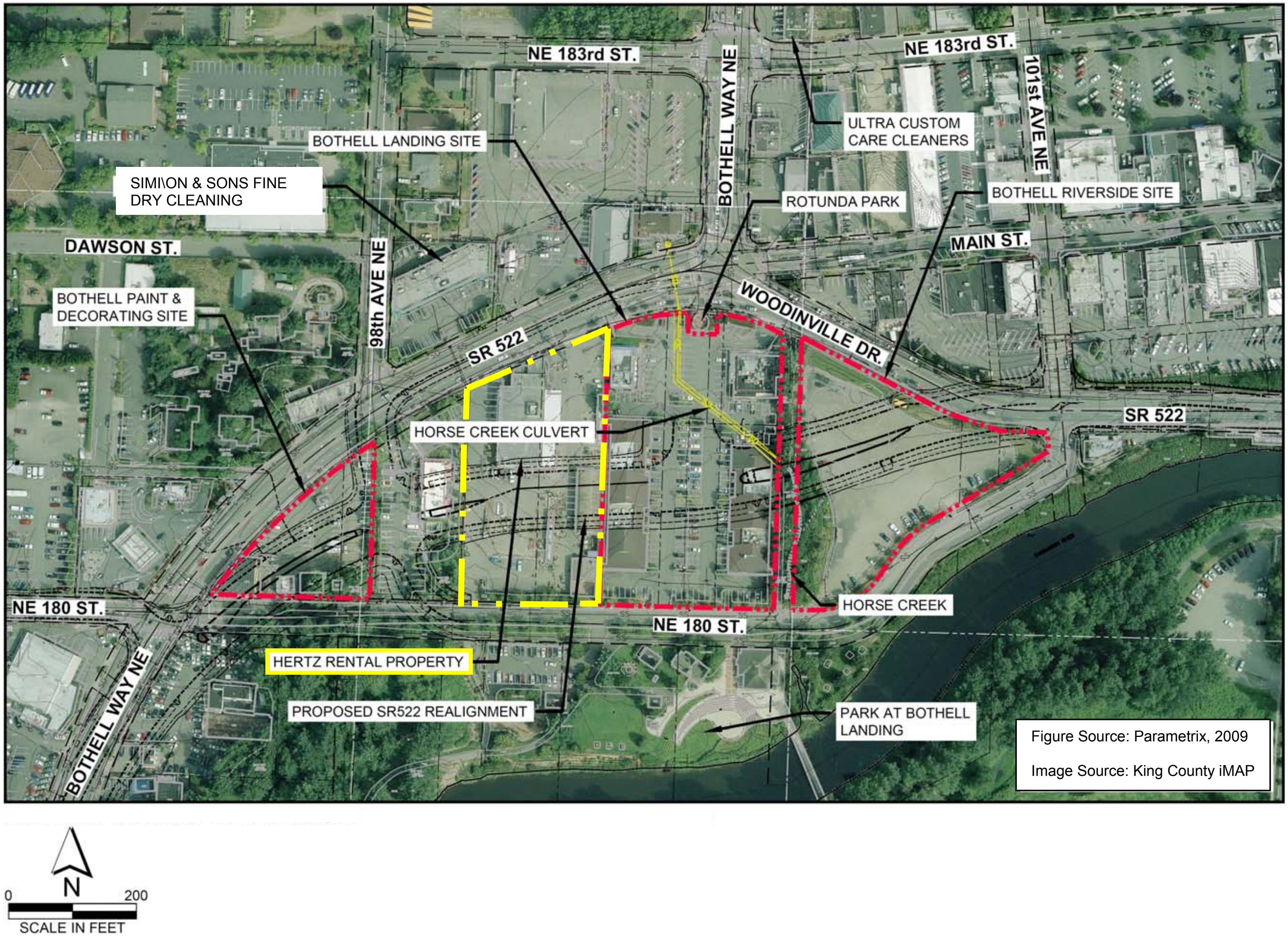
HWA GEOSCIENCES INC.

SITE VICINITY

BOTHELL FORMER HERTZ FACILITY
SOIL CLEANUP
BOTHELL, WASHINGTON

FIGURE NO.
1

PROJECT NO.
2007-098-921



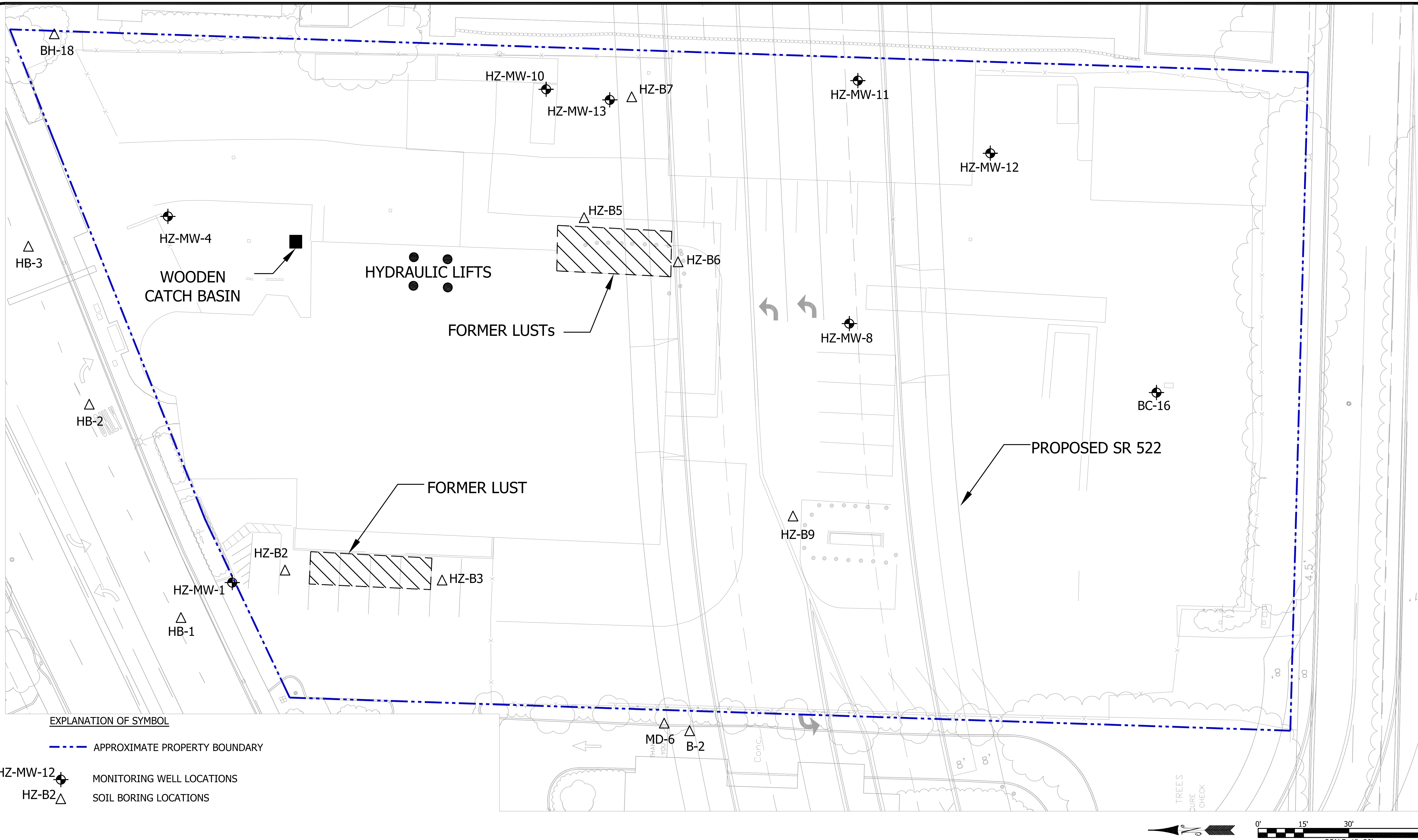
HWA GEOSCIENCES INC.

SITE LOCATION & ADJACENT PROPERTIES

BOTHELL FORMER HERTZ FACILITY
SOIL CLEANUP
BOTHELL, WASHINGTON

FIGURE NO.
2

PROJECT NO.
2007-098-921

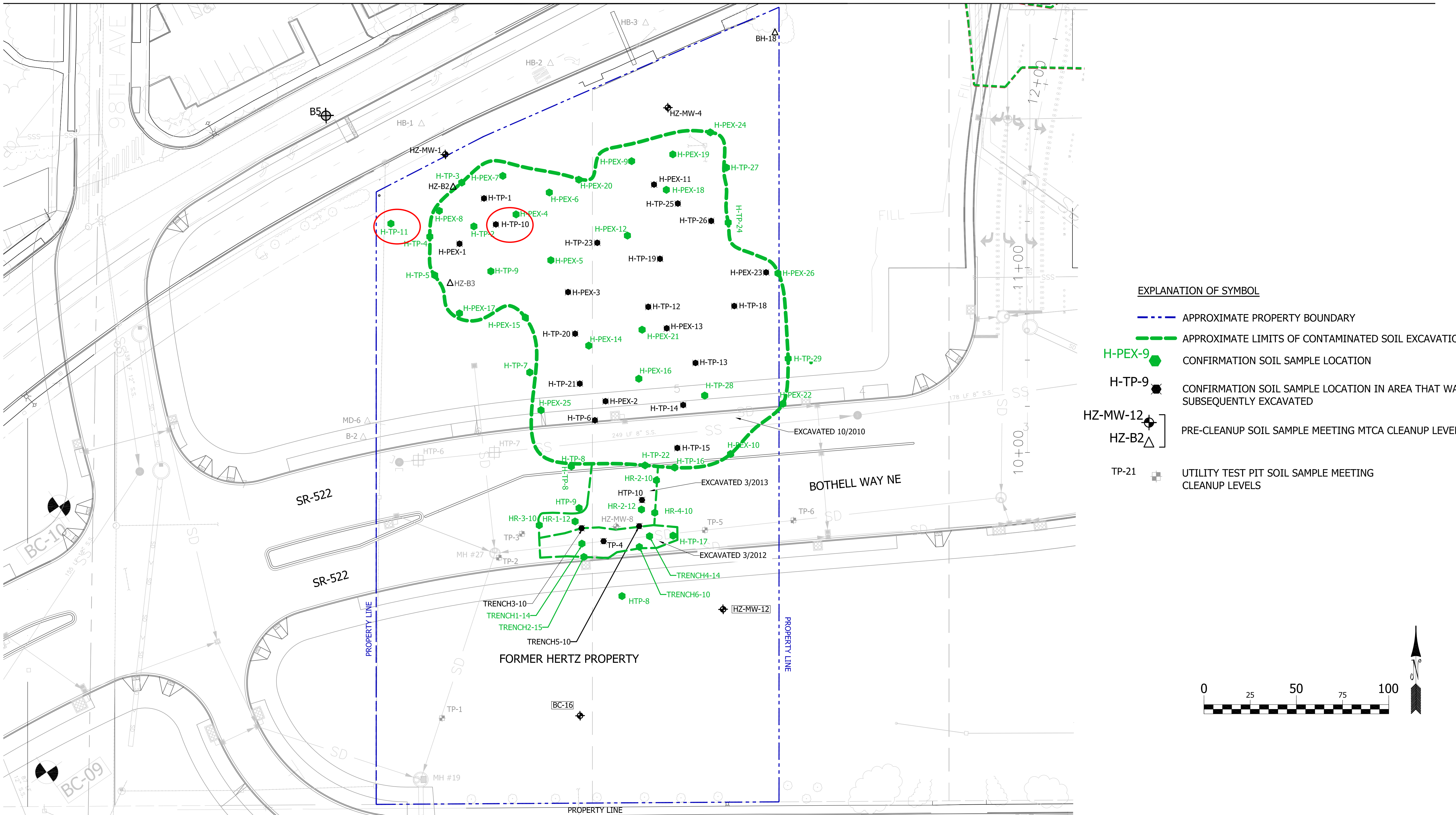


BASE MAP PROVIDED BY PARAMETRIX

HWA GEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY SOIL CLEANUP BOTHELL, WASHINGTON	SITE PLAN PRIOR TO CLEANUP	DRAWN BY EFK CHECK BY NN DATE 12.22.10	FIGURE NO. 3 PROJECT NO. 2007-098 T921

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T210.DWG <HERTZ PRIOR FIG 3> Plotted: 1/21/2011 10:30 AM



HWA GEOSCIENCES INC.

BOTHELL FORMER HERTZ FACILITY
SOIL CLEANUP
BOTHELL, WASHINGTON

EXTENT OF 2012-2013 SOIL CLEANUP

DRAWN BY	EFK
CHECK BY	AS
DATE:	04.08.14
FIGURE #	4
PROJECT #	2007-098-21 TASK T994

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD\HWA 2007-098-21 T994B.DWG <T969 fig 4> Plotted: 4/8/2014 12:10 PM

APPENDIX A

DETERMINATION OF RISK-BASED CLEANUP LEVELS FOR THE SITE

HWA GEOSCIENCES INC.
Geotechnical & Pavement Engineering • Hydrogeology • Geoenvironmental • Planning & Permitting • Inspection & Testing

November 4, 2010
HWA Project No. 2007 098-921

City of Bothell
9654 NE 182nd St.
Bothell, Washington 98021

Attention: Nduta Mbuthia, Project Engineer, Public Works Capital Projects

Subject: **CLEANUP LEVEL DETERMINATION**
Former Hertz Rentals Property
Interim Action Cleanup
Bothell, Washington

Dear Ms. Mbuthia:

This letter describes HWA GeoSciences Inc. (HWA's) determination of risk-based soil cleanup levels at the former Hertz Rentals property, per the Interim Action Work Plan dated May 7, 2010.

1.0 Introduction

The City of Bothell conducted an interim action cleanup at the former Hertz Rentals property (Hertz site) in August and September 2010, consisting of excavation and off site treatment/disposal of metals and petroleum contaminated soils.

In order to establish soil cleanup levels, selected soil samples were collected and analyzed for petroleum hydrocarbon fractionation (VPH/EPH) and other target compounds (BTEX, cPAHs, EDB, EDC, MTBE). The results of the VPH/EPH analyses were then input into Ecology's MTCATPH11.1 spreadsheet model to determine TPH cleanup levels that are protective of direct contact and ground water, per the Ecology approved Interim Action Work Plan. Information regarding the use of petroleum hydrocarbon fractionation data and Ecology's MTCAPH11.1 model to calculate the risk at a petroleum contaminated site is presented in *Workbook Tools for Calculating Soil and Ground Water Cleanup Levels under the Model Toxics Control Act Cleanup Regulation User's Guide* (Ecology Publication No. 01-09-073).

2.0 Method B Soil Cleanup Levels

MTCA Method B cleanup levels are the universal cleanup levels that typically employ a risk-based approach as outlined in WAC 173-340-708. Cleanup levels for a particular

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site are determined after evaluating appropriate exposure pathway endpoints (e.g., direct contact, drinking water, nonpotable ground water, surface water, soil, wildlife, etc.) based on site use, contaminant distribution, etc. The actual clean up *standard* is then based on the calculated cleanup levels, measured at the point of compliance.

HWA evaluated Hertz site soils with respect to Method B cleanup levels for TPH. Under MTCA, once the source of contamination is removed, risk-based Method B (residential exposure scenario) TPH cleanup levels can be established. Method B cleanup levels must be protective for all exposure pathways, including direct contact with soil, leaching to ground water, and volatilization to air. Per the work plan, exposure pathways evaluated include:

- Direct human contact
- Protection of ground water

The vapor/odor pathway was not evaluated at this site, per the Interim Action Work Plan due to the absence of buildings over affected areas. The ground water to surface water pathway was also not evaluated, as the site remedial investigation indicated contaminated ground water was not migrating off site towards the Sammamish River.

Soil and ground water pathways (listed above) are discussed in the following sections.

Calculation of Method B cleanup levels is based on petroleum hydrocarbon fractionation analytical methods, collectively referred to as method E-TPH, that include Ecology methods VPH/EPH for volatile and extractable petroleum hydrocarbon fractions, BTEX, gasoline additives (MTBE, EDB, and EDC), and polynuclear aromatic hydrocarbons (PAHs).

Compounds composed of carbon and hydrogen are divided into two classes: aromatic compounds, which contain benzene rings or similar rings of atoms, and aliphatic compounds, which do not contain aromatic rings. The VPH/EPH method uses a fractionation approach to evaluate complex petroleum mixtures typically found in petroleum fuels and lubricants. The VPH/EPH approach divides petroleum into 12 compound groups (7 aliphatic and 5 aromatic) based on equivalent carbon (EC) number, which relates to the boiling point of a hydrocarbon compound. Hydrocarbons in the same EC group are assumed to have similar chemical, physical, and toxicological properties for the purposes of establishing cleanup levels. Each compound group is treated as if it was an individual chemical. Risks posed by site soils are calculated for each compound group and then summed across compound groups. Predicted ground water concentrations caused by leaching from the current soil concentrations are also estimated for each compound group and then summed across compound groups to produce a total ground water concentration.

2.1 Direct Contact Pathway

In the MTCA Method B risk analysis, the human health risk level for individual carcinogens may not exceed one-in-a-million ($1x10^{-6}$). If more than one type of hazardous substance is present, the total excess carcinogenic risk level at the site may not exceed 1 in 100,000 ($1x10^{-5}$). Cleanup levels protective of direct contact with soil for individual noncarcinogenic compounds are calculated in terms of hazard quotient (HQ), and for two or more compounds having similar toxic response by a hazard index (HI) that is the sum of individual hazard quotients. A HQ or HI less than 1.0 indicates an acceptable noncarcinogenic risk under MTCA Method B. Adverse effects resulting from exposure to two or more hazardous or carcinogenic compounds are assumed to be additive.

HWA used Ecology's MTCATPH11.1 electronic spreadsheet model (available at http://www.ecy.wa.gov/programs/tcp/tools/toolmain.html) to calculate the Method B cleanup levels protective of direct contact with soil. Table 1 summarizes the calculated Method B cleanup levels protective of the direct contact pathway; Appendix A contains the MTCATPH11.1 spreadsheet summary printouts. Per Ecology guidance (Publication No. 01-09-073 cited above), concentrations of TPH compounds not detected at the laboratory's practical quantitation limit (PQL) were entered into MTCATPH11.1 as the laboratory's method detection limit (MDL) – a value typically 5 or more times less than the practical quantitation limit.

2.2 Protection of Ground Water

Protection of ground water was evaluated for two pathways:

- Leaching from soil to ground water
- Residual soil saturation (the TPH concentration in soil at which a non aqueous phase liquid (NAPL) will form)

2.2.1 Leaching from soil to ground water

Soil cleanup levels protective of ground water may be calculated by several methods:

- Partitioning models
- Leaching tests
- Alternative fate & transport models
- Empirical demonstration

The Method B analyses used to calculate risk-based soil cleanup levels at the Hertz site included evaluation of the soil-to-ground water pathway using Ecology's partitioning models (WAC 173-340-747) for two scenarios: potable ground water and the default MTCA Method A ground water cleanup level as the protective concentrations. Table 1

summarizes the calculated Method B soil cleanup levels protective of dircet contact and ground water; Appendix A contains the MTCATPH11.1 spreadsheet summary printouts.

Table 1
Summary of Method B Soil TPH Risk Calculations
Former Hertz Rentals Property

Release area	Former USTs	Former UST		Wooden storm drain catch basin
TPH Type	Gasoline and diesel	Kerosene		Diesel and lube oil range hydrocarbons
Sample	H-PEX-1-6	H-PEX-2-6	H-PEX-3-4	H-PEX-11-6
Calculated Method B TPH cleanup level for direct skin contact (mg/Kg)	3,504	4,035	2,505	2,954
Most stringent soil risk criterion for direct skin contact	Hazard Index	Hazard Index	cPAHs mixture	Hazard Index
Method B soil TPH concentration protective of ground water (mg/Kg)	13,263	220	100% NAPL[1]	100% NAPL
Most stringent soil risk criterion for protection of ground water	Total risk = 1E-5	Hazard Index Risk 1E-6	Hazard Index Total risk 1E-5 cPAHs mixture	Hazard Index Total risk 1E-5 cPAHs mixture
Method A soil cleanup levels (mg/Kg)	30[2] (G) 2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)	2000 (D) 2000 (O) 0.03 (Benzene) 7 (Toluene) 6 (Ethylbenzene) 9 (Xylenes)		
Maximum value detected on site after cleanup[3]	30 (G) 820 (D) 980 (O) <0.31 (Benzene) <0.32 (Toluene) 0.27 (Ethylbenzene) 1.39 (Xylenes)			
Cleanup levels met?	Method A Yes Method B Yes TCs Yes[4]	Method A Yes Method B Yes TCs Yes	Method A Yes Method B Yes TCs Yes	Method A Yes Method B Yes TCs Yes

Notes:
1 - 100% NAPL means soil containing free product would not produce a TPH concentration ≥800 µg/L in ground water
2 - Cleanup level for gasoline mixtures with benzene
3 – Compliance Monitoring Plan did not specify analyses for PAHs, as these were not a contaminant of potential concern at the site
4 - TCs: Cleanup levels for all target compounds (PAHs, EDB, EDC, MTBE, benzene, naphthalenes) were met as indicated by laboratory analysis for the individual compounds

2.2.2. Residual soil saturation

Evaluation of residual saturation concentrations is also required. Residual saturation refers to the soil concentration at which a nonaqueous phase liquid (a.k.a., NAPL or "free product") may form on or in soil or ground water. Residual saturation may be evaluated under MTCA using default screening values or an empirical demonstration. Criteria for an empirical demonstration include:

- NAPL has not formed in soil or ground water at the site
- NAPL will not form in the future, i.e., sufficient time has elapsed for migration of hazardous substances from soil into ground water to occur and that the characteristics of the site (e.g., depth to ground water and infiltration) are representative of future site conditions.

Both of these criteria are met at the site, as no NAPL has been observed in soil or ground water, and the impacted soils have likely been in place for at least 10 years prior to removal from the site.

3.0 Discussion

It is possible to extrapolate the results of the risk calculation to estimate a Method B soil "cleanup level" for total TPH concentrations at the site based on the most stringent pathway. This requires the assumption that the hydrocarbon fractions in the soil sample represents the distribution of hydrocarbon fractions in all residual petroleum hydrocarbons at the site. In general, this assumption is valid for sites where the residual hydrocarbons derive from a single source, or single type of fuel, which appears to be the case at each of the three source areas at this site, based on analytical results. Using this assumption, HWA extrapolated the risk results to indicate an appropriate Method B soil cleanup level for each of the three known release areas at the site, as summarized in Table 1.

HWA evaluated the potential risk to human health and the environment based on TPH concentrations in soil. Based on the Method B evaluation, site confirmation soil samples met the Method B, residential exposure scenario TPH cleanup levels for direct contact (i.e., HI less than 1, individual compound carcinogen risk less than 1E-6, and total carcinogen risk less than 1E-5), and protection of ground water (leaching as predicted by partitioning models and empirical demonstration of residual saturation).

4.0 Summary

Confirmation soil samples met all applicable cleanup levels, including:

- Method A soil cleanup levels for TPH and all individual target compounds
- Method B soil cleanup levels for all individual target compounds
- Method B TPH soil cleanup levels protective of 1) direct contact, and 2) protection of ground water, calculated per Ecology's MTCATPH11.1.1 spreadsheet model based on the most stringent pathways

Residual soil at the site has been remediated to MTCA Method A or B cleanup levels, and therefore poses no risk to direct-contact exposure under a residential scenario, or to ground water by leaching.

We appreciate the opportunity to provide our services on this project. Please feel free to call us if you have any questions or need more information.

Sincerely,
HWA GEOSCIENCES INC.

State of Washington Hydrogeologist 170 Licensed Geologist
11-4-10
Arnon Sugar

State of Washington Geologist Hydrogeologist 327 Licensed Geologist
11/4/10
NORMAN C. NIELSEN

Arnie Sugar, LG, LHG
President

Norm Nielsen, LG, LHG, PMP
Senior Hydrogeologist

APPENDIX A

MTCATPH11.1 METHOD B SPREADSHEET PRINTOUTS

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-1-6

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.51%
AL_EC >6-8	5	0.51%
AL_EC >8-10	40	4.11%
AL_EC >10-12	110	11.30%
AL_EC >12-16	140	14.38%
AL_EC >16-21	100	10.27%
AL_EC >21-34	300	30.82%
AR_EC >8-10	47	4.83%
AR_EC >10-12	40	4.11%
AR_EC >12-16	33	3.39%
AR_EC >16-21	52.9984	5.45%
AR_EC >21-34	99.9993	10.27%
Benzene	0.0013	0.00%
Toluene	0	0.00%
Ethylbenzene	0.015	0.00%
Total Xylenes	0.015	0.00%
Naphthalene	0.064	0.01%
1-Methyl Naphthalene	0.049	0.01%
2-Methyl Naphthalene	0.068	0.01%
n-Hexane	0.0603	0.01%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.000338	0.00%
Benzo(b)fluoranthene	0.00039	0.00%
Benzo(k)fluoranthene	0.000308	0.00%
Benzo(a)pyrene	0.000261	0.00%
Chrysene	0.0003	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.000373	0.00%
Sum	973.2726864	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here:	800	ug/L

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-1-6
Measured Soil TPH Concentration, mg/kg: **973.273**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	3,504	6.76E-09	2.78E-01	Pass
	Method C	49,041	1.48E-09	1.98E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	13,263	5.26E-06	8.26E-01	Pass
	Target TPH GW Conc. @ 800 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**3,504.28**	**49,041.15**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	3.50E+03	2.43E-08	1.00E+00	YES	4.90E+04	7.44E-08	1.00E+00
Total Risk=1E-5	*NO*	1.44E+06	1.00E-05	4.11E+02	*NO*	6.59E+06	1.00E-05	1.34E+02
Risk of Benzene= 1E-6	*NO*	1.36E+07	9.44E-05	3.88E+03	NA			
Risk of cPAHs mixture= 1E-6	*NO*	2.30E+05	1.60E-06	6.56E+01				
EDB	*NO*	3.98E+05	2.76E-06	1.13E+02				
EDC	*NO*	2.31E+08	1.60E-03	6.59E+04				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**Total Risk = 1E-5**
Protective Ground Water Concentration, ug/L	**406.26**
Protective Soil Concentration, mg/kg	**13262.86**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL
Total Risk = 1E-5	YES	4.06E+02	1.00E-05	9.17E-01	1.33E+04
Total Risk = 1E-6	YES	1.68E+02	1.00E-06	4.36E-01	1.05E+02
Risk of cPAHs mixture= 1E-5	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL
Benzene MCL = 5 ug/L	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL
MTBE = 20 ug/L	*NO*	4.10E+02	1.06E-05	9.24E-01	100% NAPL

Note: 100% NAPL is 72000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	4.10E+02	1.06E-05	9.24E-01	**100% NAPL**

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-2-6

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.62%
AL_EC >6-8	5	0.62%
AL_EC >8-10	48	5.96%
AL_EC >10-12	180	22.36%
AL_EC >12-16	7	0.87%
AL_EC >16-21	80	9.94%
AL_EC >21-34	230	28.57%
AR_EC >8-10	110	13.66%
AR_EC >10-12	40	4.97%
AR_EC >12-16	11	1.37%
AR_EC >16-21	23.9913	2.98%
AR_EC >21-34	64.9993	8.07%
Benzene	0.0000159	0.00%
Toluene	0.000011	0.00%
Ethylbenzene	0.0000096	0.00%
Total Xylenes	0.000021	0.00%
Naphthalene	0.032	0.00%
1-Methyl Naphthalene	0.0088	0.00%
2-Methyl Naphthalene	0.013	0.00%
n-Hexane	0.0603	0.01%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.000338	0.00%
Benzo(b)fluoranthene	0.00039	0.00%
Benzo(k)fluoranthene	0.000308	0.00%
Benzo(a)pyrene	0.000261	0.00%
Chrysene	0.0074	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.000373	0.00%
Sum	805.1142439	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here:	800	ug/L

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-2-6
Measured Soil TPH Concentration, mg/kg: **805.114**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	4,035	7.37E-09	2.00E-01	Pass
	Method C	67,575	1.64E-09	1.19E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	220	5.35E-06	1.32E+00	Fail
	Target TPH GW Conc. @ 800 ug/L	2,618	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**4,034.80**	**67,574.75**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	4.03E+03	3.69E-08	1.00E+00	YES	6.76E+04	1.37E-07	1.00E+00
Total Risk=1E-5	*NO*	1.09E+06	1.00E-05	2.71E+02	*NO*	4.92E+06	1.00E-05	7.28E+01
Risk of Benzene= 1E-6	*NO*	9.20E+08	8.42E-03	2.28E+05	NA			
Risk of cPAHs mixture= 1E-6	*NO*	1.64E+05	1.50E-06	4.06E+01				
EDB	*NO*	3.29E+05	3.01E-06	8.15E+01				
EDC	*NO*	1.91E+08	1.75E-03	4.73E+04				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**HI=1**
Protective Ground Water Concentration, ug/L	**518.04**
Protective Soil Concentration, mg/kg	**220.29**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	5.18E+02	2.22E-06	1.00E+00	2.20E+02
Total Risk = 1E-5	*NO*	8.24E+02	1.00E-05	1.46E+00	7.32E+03
Total Risk = 1E-6	YES	3.17E+02	1.00E-06	6.48E-01	8.85E+01
Risk of cPAHs mixture= 1E-5	*NO*	8.36E+02	1.11E-05	1.48E+00	100% NAPL
Benzene MCL = 5 ug/L	*NO*	8.36E+02	1.11E-05	1.48E+00	100% NAPL
MTBE = 20 ug/L	*NO*	8.36E+02	1.11E-05	1.48E+00	100% NAPL

Note: 100% NAPL is 71000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	8.00E+02	8.39E-06	1.43E+00	**2.62E+03**

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10

Site Name: Bothell Crossroads, Hertz Site

Sample Name: H-PEX-3-4

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.24%
AL_EC >6-8	5	0.24%
AL_EC >8-10	84	4.09%
AL_EC >10-12	66	3.21%
AL_EC >12-16	45	2.19%
AL_EC >16-21	120	5.84%
AL_EC >21-34	1400	68.09%
AR_EC >8-10	5	0.24%
AR_EC >10-12	7	0.34%
AR_EC >12-16	18	0.88%
AR_EC >16-21	47.8039	2.33%
AR_EC >21-34	249.9914	12.16%
Benzene	0.0000159	0.00%
Toluene	0.000011	0.00%
Ethylbenzene	0.0000096	0.00%
Total Xylenes	0.0015	0.00%
Naphthalene	0.093	0.00%
1-Methyl Naphthalene	1.2	0.06%
2-Methyl Naphthalene	1.6	0.08%
n-Hexane	0.0603	0.00%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.035	0.00%
Benzo(b)fluoranthene	0.012	0.00%
Benzo(k)fluoranthene	0.0091	0.00%
Benzo(a)pyrene	0.078	0.00%
Chrysene	0.062	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.0083	0.00%
Sum	2055.954923	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: 800 ug/L

Notes for Data Entry | Set Default Hydrogeology

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared previously

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-3-4
Measured Soil TPH Concentration, mg/kg: **2,055.955**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc RISK @	With Measured Soil Conc HI @	Does Measured Soil Conc Pass or Fail?
Protection of Soil Direct Contact: Human Health	Method B	2,505	8.23E-07	2.67E-01	Pass
	Method C	100,673	2.04E-07	1.97E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	100% NAPL	4.03E-06	1.60E-01	Pass
	Target TPH GW Conc. @ 800 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).
Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**2,504.80**	**100,673.17**
Most Stringent Criterion	**Risk of cPAHs mixture= 1E-6**	**Total Risk=1E-5**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	*NO*	7.70E+03	3.08E-06	1.00E+00	*NO*	1.05E+05	1.04E-05	1.00E+00
Total Risk=1E-5	*NO*	2.50E+04	1.00E-05	3.24E+00	YES	1.01E+05	1.00E-05	9.63E-01
Risk of Benzene= 1E-6	*NO*	2.35E+09	9.40E-01	3.05E+05	NA			
Risk of cPAHs mixture= 1E-6	YES	2.50E+03	1.00E-06	3.25E-01				
EDB	*NO*	8.40E+05	3.36E-04	1.09E+02				
EDC	*NO*	4.88E+08	1.95E-01	6.33E+04				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**NA**
Protective Ground Water Concentration, ug/L	**NA**
Protective Soil Concentration, mg/kg	**Soil-to-Ground Water is not a critical pathway!**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
Total Risk = 1E-5	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
Total Risk = 1E-6	YES	3.14E+01	1.00E-06	1.08E-01	2.46E+02
Risk of cPAHs mixture= 1E-5	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
Benzene MCL = 5 ug/L	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL
MTBE = 20 ug/L	YES	5.95E+01	6.73E-06	1.72E-01	100% NAPL

Note: 100% NAPL is 72000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	5.95E+01	6.73E-06	1.72E-01	**100% NAPL**

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/19/10
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-11-6

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	5	0.08%
AL_EC >6-8	9.3	0.15%
AL_EC >8-10	17	0.28%
AL_EC >10-12	290	4.81%
AL_EC >12-16	1100	18.24%
AL_EC >16-21	870	14.42%
AL_EC >21-34	1200	19.89%
AR_EC >8-10	65.3700	1.08%
AR_EC >10-12	61	1.01%
AR_EC >12-16	780	12.93%
AR_EC >16-21	799.6112	13.26%
AR_EC >21-34	809.9797	13.43%
Benzene	0.0000159	0.00%
Toluene	0.000011	0.00%
Ethylbenzene	0.25	0.00%
Total Xylenes	0.38	0.01%
Naphthalene	1.4	0.02%
1-Methyl Naphthalene	8.4	0.14%
2-Methyl Naphthalene	14	0.23%
n-Hexane	0.0603	0.00%
MTBE	0.000017	0.00%
Ethylene Dibromide (EDB)	0.0000266	0.00%
1,2 Dichloroethane (EDC)	0.0000428	0.00%
Benzo(a)anthracene	0.073	0.00%
Benzo(b)fluoranthene	0.055	0.00%
Benzo(k)fluoranthene	0.0078	0.00%
Benzo(a)pyrene	0.043	0.00%
Chrysene	0.21	0.00%
Dibenz(a,h)anthracene	0.000342	0.00%
Indeno(1,2,3-cd)pyrene	0.02	0.00%
Sum	6032.160455	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here:	800	ug/L

REMARK:
Hertz site pot hole sample
MTCA Method A cleanup level = 800 mg/Kg because benzene was detected in ground water in onsite monitoring wells

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/19/2010
Site Name: Bothell Crossroads, Hertz Site
Sample Name: H-PEX-11-6
Measured Soil TPH Concentration, mg/kg: **6,032.160**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	2,954	5.88E-07	2.04E+00	Fail
	Method C	37,194	1.46E-07	1.62E-01	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	100% NAPL	1.45E-06	4.30E-01	Pass
	Target TPH GW Conc. @ 800 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**2,953.52**	**37,194.47**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	2.95E+03	2.88E-07	9.99E-01	YES	3.72E+04	8.99E-07	9.99E-01
Total Risk=1E-5	*NO*	1.03E+05	1.00E-05	3.47E+01	*NO*	4.14E+05	1.00E-05	1.11E+01
Risk of Benzene= 1E-6	*NO*	6.89E+09	6.72E-01	2.33E+06	NA			
Risk of cPAHs mixture= 1E-6	*NO*	1.03E+04	1.00E-06	3.48E+00				
EDB	*NO*	2.46E+06	2.40E-04	8.34E+02				
EDC	*NO*	1.43E+09	1.39E-01	4.84E+05				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**NA**
Protective Ground Water Concentration, ug/L	**NA**
Protective Soil Concentration, mg/kg	**Soil-to-Ground Water is not a critical pathway!**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
Total Risk = 1E-5	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
Total Risk = 1E-6	YES	1.47E+02	1.00E-06	4.10E-01	1.49E+03
Risk of cPAHs mixture= 1E-5	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
Benzene MCL = 5 ug/L	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL
MTBE = 20 ug/L	YES	1.57E+02	1.67E-06	4.36E-01	100% NAPL

Note: 100% NAPL is 77000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 800 ug/L	1.57E+02	1.67E-06	4.36E-01	**100% NAPL**

APPENDIX B

LABORATORY CERTIFICATES OF ANALYSIS

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

September 3, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1008-237

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on August 31, 2010.

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: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

Case Narrative

Samples were collected on August 30, 2010 and received by the laboratory on August 31, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH-G/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The MTCA Method A clean-up level for Benzene in sample H-TP-1-8 is non-achievable due to the necessary dilution of the sample.

The chromatograms for samples H-TP-6-3 and H-TP-6-6 are similar to mineral spirits.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-1-3**					
Laboratory ID:	08-237-01					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	58	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*94*	*50-150*				
Client ID:	**H-TP-1-8**					
Laboratory ID:	08-237-02					
Diesel Fuel #1	**25000**	300	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	610	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	---	*50-150*				S
Client ID:	**H-TP-2-10**					
Laboratory ID:	08-237-04					
Diesel Range Organics	**ND**	33	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	66	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*115*	*50-150*				
Client ID:	**H-TP-2-4**					
Laboratory ID:	08-237-05					
Diesel Range Organics	**ND**	27	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	55	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				
Client ID:	**H-TP-3-3**					
Laboratory ID:	08-237-06					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil	**140**	59	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				
Client ID:	**H-TP-3-8**					
Laboratory ID:	08-237-07					
Diesel Range Organics	**ND**	32	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	64	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-4-3**					
Laboratory ID:	08-237-08					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	58	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				
Client ID:	**H-TP-4-7**					
Laboratory ID:	08-237-09					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*95*	*50-150*				
Client ID:	**H-TP-5-4**					
Laboratory ID:	08-237-10					
Diesel Range Organics	**ND**	27	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	54	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				
Client ID:	**H-TP-5-7**					
Laboratory ID:	08-237-11					
Diesel Range Organics	**ND**	32	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	63	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*94*	*50-150*				
Client ID:	**H-TP-6-3**					
Laboratory ID:	08-237-12					
Diesel Range Organics	**2700**	140	NWTPH-Dx	9-1-10	9-2-10	N
Lube Oil	**11000**	280	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*121*	*50-150*				
Client ID:	**H-TP-6-6**					
Laboratory ID:	08-237-13					
Diesel Range Organics	**1600**	140	NWTPH-Dx	9-1-10	9-2-10	N
Lube Oil	**7500**	290	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*113*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-6-7**					
Laboratory ID:	08-237-14					
Diesel Range Organics	**70**	33	NWTPH-Dx	9-1-10	9-2-10	N
Lube Oil	**420**	65	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				
Client ID:	**H-TP-7-5**					
Laboratory ID:	08-237-15					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				
Client ID:	**H-TP-7-7**					
Laboratory ID:	08-237-16					
Diesel Range Organics	**ND**	32	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil	**110**	63	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				
Client ID:	**H-TP-8-5**					
Laboratory ID:	08-237-17					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil	**120**	56	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**H-TP-8-7**					
Laboratory ID:	08-237-18					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0901S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*125*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	08-237-05							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*109*	*101*	*50-150*			
Laboratory ID:	08-237-10							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*104*	*98*	*50-150*			

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-1-3**					
Laboratory ID:	08-237-01					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.5	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				
Client ID:	**H-TP-1-8**					
Laboratory ID:	08-237-02					
Benzene	**ND**	0.14	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.71	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**2.1**	0.71	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**6.4**	0.71	EPA 8021	9-1-10	9-1-10	
o-Xylene	**3.0**	0.71	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	71	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-2-10**					
Laboratory ID:	08-237-04					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-2-10	
Toluene	**ND**	0.073	EPA 8021	9-1-10	9-2-10	
Ethyl Benzene	**ND**	0.073	EPA 8021	9-1-10	9-2-10	
m,p-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-2-10	
o-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-2-10	
Gasoline	**ND**	7.3	NWTPH-Gx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-2-4**					
Laboratory ID:	08-237-05					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.055	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.055	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.055	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.055	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.5	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				
Client ID:	**H-TP-3-3**					
Laboratory ID:	08-237-06					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	7.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				
Client ID:	**H-TP-3-8**					
Laboratory ID:	08-237-07					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	7.4	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-4-3**					
Laboratory ID:	08-237-08					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.046	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.046	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.046	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.046	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	4.6	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*109*	*55-127*				
Client ID:	**H-TP-4-7**					
Laboratory ID:	08-237-09					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.5	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*55-127*				
Client ID:	**H-TP-5-4**					
Laboratory ID:	08-237-10					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.063	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.063	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.063	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.063	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.3	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-5-7**					
Laboratory ID:	08-237-11					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.4	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				
Client ID:	**H-TP-6-3**					
Laboratory ID:	08-237-12					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.054	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**0.055**	0.054	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**0.23**	0.054	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.27	EPA 8021	9-1-10	9-1-10	U1
Gasoline	**150**	5.4	NWTPH-Gx	9-1-10	9-1-10	Z,O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-TP-6-6**					
Laboratory ID:	08-237-13					
Benzene	**ND**	0.023	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.12	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.12	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**0.26**	0.12	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.60	EPA 8021	9-1-10	9-1-10	U1
Gasoline	**200**	12	NWTPH-Gx	9-1-10	9-1-10	Z,O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-6-7**					
Laboratory ID:	08-237-14					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.074	EPA 8021	9-1-10	9-1-10	
Gasoline	**10**	7.4	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*106*	*55-127*				
Client ID:	**H-TP-7-5**					
Laboratory ID:	08-237-15					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.057	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.057	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.057	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.057	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.7	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				
Client ID:	**H-TP-7-7**					
Laboratory ID:	08-237-16					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.070	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	7.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*109*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-8-5**					
Laboratory ID:	08-237-17					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.058	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.058	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.058	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.058	EPA 8021	9-1-10	9-1-10	
Gasoline	**6.2**	5.8	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-8-7**					
Laboratory ID:	08-237-18					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.060	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.060	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.060	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.060	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0901S1					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*55-127*				
Laboratory ID:	MB0901S2					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-237-17										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**5.51**	**5.30**	NA	NA		NA		NA	4	30	
Surrogate:											
Fluorobenzene						*100*	*101*	*55-127*			
Laboratory ID:	08-237-18										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*98*	*97*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0901S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.03**	**1.04**	1.00	1.00		**103**	**104**	75-113	1	9	
Toluene	**0.989**	**1.01**	1.00	1.00		**99**	**101**	75-116	2	10	
Ethyl Benzene	**0.997**	**1.02**	1.00	1.00		**100**	**102**	82-117	2	10	
m,p-Xylene	**1.01**	**1.03**	1.00	1.00		**101**	**103**	81-122	2	10	
o-Xylene	**1.01**	**1.03**	1.00	1.00		**101**	**103**	83-118	2	10	
Surrogate:											
Fluorobenzene						*98*	*98*	*55-127*			

Date of Report: September 3, 2010
Samples Submitted: August 31, 2010
Laboratory Reference: 1008-237
Project: 2007-098

% MOISTURE

Date Analyzed: 9-1-10

Client ID	Lab ID	% Moisture
H-TP-1-3	08-237-01	14
H-TP-1-8	08-237-02	17
H-TP-2-10	08-237-04	24
H-TP-2-4	08-237-05	9
H-TP-3-3	08-237-06	15
H-TP-3-8	08-237-07	22
H-TP-4-3	08-237-08	14
H-TP-4-7	08-237-09	18
H-TP-5-4	08-237-10	8
H-TP-5-7	08-237-11	21
H-TP-6-3	08-237-12	9
H-TP-6-6	08-237-13	13
H-TP-6-7	08-237-14	23
H-TP-7-5	08-237-15	11
H-TP-7-7	08-237-16	21
H-TP-8-5	08-237-17	10
H-TP-8-7	08-237-18	16

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits.

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

HWA GEOSCIENCES INC.

19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 8/30/10
PAGE: ____ of ____

08-237
48 Hr
TAT

PROJECT NAME: Bothell #: 2007-098
SITE CODE: Hertz Rentals
SAMPLERS NAME: Atkins PHONE:
SAMPLERS SIGNATURE: [signature]
HWA CONTACT: PHONE:

ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH-G/BTEX	% MOISTURE	REMARKS
H-TP-1-3	8/30/10	1100	S	1	2	/	/	X	
H-TP-1-8		1115		2		/	/		
H-TP-2-6		1130		3					
H-TP-2-10		1140		4		/	/	X	
H-TP-2-4		1120		5		/	/		
H-TP-3-3		1150		6		/	/		
H-TP-3-8		1200		7		/	/		
H-TP-4-3		1215		8		/	/		
H-TP-4-7		1230		9		/	/		
H-TP-5-21		1245		10		/	/		
H-TP-5-7		1300		11		/	/		
H-TP-6-3		1330		12		/	/		
H-TP-6-6		1340		13		/	/		
H-TP-6-7		1350		14		/	/		
H-TP-7-5		1400		15		/	/		
H-TP-7-7		1410		16		/	/		
H-TP-8-5		1415		17		/	/		
H-TP-8-7		1430		18		/	/		

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:						
Received by:	Michael Daugherty	[signature]	Speedy	8-31-10	0830	
Relinquished by:	[signature]	Michael Daugherty	Speedy	8-31-10	0917	
Received by:	M. VOUN	[signature]	OSE	8/31/10	0920	

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 3, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-011

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 1, 2010.

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: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

Case Narrative

Samples were collected on September 1 2010 and received by the laboratory on September 1, 2010. They were maintained at the laboratory at a temperature of $2^{o}C$ to $6^{o}C$.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between $-7^{o}C$ and $-20^{o}C$ until extraction or analysis.

The MTCA Method A clean-up level for Benzene in sample H-TP-10-7 is non-achievable due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-01					
Client ID:	**H-TP-9-4**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**43**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.56	6010B	9-2-10	9-2-10	
Chromium	**27**	0.56	6010B	9-2-10	9-2-10	
Lead	**ND**	5.6	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-1-10	9-1-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.56	6010B	9-2-10	9-2-10	
Lab ID:	09-011-02					
Client ID:	**H-TP-9-7**					
Arsenic	**ND**	12	6010B	9-2-10	9-2-10	
Barium	**73**	3.0	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.60	6010B	9-2-10	9-2-10	
Chromium	**42**	0.60	6010B	9-2-10	9-2-10	
Lead	**7.6**	6.0	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.30	7471A	9-1-10	9-1-10	
Selenium	**ND**	12	6010B	9-2-10	9-2-10	
Silver	**ND**	0.60	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-03					
Client ID:	**H-TP-10-3**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**46**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.56	6010B	9-2-10	9-2-10	
Chromium	**31**	0.56	6010B	9-2-10	9-2-10	
Lead	**ND**	5.6	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-1-10	9-1-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.56	6010B	9-2-10	9-2-10	

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-04					
Client ID:	**H-TP-10-7**					
Arsenic	**ND**	13	6010B	9-2-10	9-2-10	
Barium	**53**	3.3	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.65	6010B	9-2-10	9-2-10	
Chromium	**28**	0.65	6010B	9-2-10	9-2-10	
Lead	**ND**	6.5	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.33	7471A	9-1-10	9-1-10	
Selenium	**ND**	13	6010B	9-2-10	9-2-10	
Silver	**ND**	0.65	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
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TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-05					
Client ID:	**H-TP-11-4**					
Arsenic	**ND**	12	6010B	9-2-10	9-2-10	
Barium	**95**	3.0	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.60	6010B	9-2-10	9-2-10	
Chromium	**29**	0.60	6010B	9-2-10	9-2-10	
Lead	**ND**	6.0	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.30	7471A	9-1-10	9-1-10	
Selenium	**ND**	12	6010B	9-2-10	9-2-10	
Silver	**ND**	0.60	6010B	9-2-10	9-2-10	

Lab ID:	09-011-06					
Client ID:	**H-TP-11-7**					
Arsenic	**ND**	13	6010B	9-2-10	9-2-10	
Barium	**56**	3.2	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.63	6010B	9-2-10	9-2-10	
Chromium	**39**	0.63	6010B	9-2-10	9-2-10	
Lead	**ND**	6.3	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.32	7471A	9-1-10	9-1-10	
Selenium	**ND**	13	6010B	9-2-10	9-2-10	
Silver	**ND**	0.63	6010B	9-2-10	9-2-10	

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Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-07					
Client ID:	**H-TP-12-3**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**70**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.57	6010B	9-2-10	9-2-10	
Chromium	**30**	0.57	6010B	9-2-10	9-2-10	
Lead	**ND**	5.7	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-1-10	9-1-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.57	6010B	9-2-10	9-2-10	
Lab ID:	09-011-08					
Client ID:	**H-TP-12-7**					
Arsenic	**ND**	12	6010B	9-2-10	9-2-10	
Barium	**40**	3.0	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.60	6010B	9-2-10	9-2-10	
Chromium	**21**	0.60	6010B	9-2-10	9-2-10	
Lead	**ND**	6.0	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.30	7471A	9-1-10	9-1-10	
Selenium	**ND**	12	6010B	9-2-10	9-2-10	
Silver	**ND**	0.60	6010B	9-2-10	9-2-10	

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TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-011-09					
Client ID:	**H-DUP-090110**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**67**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.57	6010B	9-2-10	9-2-10	
Chromium	**26**	0.57	6010B	9-2-10	9-2-10	
Lead	**ND**	5.7	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-1-10	9-1-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.57	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
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Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-1&2-10
Date Analyzed:	9-1&2-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0901S5&MB0902S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-1&2-10
Date Analyzed: 9-1&2-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-011-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**38.3**	**35.9**	6	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**23.9**	**24.4**	2	0.50	
Lead	**ND**	**ND**	NA	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-1&2-10
Date Analyzed: 9-1&2-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-011-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**88.5**	88	**91.3**	91	3	
Barium	100	**129**	91	**126**	88	3	
Cadmium	50	**44.5**	89	**44.4**	89	0	
Chromium	100	**113**	89	**112**	88	1	
Lead	250	**226**	90	**229**	92	1	
Mercury	0.50	**0.495**	99	**0.485**	97	2	
Selenium	100	**89.7**	90	**91.3**	91	2	
Silver	25	**20.7**	83	**21.6**	86	4	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-9-4**					
Laboratory ID:	09-011-01					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*125*	*50-150*				
Client ID:	**H-TP-9-7**					
Laboratory ID:	09-011-02					
Diesel Fuel #1	**92**	30	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*112*	*50-150*				
Client ID:	**H-TP-10-3**					
Laboratory ID:	09-011-03					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*113*	*50-150*				
Client ID:	**H-TP-10-7**					
Laboratory ID:	09-011-04					
Diesel Fuel #1	**1900**	33	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	65	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				
Client ID:	**H-TP-11-4**					
Laboratory ID:	09-011-05					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*116*	*50-150*				
Client ID:	**H-TP-11-7**					
Laboratory ID:	09-011-06					
Diesel Range Organics	**ND**	32	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	64	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*106*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-12-3**					
Laboratory ID:	09-011-07					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	57	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*112*	*50-150*				
Client ID:	**H-TP-12-7**					
Laboratory ID:	09-011-08					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*102*	*50-150*				
Client ID:	**H-DUP-090110**					
Laboratory ID:	09-011-09					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-1-10	9-2-10	
Lube Oil Range Organics	**ND**	57	NWTPH-Dx	9-1-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*123*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0901S2					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-1-10	9-1-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*132*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-011-03							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*113*	*110*	*50-150*			

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-9-4**					
Laboratory ID:	09-011-01					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	7.3	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				
Client ID:	**H-TP-9-7**					
Laboratory ID:	09-011-02					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.066	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.066	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.066	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.066	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.6	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*111*	*55-127*				
Client ID:	**H-TP-10-3**					
Laboratory ID:	09-011-03					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.065	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.5	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-10-7**					
Laboratory ID:	09-011-04					
Benzene	**ND**	0.033	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.16	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**1.0**	0.16	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**7.3**	0.16	EPA 8021	9-1-10	9-1-10	
o-Xylene	**0.29**	0.16	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	16	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				
Client ID:	**H-TP-11-4**					
Laboratory ID:	09-011-05					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.073	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	7.3	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*108*	*55-127*				
Client ID:	**H-TP-11-7**					
Laboratory ID:	09-011-06					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.064	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.4	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
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Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-12-3**					
Laboratory ID:	09-011-07					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.059	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.059	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.059	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.059	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.9	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*55-127*				
Client ID:	**H-TP-12-7**					
Laboratory ID:	09-011-08					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.069	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.069	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.069	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.069	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.9	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*55-127*				
Client ID:	**H-DUP-090110**					
Laboratory ID:	09-011-09					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.061	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.061	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.061	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.061	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	6.1	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0901S3					
Benzene	**ND**	0.020	EPA 8021	9-1-10	9-1-10	
Toluene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
o-Xylene	**ND**	0.050	EPA 8021	9-1-10	9-1-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-1-10	9-1-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-011-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*103*	*100*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0901S2										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.981**	**1.02**	1.00	1.00		**98**	**102**	75-113	4	9	
Toluene	**1.00**	**1.06**	1.00	1.00		**100**	**106**	75-116	6	10	
Ethyl Benzene	**1.03**	**1.07**	1.00	1.00		**103**	**107**	82-117	4	10	
m,p-Xylene	**1.02**	**1.07**	1.00	1.00		**102**	**107**	81-122	5	10	
o-Xylene	**1.03**	**1.09**	1.00	1.00		**103**	**109**	83-118	6	10	
Surrogate:											
Fluorobenzene						*96*	*97*	*55-127*			

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-011
Project: 2007-098

% MOISTURE

Date Analyzed: 9-1-10

Client ID	Lab ID	% Moisture
H-TP-9-4	09-011-01	11
H-TP-9-7	09-011-02	17
H-TP-10-3	09-011-03	11
H-TP-10-7	09-011-04	23
H-TP-11-4	09-011-05	17
H-TP-11-7	09-011-06	21
H-TP-12-3	09-011-07	12
H-TP-12-7	09-011-08	16
H-DUP-090110	09-011-09	12

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

HWA GEOSCIENCES INC.

19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

09-011

DATE: 9/1/10

PAGE: 1 of 1

PROJECT NAME: Bothell Crossroads #: 2007-098

SITE CODE:

SAMPLERS NAME: Pete Pearson PHONE:

SAMPLERS SIGNATURE:

HWA CONTACT: PHONE:

1 DAY TAT

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	RCRA-8	TPH-Dx	TPH-Gx/BTEX	% Moisture	REMARKS
H-TP-9-4	9/1/10	1230	S	1	2	X	X	X	X	
H-TP-9-7		12:35		2		X	X	X	X	
H-TP-10-3		12:50		3		X	X	X	X	
H-TP-10-7		13:04		4		X	X	X	X	
H-TP-11-4		13:15		5		X	X	X	X	
H-TP-11-7		13:25		6		X	X	X	X	
H-TP-12-3		13:40		7		X	X	X	X	
H-TP-12-7		13:48		8	5	X	X	X	X	
H-DUP-090110	9/1/10	-	S	9	2	X	X	X	X	

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson		HWA	9/1/10	14:00	
Received by:	Michael Daugherty		Speedy	9-1-10	14:00	
Relinquished by:	Michael Daugherty		Speedy	9-1-10	1410	
Received by:	Blair Goodrow		OnSite Env	9/1/10	1418	

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

OnSite
Environmental Inc.

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

September 3, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-017

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 1, 2010.

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: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

Case Narrative

Samples were collected on September 1, 2010 and received by the laboratory on September 1, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

<u>NWTPH Gx/BTEX Analysis</u>

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The chromatograms for samples H-TP-13-3, H-TP-13-8, H-TP-14-8, H-TP-15-3 and H-TP-15-8 are similar to mineral spirits.

The MTCA Method A clean-up level for Benzene in samples H-TP-13-3 and H-TP-13-8 is non-achievable due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-13-3**					
Laboratory ID:	09-017-01					
Benzene	**ND**	0.047	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.24	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**0.67**	0.24	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**1.9**	0.24	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	1.2	EPA 8021	9-2-10	9-3-10	U1
Gasoline	**750**	24	NWTPH-Gx	9-2-10	9-3-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-TP-13-8**					
Laboratory ID:	09-017-02					
Benzene	**ND**	0.10	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.52	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**1.1**	0.52	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**2.9**	0.52	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	2.6	EPA 8021	9-2-10	9-3-10	U1
Gasoline	**1700**	52	NWTPH-Gx	9-2-10	9-3-10	Z,O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				
Client ID:	**H-TP-14-3**					
Laboratory ID:	09-017-03					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*102*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-14-8**					
Laboratory ID:	09-017-04					
Benzene	**0.079**	0.022	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.11	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**0.37**	0.11	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**4.1**	1.1	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	1.1	EPA 8021	9-2-10	9-3-10	U1
Gasoline	**2100**	110	NWTPH-Gx	9-2-10	9-3-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				
Client ID:	**H-TP-15-3**					
Laboratory ID:	09-017-05					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**0.11**	0.055	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**0.38**	0.055	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	U1
Gasoline	**210**	5.5	NWTPH-Gx	9-2-10	9-2-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-15-8**					
Laboratory ID:	09-017-06					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.051	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**0.070**	0.051	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**0.18**	0.051	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.051	EPA 8021	9-2-10	9-2-10	
Gasoline	**120**	5.1	NWTPH-Gx	9-2-10	9-2-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0902S1					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-017-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*102*	*108*	*55-127*			
MATRIX SPIKES											
Laboratory ID:	08-202-03										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**1.10**	**1.11**	1.00	1.00	ND	**110**	**111**	80-120	1	10	
Toluene	**1.06**	**1.06**	1.00	1.00	ND	**106**	**106**	82-120	0	11	
Ethyl Benzene	**1.07**	**1.07**	1.00	1.00	ND	**107**	**107**	83-120	0	10	
m,p-Xylene	**1.09**	**1.08**	1.00	1.00	ND	**109**	**108**	82-120	1	10	
o-Xylene	**1.09**	**1.09**	1.00	1.00	ND	**109**	**109**	80-120	0	10	
Surrogate:											
Fluorobenzene						*102*	*100*	*55-127*			

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-13-3**					
Laboratory ID:	09-017-01					
Diesel Range Organics	**ND**	820	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**2200**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*122*	*50-150*				
Client ID:	**H-TP-13-8**					
Laboratory ID:	09-017-02					
Diesel Range Organics	**6100**	150	NWTPH-Dx	9-2-10	9-3-10	
Lube Oil	**5400**	300	NWTPH-Dx	9-2-10	9-3-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*121*	*50-150*				
Client ID:	**H-TP-14-3**					
Laboratory ID:	09-017-03					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*119*	*50-150*				
Client ID:	**H-TP-14-8**					
Laboratory ID:	09-017-04					
Diesel Range Organics	**ND**	510	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**1200**	59	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*123*	*50-150*				
Client ID:	**H-TP-15-3**					
Laboratory ID:	09-017-05					
Diesel Range Organics	**ND**	620	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**2300**	280	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*131*	*50-150*				
Client ID:	**H-TP-15-8**					
Laboratory ID:	09-017-06					
Diesel Range Organics	**ND**	110	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**280**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*116*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0902S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*125*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-017-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	U1
Lube Oil	**1920**	**1510**				24	NA	
Surrogate:								
o-Terphenyl			*122*	*117*	*50-150*			

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-017-01					
Client ID:	**H-TP-13-3**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**44**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.56	6010B	9-2-10	9-2-10	
Chromium	**31**	0.56	6010B	9-2-10	9-2-10	
Lead	**7.1**	5.6	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-3-10	9-3-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.56	6010B	9-2-10	9-2-10	
Lab ID:	09-017-02					
Client ID:	**H-TP-13-8**					
Arsenic	**ND**	12	6010B	9-2-10	9-2-10	
Barium	**58**	3.0	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.60	6010B	9-2-10	9-2-10	
Chromium	**24**	0.60	6010B	9-2-10	9-2-10	
Lead	**58**	6.0	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.30	7471A	9-3-10	9-3-10	
Selenium	**ND**	12	6010B	9-2-10	9-2-10	
Silver	**ND**	0.60	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-017-03					
Client ID:	**H-TP-14-3**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**41**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.56	6010B	9-2-10	9-2-10	
Chromium	**28**	0.56	6010B	9-2-10	9-2-10	
Lead	**ND**	5.6	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-3-10	9-3-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.56	6010B	9-2-10	9-2-10	

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-017-04					
Client ID:	**H-TP-14-8**					
Arsenic	**ND**	12	6010B	9-2-10	9-2-10	
Barium	**41**	3.0	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.59	6010B	9-2-10	9-2-10	
Chromium	**33**	0.59	6010B	9-2-10	9-2-10	
Lead	**9.5**	5.9	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.30	7471A	9-3-10	9-3-10	
Selenium	**ND**	12	6010B	9-2-10	9-2-10	
Silver	**ND**	0.59	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-017-05					
Client ID:	**H-TP-15-3**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**45**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.55	6010B	9-2-10	9-2-10	
Chromium	**31**	0.55	6010B	9-2-10	9-2-10	
Lead	**24**	5.5	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-3-10	9-3-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.55	6010B	9-2-10	9-2-10	

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-017-06					
Client ID:	**H-TP-15-8**					
Arsenic	**ND**	11	6010B	9-2-10	9-2-10	
Barium	**42**	2.8	6010B	9-2-10	9-2-10	
Cadmium	**ND**	0.56	6010B	9-2-10	9-2-10	
Chromium	**26**	0.56	6010B	9-2-10	9-2-10	
Lead	**ND**	5.6	6010B	9-2-10	9-2-10	
Mercury	**ND**	0.28	7471A	9-3-10	9-3-10	
Selenium	**ND**	11	6010B	9-2-10	9-2-10	
Silver	**ND**	0.56	6010B	9-2-10	9-2-10	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted: 9-2-10
Date Analyzed: 9-2-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0902S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL MERCURY
EPA 7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-3-10
Date Analyzed:	9-3-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0903S1

Analyte	Method	Result	PQL
Mercury	7471A	**ND**	0.25

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 9-2-10
Date Analyzed: 9-2-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-011-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**38.3**	**35.9**	6	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**23.9**	**24.4**	2	0.50	
Lead	**ND**	**ND**	NA	5.0	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL MERCURY
EPA 7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-3-10
Date Analyzed: 9-3-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-017-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL METALS
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 9-2-10
Date Analyzed: 9-2-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-011-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**88.5**	88	**91.3**	91	3	
Barium	100	**129**	91	**126**	88	3	
Cadmium	50	**44.5**	89	**44.4**	89	0	
Chromium	100	**113**	89	**112**	88	1	
Lead	250	**226**	90	**229**	92	1	
Selenium	100	**89.7**	90	**91.3**	91	2	
Silver	25	**20.7**	83	**21.6**	86	4	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

TOTAL MERCURY
EPA 7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-3-10
Date Analyzed: 9-3-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-017-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	0.50	**0.539**	108	**0.544**	109	1	

Date of Report: September 3, 2010
Samples Submitted: September 1, 2010
Laboratory Reference: 1009-017
Project: 2007-098

% MOISTURE

Date Analyzed: 9-2-10

Client ID	Lab ID	% Moisture
H-TP-13-3	09-017-01	11
H-TP-13-8	09-017-02	16
H-TP-14-3	09-017-03	10
H-TP-14-8	09-017-04	15
H-TP-15-3	09-017-05	10
H-TP-15-8	09-017-06	11

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits.

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

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

Chain of Custody

Laboratory Number: 09-017

Company: AWA

Project Number: 2007-098

Project Name: Bothell Hent.

Project Manager: Atkins

Sampled by: Atkins

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ~~☐ 1 Day~~
- ☒ 2 Day
- ☐ 3 Day
- ☐ Standard (7 working days) (TPH analysis 5 working days)
- ☐ ______ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	% Moisture
1	H-TP-13-3	9/1/10	1410	S	2		/	/								/			/
2	H-TP-13-8		1415		2		/	/								/			
3	H-TP-14-3		1430				/	/								/			
4	H-TP-14-8		1440				/	/								/			
5	H-TP-15-3		1450				/	/								/			
6	H-TP-15-8		1500				/	/								/			

	Signature	Company	Date	Time
Relinquished by		AWA	9/1/10	1540
Received by		OSE	9/1/10	1540
Relinquished by				
Received by				
Relinquished by				
Received by				

Reviewed by/Date

Reviewed by/Date

Comments/Special Instructions:

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Client Copy

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

September 3, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-023

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 2, 2010.

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: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

Case Narrative

Samples were collected on September 2, 2010 and received by the laboratory on September 2, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The chromatograms for samples H-TP-16-3, H-TP-16-7, H-TP-18-7 and H-TP-21-2 are similar to mineral spirits.

The MTCA Method A clean-up level for Benzene in sample H-TP-18-7 is non-achievable due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-16-3**					
Laboratory ID:	09-023-01					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil	**190**	59	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**H-TP-16-7**					
Laboratory ID:	09-023-02					
Diesel Range Organics	**ND**	140	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**290**	61	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**H-TP-17-3**					
Laboratory ID:	09-023-03					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil	**99**	62	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**H-TP-17-6**					
Laboratory ID:	09-023-04					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*94*	*50-150*				
Client ID:	**H-TP-18-3**					
Laboratory ID:	09-023-05					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				
Client ID:	**H-TP-18-7**					
Laboratory ID:	09-023-06					
Diesel Range Organics	**ND**	1600	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**2300**	58	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-19-4**					
Laboratory ID:	09-023-07					
Diesel Range Organics	**ND**	130	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**450**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**H-TP-19-6**					
Laboratory ID:	09-023-08					
Diesel Range Organics	**ND**	55	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**220**	57	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				
Client ID:	**H-TP-20-3**					
Laboratory ID:	09-023-09					
Diesel Range Organics	**ND**	27	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	54	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				
Client ID:	**H-TP-20-6**					
Laboratory ID:	09-023-10					
Diesel Range Organics	**ND**	1700	NWTPH-Dx	9-2-10	9-3-10	U1
Lube Oil	**5800**	300	NWTPH-Dx	9-2-10	9-3-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*119*	*50-150*				
Client ID:	**H-TP-21-2**					
Laboratory ID:	09-023-11					
Diesel Range Organics	**ND**	580	NWTPH-Dx	9-2-10	9-2-10	U1
Lube Oil	**2300**	56	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**H-TP-21-7**					
Laboratory ID:	09-023-12					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil	**110**	59	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*78*	*50-150*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0902S2					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-2-10	9-2-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-023-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil	**161**	**65.4**				84	NA	
Surrogate:								
o-Terphenyl			*97*	*81*	*50-150*			
Laboratory ID:	09-023-09							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*99*	*82*	*50-150*			

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-16-3**					
Laboratory ID:	09-023-01					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.076	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.076	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**0.15**	0.076	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.076	EPA 8021	9-2-10	9-2-10	
Gasoline	**57**	7.6	NWTPH-Gx	9-2-10	9-2-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				
Client ID:	**H-TP-16-7**					
Laboratory ID:	09-023-02					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.066	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**ND**	0.066	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**ND**	0.066	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	0.066	EPA 8021	9-2-10	9-3-10	
Gasoline	**72**	6.6	NWTPH-Gx	9-2-10	9-3-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				
Client ID:	**H-TP-17-3**					
Laboratory ID:	09-023-03					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.075	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.075	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.075	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.075	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	7.5	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-17-6**					
Laboratory ID:	09-023-04					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.073	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.073	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.073	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.073	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	7.3	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-18-3**					
Laboratory ID:	09-023-05					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.053	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.053	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.053	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.053	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.3	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-18-7**					
Laboratory ID:	09-023-06					
Benzene	**ND**	0.058	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.29	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**0.95**	0.29	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**5.7**	0.29	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	2.9	EPA 8021	9-2-10	9-3-10	U1
Gasoline	**1900**	29	NWTPH-Gx	9-2-10	9-3-10	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-19-4**					
Laboratory ID:	09-023-07					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.062	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**ND**	0.062	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**ND**	0.062	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	0.062	EPA 8021	9-2-10	9-3-10	
Gasoline	**ND**	6.2	NWTPH-Gx	9-2-10	9-3-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-TP-19-6**					
Laboratory ID:	09-023-08					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-3-10	
Toluene	**ND**	0.058	EPA 8021	9-2-10	9-3-10	
Ethyl Benzene	**ND**	0.058	EPA 8021	9-2-10	9-3-10	
m,p-Xylene	**ND**	0.058	EPA 8021	9-2-10	9-3-10	
o-Xylene	**ND**	0.058	EPA 8021	9-2-10	9-3-10	
Gasoline	**ND**	5.8	NWTPH-Gx	9-2-10	9-3-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-20-3**					
Laboratory ID:	09-023-09					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.055	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.5	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-20-6**					
Laboratory ID:	09-023-10					
Benzene	**ND**	0.028	EPA 8021	9-2-10	9-2-10	
Toluene	**0.83**	0.14	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.14	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.14	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.14	EPA 8021	9-2-10	9-2-10	
Gasoline	**18**	14	NWTPH-Gx	9-2-10	9-2-10	O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*55-127*				
Client ID:	**H-TP-21-2**					
Laboratory ID:	09-023-11					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.061	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.061	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.061	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.061	EPA 8021	9-2-10	9-2-10	
Gasoline	**20**	6.1	NWTPH-Gx	9-2-10	9-2-10	Z,O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				
Client ID:	**H-TP-21-7**					
Laboratory ID:	09-023-12					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.054	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.054	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.054	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.054	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.4	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*105*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0902S2					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*55-127*				
Laboratory ID:	MB0902S3					
Benzene	**ND**	0.020	EPA 8021	9-2-10	9-2-10	
Toluene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
o-Xylene	**ND**	0.050	EPA 8021	9-2-10	9-2-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-2-10	9-2-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	**Result**		**Spike Level**		**Source Result**	**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
DUPLICATE											
Laboratory ID:	09-017-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*102*	*108*	*55-127*			
Laboratory ID:	09-023-09										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*103*	*99*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0902S2										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.01**	**1.06**	1.00	1.00		**101**	**106**	75-113	5	9	
Toluene	**1.02**	**1.06**	1.00	1.00		**102**	**106**	75-116	4	10	
Ethyl Benzene	**1.03**	**1.07**	1.00	1.00		**103**	**107**	82-117	4	10	
m,p-Xylene	**1.03**	**1.07**	1.00	1.00		**103**	**107**	81-122	4	10	
o-Xylene	**1.02**	**1.07**	1.00	1.00		**102**	**107**	83-118	5	10	
Surrogate:											
Fluorobenzene						*98*	*101*	*55-127*			

Date of Report: September 3, 2010
Samples Submitted: September 2, 2010
Laboratory Reference: 1009-023
Project: 2007-098

% MOISTURE

Date Analyzed: 9-2-10

Client ID	Lab ID	% Moisture
H-TP-16-3	09-023-01	16
H-TP-16-7	09-023-02	18
H-TP-17-3	09-023-03	19
H-TP-17-6	09-023-04	19
H-TP-18-3	09-023-05	11
H-TP-18-7	09-023-06	14
H-TP-19-4	09-023-07	10
H-TP-19-6	09-023-08	12
H-TP-20-3	09-023-09	7
H-TP-20-6	09-023-10	16
H-TP-21-2	09-023-11	10
H-TP-21-7	09-023-12	14

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits.

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 9/2/10
PAGE: 1 of 1

09-023

PROJECT NAME: Bothell Crossroads - Hertz #: 2007-049
SITE CODE:
SAMPLERS NAME: P. Pearson PHONE: 206 794 3113
SAMPLERS SIGNATURE:
HWA CONTACT: Vance Atkins PHONE: 206 794 3124

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH Gx/BTEX	~~[illegible]~~	% MOISTURE	REMARKS
H-TP-16-3	9/2/10	8:15	S	1	3	X	X	~~X~~	X	
H-TP-16-7		8:25		2		X	X	~~X~~		
H-TP-~~17~~-3		9:10		3		X	X	~~X~~		
H-TP-~~17~~-6		9:20		4		X	X	~~X~~		
H-TP-18-3		9:25		5		X	X	~~X~~		
H-TP-18-7		9:30		6		X	X	~~X~~		
H-TP-19-4		10:05		7		X	X	~~X~~		
H-TP-19-6		10:20		8		X	X	~~X~~		
H-TP-20-3		10:30		9		X	X	~~X~~		
H-TP-20-6		10:50		10		X	X	~~X~~		
H-TP-21-2		11:00		11		X	X	~~X~~		
H-TP-21-7		11:15		12		X	X	~~X~~		

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Vance Atkins	[signature]	HWA	9/2/10	1310	
Received by:	M. VOUN	[signature]	OSE	9/2/10	1310	
Relinquished by:						
Received by:						

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

OnSite
Environmental Inc.

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

September 14, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-074

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 8, 2010.

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: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

Case Narrative

Samples were collected on September 8, 2010 and received by the laboratory on September 8, 2010. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

Volatiles EPA 8260B Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

NWTPH Gx Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

The chromatogram for sample H-PEX-2-6 is similar to mineral spirits with diesel fuel.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

PAHs EPA 8270D/SIM Analysis

Sample MS/MSD pair had several recoveries fall outside of control limits believed to be caused by sample matrix. The SB/SBD pair extracted with this batch had all parameters in control, no further action was deemed necessary.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILE PETROLEUM HYDROCARBONS

Date Extracted:	9-9-10
Date Analyzed:	9-10-10
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	09-074-01
Client ID:	**H-PEX-1-6**

VPH:	**Results**	**PQL**
Aliphatic C5-C6	ND	5.0
Aliphatic C6-C8	ND	5.0
Aliphatic C8-C10	5.9	5.0
Aliphatic C10-C12	97	5.0
Total Aliphatic:	100	
Aromatic C8-C10	47	5.0
Aromatic C10-C12	40	5.0
Aromatic C12-C13	15	5.0
Total Aromatic:	100	

Surrogate:	**Percent Recovery**	**Control Limits**
Fluorobenzene	81	60-126

Flags:

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILE PETROLEUM HYDROCARBONS

Date Extracted:	9-9-10
Date Analyzed:	9-10&13-10
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	09-074-02
Client ID:	**H-PEX-2-6**

VPH:	**Results**	**PQL**
Aliphatic C5-C6	ND	5.0
Aliphatic C6-C8	ND	5.0
Aliphatic C8-C10	48	5.0
Aliphatic C10-C12	180	5.0
Total Aliphatic:	230	
Aromatic C8-C10	110	5.0
Aromatic C10-C12	40	5.0
Aromatic C12-C13	11	5.0
Total Aromatic:	160	

Surrogate:	**Percent Recovery**	**Control Limits**
Fluorobenzene	78	60-126

Flags:

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILE PETROLEUM HYDROCARBONS

Date Extracted:	9-9-10
Date Analyzed:	9-10-10
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	09-074-03
Client ID:	**H-PEX-3-4**

VPH:	**Results**	**PQL**
Aliphatic C5-C6	ND	5.0
Aliphatic C6-C8	ND	5.0
Aliphatic C8-C10	ND	5.0
Aliphatic C10-C12	11	5.0
Total Aliphatic:	11	
Aromatic C8-C10	ND	5.0
Aromatic C10-C12	ND	5.0
Aromatic C12-C13	ND	5.0
Total Aromatic:	NA	

Surrogate:	**Percent Recovery**	**Control Limits**
Fluorobenzene	85	60-126

Flags:

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILE PETROLEUM HYDROCARBONS
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-9-10
Date Analyzed:	9-10-10
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID: MB0909S1

VPH:	**Results**	**PQL**
Aliphatic C5-C6	ND	5.0
Aliphatic C6-C8	ND	5.0
Aliphatic C8-C10	ND	5.0
Aliphatic C10-C12	ND	5.0
Total Aliphatic:	NA	
Aromatic C8-C10	ND	5.0
Aromatic C10-C12	ND	5.0
Aromatic C12-C13	ND	5.0
Total Aromatic:	NA	

Surrogate:	**Percent Recovery**	**Control Limits**
Fluorobenzene	99	60-126

Flags:

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
Page 1 of 2

Date Extracted: 9-9-10
Date Analyzed: 9-9-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-074-01
Client ID: H-PEX-1-6

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0011
Chloromethane	ND		0.0053
Vinyl Chloride	ND		0.0011
Bromomethane	ND		0.0011
Chloroethane	ND		0.0053
Trichlorofluoromethane	ND		0.0011
1,1-Dichloroethene	ND		0.0011
Acetone	0.058		0.0053
Iodomethane	ND		0.0053
Carbon Disulfide	ND		0.0011
Methylene Chloride	ND		0.0053
(trans) 1,2-Dichloroethene	ND		0.0011
Methyl t-Butyl Ether	ND		0.0011
1,1-Dichloroethane	ND		0.0011
Vinyl Acetate	ND		0.0053
2,2-Dichloropropane	ND		0.0011
(cis) 1,2-Dichloroethene	ND		0.0011
2-Butanone	0.017		0.0053
Bromochloromethane	ND		0.0011
Chloroform	ND		0.0011
1,1,1-Trichloroethane	ND		0.0011
Carbon Tetrachloride	ND		0.0011
1,1-Dichloropropene	ND		0.0011
Benzene	0.0013		0.0011
1,2-Dichloroethane	ND		0.0011
Trichloroethene	ND		0.0011
1,2-Dichloropropane	ND		0.0011
Dibromomethane	ND		0.0011
Bromodichloromethane	ND		0.0011
2-Chloroethyl Vinyl Ether	ND		0.0053
(cis) 1,3-Dichloropropene	ND		0.0011
Methyl Isobutyl Ketone	ND		0.0053
Toluene	ND		0.0053
(trans) 1,3-Dichloropropene	ND		0.0011

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
Page 2 of 2

Lab ID: 09-074-01
Client ID: H-PEX-1-6

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0011
Tetrachloroethene	ND		0.0011
1,3-Dichloropropane	ND		0.0011
2-Hexanone	ND		0.0053
Dibromochloromethane	ND		0.0011
1,2-Dibromoethane	ND		0.0011
Chlorobenzene	ND		0.0011
1,1,1,2-Tetrachloroethane	ND		0.0011
Ethylbenzene	0.015		0.0011
m,p-Xylene	0.015		0.0021
o-Xylene	ND		0.0011
Styrene	ND		0.0011
Bromoform	ND		0.0011
Isopropylbenzene	0.066		0.0011
Bromobenzene	ND		0.0011
1,1,2,2-Tetrachloroethane	ND		0.0011
1,2,3-Trichloropropane	ND		0.0011
n-Propylbenzene	0.22		0.0011
2-Chlorotoluene	ND		0.0011
4-Chlorotoluene	ND		0.0011
1,3,5-Trimethylbenzene	0.020		0.0011
tert-Butylbenzene	0.0088		0.0011
1,2,4-Trimethylbenzene	0.091		0.0011
sec-Butylbenzene	0.13		0.0011
1,3-Dichlorobenzene	ND		0.0011
p-Isopropyltoluene	0.024		0.0011
1,4-Dichlorobenzene	ND		0.0011
1,2-Dichlorobenzene	ND		0.0011
n-Butylbenzene	0.17		0.0011
1,2-Dibromo-3-chloropropane	ND		0.0053
1,2,4-Trichlorobenzene	ND		0.0011
Hexachlorobutadiene	ND		0.0053
Naphthalene	0.16		0.0011
1,2,3-Trichlorobenzene	ND		0.0011

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	87	66-128
Toluene-d8	103	68-126
4-Bromofluorobenzene	78	53-134

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
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Date Extracted:	9-10-10
Date Analyzed:	9-10-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	09-074-02
Client ID:	**H-PEX-2-6**

Compound	**Results**	**Flags**	**PQL**
Dichlorodifluoromethane	ND		0.0014
Chloromethane	ND		0.0068
Vinyl Chloride	ND		0.0014
Bromomethane	ND		0.0014
Chloroethane	ND		0.0068
Trichlorofluoromethane	ND		0.0014
1,1-Dichloroethene	ND		0.0014
Acetone	ND		0.0068
Iodomethane	ND		0.0068
Carbon Disulfide	ND		0.0014
Methylene Chloride	ND		0.0068
(trans) 1,2-Dichloroethene	ND		0.0014
Methyl t-Butyl Ether	ND		0.0014
1,1-Dichloroethane	ND		0.0014
Vinyl Acetate	ND		0.0068
2,2-Dichloropropane	ND		0.0014
(cis) 1,2-Dichloroethene	ND		0.0014
2-Butanone	ND		0.0068
Bromochloromethane	ND		0.0014
Chloroform	ND		0.0014
1,1,1-Trichloroethane	ND		0.0014
Carbon Tetrachloride	ND		0.0014
1,1-Dichloropropene	ND		0.0014
Benzene	ND		0.0014
1,2-Dichloroethane	ND		0.0014
Trichloroethene	ND		0.0014
1,2-Dichloropropane	ND		0.0014
Dibromomethane	ND		0.0014
Bromodichloromethane	ND		0.0014
2-Chloroethyl Vinyl Ether	ND		0.0068
(cis) 1,3-Dichloropropene	ND		0.0014
Methyl Isobutyl Ketone	ND		0.0068
Toluene	ND		0.0068
(trans) 1,3-Dichloropropene	ND		0.0014

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
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Lab ID:	09-074-02
Client ID:	**H-PEX-2-6**

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0014
Tetrachloroethene	0.0054		0.0014
1,3-Dichloropropane	ND		0.0014
2-Hexanone	ND		0.0068
Dibromochloromethane	ND		0.0014
1,2-Dibromoethane	ND		0.0014
Chlorobenzene	ND		0.0014
1,1,1,2-Tetrachloroethane	ND		0.0014
Ethylbenzene	ND		0.0014
m,p-Xylene	ND		0.0027
o-Xylene	0.0021		0.0014
Styrene	ND		0.0014
Bromoform	ND		0.0014
Isopropylbenzene	ND		0.0014
Bromobenzene	ND		0.0014
1,1,2,2-Tetrachloroethane	ND		0.0014
1,2,3-Trichloropropane	ND		0.0014
n-Propylbenzene	0.0022		0.0014
2-Chlorotoluene	ND		0.0014
4-Chlorotoluene	ND		0.0014
1,3,5-Trimethylbenzene	0.010		0.0014
tert-Butylbenzene	ND		0.0014
1,2,4-Trimethylbenzene	0.023		0.0014
sec-Butylbenzene	0.0017		0.0014
1,3-Dichlorobenzene	ND		0.0014
p-Isopropyltoluene	0.0023		0.0014
1,4-Dichlorobenzene	ND		0.0014
1,2-Dichlorobenzene	ND		0.0014
n-Butylbenzene	0.0030		0.0014
1,2-Dibromo-3-chloropropane	ND		0.0068
1,2,4-Trichlorobenzene	ND		0.0014
Hexachlorobutadiene	ND		0.0068
Naphthalene	0.043		0.0014
1,2,3-Trichlorobenzene	ND		0.0014

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	84	66-128
Toluene-d8	108	68-126
4-Bromofluorobenzene	83	53-134

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
Page 1 of 2

Date Extracted:	9-9-10
Date Analyzed:	9-9-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	09-074-03
Client ID:	**H-PEX-3-4**

Compound	**Results**	**Flags**	**PQL**
Dichlorodifluoromethane	ND		0.0011
Chloromethane	ND		0.0055
Vinyl Chloride	ND		0.0011
Bromomethane	ND		0.0011
Chloroethane	ND		0.0055
Trichlorofluoromethane	ND		0.0011
1,1-Dichloroethene	ND		0.0011
Acetone	0.073		0.0055
Iodomethane	ND		0.0055
Carbon Disulfide	ND		0.0011
Methylene Chloride	ND		0.0055
(trans) 1,2-Dichloroethene	ND		0.0011
Methyl t-Butyl Ether	ND		0.0011
1,1-Dichloroethane	ND		0.0011
Vinyl Acetate	ND		0.0055
2,2-Dichloropropane	ND		0.0011
(cis) 1,2-Dichloroethene	ND		0.0011
2-Butanone	0.016		0.0055
Bromochloromethane	ND		0.0011
Chloroform	ND		0.0011
1,1,1-Trichloroethane	ND		0.0011
Carbon Tetrachloride	ND		0.0011
1,1-Dichloropropene	ND		0.0011
Benzene	ND		0.0011
1,2-Dichloroethane	ND		0.0011
Trichloroethene	ND		0.0011
1,2-Dichloropropane	ND		0.0011
Dibromomethane	ND		0.0011
Bromodichloromethane	ND		0.0011
2-Chloroethyl Vinyl Ether	ND		0.0055
(cis) 1,3-Dichloropropene	ND		0.0011
Methyl Isobutyl Ketone	ND		0.0055
Toluene	ND		0.0055
(trans) 1,3-Dichloropropene	ND		0.0011

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Lab ID: 09-074-03
Client ID: H-PEX-3-4

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0011
Tetrachloroethene	ND		0.0011
1,3-Dichloropropane	ND		0.0011
2-Hexanone	ND		0.0055
Dibromochloromethane	ND		0.0011
1,2-Dibromoethane	ND		0.0011
Chlorobenzene	ND		0.0011
1,1,1,2-Tetrachloroethane	ND		0.0011
Ethylbenzene	ND		0.0011
m,p-Xylene	ND		0.0022
o-Xylene	0.0015		0.0011
Styrene	ND		0.0011
Bromoform	ND		0.0011
Isopropylbenzene	0.0047		0.0011
Bromobenzene	ND		0.0011
1,1,2,2-Tetrachloroethane	ND		0.0011
1,2,3-Trichloropropane	ND		0.0011
n-Propylbenzene	0.020		0.0011
2-Chlorotoluene	ND		0.0011
4-Chlorotoluene	ND		0.0011
1,3,5-Trimethylbenzene	0.0065		0.0011
tert-Butylbenzene	0.0065		0.0011
1,2,4-Trimethylbenzene	0.040		0.0011
sec-Butylbenzene	0.029		0.0011
1,3-Dichlorobenzene	ND		0.0011
p-Isopropyltoluene	0.0031		0.0011
1,4-Dichlorobenzene	ND		0.0011
1,2-Dichlorobenzene	ND		0.0011
n-Butylbenzene	0.041		0.0011
1,2-Dibromo-3-chloropropane	ND		0.0055
1,2,4-Trichlorobenzene	ND		0.0011
Hexachlorobutadiene	ND		0.0055
Naphthalene	0.0067		0.0011
1,2,3-Trichlorobenzene	ND		0.0011

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	84	66-128
Toluene-d8	101	68-126
4-Bromofluorobenzene	76	53-134

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
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Project: 2007-098

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METHOD BLANK QUALITY CONTROL
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Date Extracted:	9-9-10
Date Analyzed:	9-9-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0909S1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0010
Chloromethane	ND		0.0050
Vinyl Chloride	ND		0.0010
Bromomethane	ND		0.0010
Chloroethane	ND		0.0050
Trichlorofluoromethane	ND		0.0010
1,1-Dichloroethene	ND		0.0010
Acetone	ND		0.0050
Iodomethane	ND		0.0050
Carbon Disulfide	ND		0.0010
Methylene Chloride	ND		0.0050
(trans) 1,2-Dichloroethene	ND		0.0010
Methyl t-Butyl Ether	ND		0.0010
1,1-Dichloroethane	ND		0.0010
Vinyl Acetate	ND		0.0050
2,2-Dichloropropane	ND		0.0010
(cis) 1,2-Dichloroethene	ND		0.0010
2-Butanone	ND		0.0050
Bromochloromethane	ND		0.0010
Chloroform	ND		0.0010
1,1,1-Trichloroethane	ND		0.0010
Carbon Tetrachloride	ND		0.0010
1,1-Dichloropropene	ND		0.0010
Benzene	ND		0.0010
1,2-Dichloroethane	ND		0.0010
Trichloroethene	ND		0.0010
1,2-Dichloropropane	ND		0.0010
Dibromomethane	ND		0.0010
Bromodichloromethane	ND		0.0010
2-Chloroethyl Vinyl Ether	ND		0.0050
(cis) 1,3-Dichloropropene	ND		0.0010
Methyl Isobutyl Ketone	ND		0.0050
Toluene	ND		0.0050
(trans) 1,3-Dichloropropene	ND		0.0010

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METHOD BLANK QUALITY CONTROL
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Lab ID: MB0909S1

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0010
Tetrachloroethene	ND		0.0010
1,3-Dichloropropane	ND		0.0010
2-Hexanone	ND		0.0050
Dibromochloromethane	ND		0.0010
1,2-Dibromoethane	ND		0.0010
Chlorobenzene	ND		0.0010
1,1,1,2-Tetrachloroethane	ND		0.0010
Ethylbenzene	ND		0.0010
m,p-Xylene	ND		0.0020
o-Xylene	ND		0.0010
Styrene	ND		0.0010
Bromoform	ND		0.0010
Isopropylbenzene	ND		0.0010
Bromobenzene	ND		0.0010
1,1,2,2-Tetrachloroethane	ND		0.0010
1,2,3-Trichloropropane	ND		0.0010
n-Propylbenzene	ND		0.0010
2-Chlorotoluene	ND		0.0010
4-Chlorotoluene	ND		0.0010
1,3,5-Trimethylbenzene	ND		0.0010
tert-Butylbenzene	ND		0.0010
1,2,4-Trimethylbenzene	ND		0.0010
sec-Butylbenzene	ND		0.0010
1,3-Dichlorobenzene	ND		0.0010
p-Isopropyltoluene	ND		0.0010
1,4-Dichlorobenzene	ND		0.0010
1,2-Dichlorobenzene	ND		0.0010
n-Butylbenzene	ND		0.0010
1,2-Dibromo-3-chloropropane	ND		0.0050
1,2,4-Trichlorobenzene	ND		0.0010
Hexachlorobutadiene	ND		0.0050
Naphthalene	ND		0.0010
1,2,3-Trichlorobenzene	ND		0.0010

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	83	66-128
Toluene-d8	95	68-126
4-Bromofluorobenzene	80	53-134

Date of Report: September 14, 2010
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Date Extracted:	9-10-10
Date Analyzed:	9-10-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0910S1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0010
Chloromethane	ND		0.0050
Vinyl Chloride	ND		0.0010
Bromomethane	ND		0.0010
Chloroethane	ND		0.0050
Trichlorofluoromethane	ND		0.0010
1,1-Dichloroethene	ND		0.0010
Acetone	ND		0.0050
Iodomethane	ND		0.0050
Carbon Disulfide	ND		0.0010
Methylene Chloride	ND		0.0050
(trans) 1,2-Dichloroethene	ND		0.0010
Methyl t-Butyl Ether	ND		0.0010
1,1-Dichloroethane	ND		0.0010
Vinyl Acetate	ND		0.0050
2,2-Dichloropropane	ND		0.0010
(cis) 1,2-Dichloroethene	ND		0.0010
2-Butanone	ND		0.0050
Bromochloromethane	ND		0.0010
Chloroform	ND		0.0010
1,1,1-Trichloroethane	ND		0.0010
Carbon Tetrachloride	ND		0.0010
1,1-Dichloropropene	ND		0.0010
Benzene	ND		0.0010
1,2-Dichloroethane	ND		0.0010
Trichloroethene	ND		0.0010
1,2-Dichloropropane	ND		0.0010
Dibromomethane	ND		0.0010
Bromodichloromethane	ND		0.0010
2-Chloroethyl Vinyl Ether	ND		0.0050
(cis) 1,3-Dichloropropene	ND		0.0010
Methyl Isobutyl Ketone	ND		0.0050
Toluene	ND		0.0050
(trans) 1,3-Dichloropropene	ND		0.0010

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Lab ID: MB0910S1

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0010
Tetrachloroethene	ND		0.0010
1,3-Dichloropropane	ND		0.0010
2-Hexanone	ND		0.0050
Dibromochloromethane	ND		0.0010
1,2-Dibromoethane	ND		0.0010
Chlorobenzene	ND		0.0010
1,1,1,2-Tetrachloroethane	ND		0.0010
Ethylbenzene	ND		0.0010
m,p-Xylene	ND		0.0020
o-Xylene	ND		0.0010
Styrene	ND		0.0010
Bromoform	ND		0.0010
Isopropylbenzene	ND		0.0010
Bromobenzene	ND		0.0010
1,1,2,2-Tetrachloroethane	ND		0.0010
1,2,3-Trichloropropane	ND		0.0010
n-Propylbenzene	ND		0.0010
2-Chlorotoluene	ND		0.0010
4-Chlorotoluene	ND		0.0010
1,3,5-Trimethylbenzene	ND		0.0010
tert-Butylbenzene	ND		0.0010
1,2,4-Trimethylbenzene	ND		0.0010
sec-Butylbenzene	ND		0.0010
1,3-Dichlorobenzene	ND		0.0010
p-Isopropyltoluene	ND		0.0010
1,4-Dichlorobenzene	ND		0.0010
1,2-Dichlorobenzene	ND		0.0010
n-Butylbenzene	ND		0.0010
1,2-Dibromo-3-chloropropane	ND		0.0050
1,2,4-Trichlorobenzene	ND		0.0010
Hexachlorobutadiene	ND		0.0050
Naphthalene	ND		0.0010
1,2,3-Trichlorobenzene	ND		0.0010

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	84	66-128
Toluene-d8	101	68-126
4-Bromofluorobenzene	85	53-134

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-9-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: SB0909S1

Compound	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
1,1-Dichloroethene	0.0500	0.0368	74	0.0366	73	70-130	
Benzene	0.0500	0.0406	81	0.0400	80	70-121	
Trichloroethene	0.0500	0.0414	83	0.0419	84	70-124	
Toluene	0.0500	0.0421	84	0.0426	85	70-123	
Chlorobenzene	0.0500	0.0439	88	0.0444	89	71-119	

	RPD	RPD Limit	Flags
1,1-Dichloroethene	1	14	
Benzene	2	10	
Trichloroethene	1	12	
Toluene	1	12	
Chlorobenzene	1	9	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Date Extracted: 9-10-10
Date Analyzed: 9-10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: SB0910S1

Compound	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
1,1-Dichloroethene	0.0500	0.0357	71	0.0376	75	70-130	
Benzene	0.0500	0.0378	76	0.0394	79	70-121	
Trichloroethene	0.0500	0.0414	83	0.0432	86	70-124	
Toluene	0.0500	0.0421	84	0.0428	86	70-123	
Chlorobenzene	0.0500	0.0430	86	0.0435	87	71-119	

	RPD	RPD Limit	Flags
1,1-Dichloroethene	5	14	
Benzene	4	10	
Trichloroethene	4	12	
Toluene	2	12	
Chlorobenzene	1	9	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-1-6**					
Laboratory ID:	09-074-01					
Naphthalene	**0.064**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
2-Methylnaphthalene	**0.068**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
1-Methylnaphthalene	**0.049**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthylene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Fluorene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Phenanthrene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Anthracene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Fluoranthene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Pyrene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]anthracene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Chrysene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[b]fluoranthene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[k]fluoranthene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]pyrene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Dibenz[a,h]anthracene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[g,h,i]perylene	**ND**	0.0080	EPA 8270/SIM	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*45 - 101*				
Pyrene-d10	*82*	*52 - 118*				
Terphenyl-d14	*91*	*41 - 106*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-2-6**					
Laboratory ID:	09-074-02					
Naphthalene	**0.032**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
2-Methylnaphthalene	**0.013**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
1-Methylnaphthalene	**0.0088**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthylene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthene	**0.010**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Fluorene	**0.0091**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Phenanthrene	**0.031**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Anthracene	**0.012**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Fluoranthene	**0.017**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Pyrene	**0.020**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]anthracene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Chrysene	**0.0074**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[b]fluoranthene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[k]fluoranthene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]pyrene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Dibenz[a,h]anthracene	**ND**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[g,h,i]perylene	**0.010**	0.0074	EPA 8270/SIM	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*69*	*45 - 101*				
Pyrene-d10	*94*	*52 - 118*				
Terphenyl-d14	*77*	*41 - 106*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-3-4**					
Laboratory ID:	09-074-03					
Naphthalene	**0.093**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
2-Methylnaphthalene	**1.6**	0.040	EPA 8270/SIM	9-9-10	9-10-10	
1-Methylnaphthalene	**1.2**	0.040	EPA 8270/SIM	9-9-10	9-10-10	
Acenaphthylene	**0.028**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthene	**0.11**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Fluorene	**0.13**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Phenanthrene	**0.26**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Anthracene	**0.046**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Fluoranthene	**0.083**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Pyrene	**0.19**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]anthracene	**0.035**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Chrysene	**0.062**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[b]fluoranthene	**0.012**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[k]fluoranthene	**0.0091**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]pyrene	**0.078**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Indeno(1,2,3-c,d)pyrene	**0.0083**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Dibenz[a,h]anthracene	**ND**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[g,h,i]perylene	**0.031**	0.0081	EPA 8270/SIM	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*74*	*45 - 101*				
Pyrene-d10	*88*	*52 - 118*				
Terphenyl-d14	*76*	*41 - 106*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0909S2					
Naphthalene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthylene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Acenaphthene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Fluorene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Phenanthrene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Anthracene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Pyrene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Chrysene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[k]fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270/SIM	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*45 - 101*				
Pyrene-d10	*79*	*52 - 118*				
Terphenyl-d14	*94*	*41 - 106*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-074-02										
	MS	MSD	MS	MSD		MS	MSD				
Naphthalene	**0.0886**	**0.108**	0.0833	0.0833	0.0284	72	96	31 - 115	20	19	L
Acenaphthylene	**0.0643**	**0.0658**	0.0833	0.0833	ND	77	79	40 - 134	2	22	
Acenaphthene	**0.0795**	**0.0822**	0.0833	0.0833	0.00902	85	88	48 - 118	3	17	
Fluorene	**0.0688**	**0.0642**	0.0833	0.0833	0.00814	73	67	54 - 122	7	16	
Phenanthrene	**0.0920**	**0.0961**	0.0833	0.0833	0.0274	78	82	46 - 123	4	19	
Anthracene	**0.0712**	**0.0623**	0.0833	0.0833	0.0107	73	62	53 - 123	13	27	
Fluoranthene	**0.0915**	**0.0786**	0.0833	0.0833	0.0154	91	76	47 - 132	15	26	
Pyrene	**0.0966**	**0.0893**	0.0833	0.0833	0.0177	95	86	41 - 137	8	25	
Benzo[a]anthracene	**0.0671**	**0.0612**	0.0833	0.0833	ND	81	73	43 - 132	9	26	
Chrysene	**0.0656**	**0.0640**	0.0833	0.0833	ND	79	77	46 - 126	2	24	
Benzo[b]fluoranthene	**0.0612**	**0.0525**	0.0833	0.0833	ND	73	63	44 - 134	15	24	
Benzo[k]fluoranthene	**0.0666**	**0.0476**	0.0833	0.0833	ND	80	57	45 - 132	33	20	L
Benzo[a]pyrene	**0.0700**	**0.0609**	0.0833	0.0833	ND	84	73	36 - 136	14	23	
Indeno(1,2,3-c,d)pyrene	**0.0844**	**0.0618**	0.0833	0.0833	ND	101	74	40 - 136	31	16	L
Dibenz[a,h]anthracene	**0.0865**	**0.0646**	0.0833	0.0833	ND	104	78	40 - 142	29	13	L
Benzo[g,h,i]perylene	**0.0809**	**0.0715**	0.0833	0.0833	0.00900	86	75	37 - 137	12	18	
Surrogate:											
2-Fluorobiphenyl						*76*	*81*	*45 - 101*			
Pyrene-d10						*88*	*85*	*52 - 118*			
Terphenyl-d14						*93*	*73*	*41 - 106*			

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0909S2									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.0755**	**0.0787**	0.0833	0.0833	91	94	33 - 105	4	30	
Acenaphthylene	**0.0801**	**0.0754**	0.0833	0.0833	96	91	51 - 110	6	22	
Acenaphthene	**0.0762**	**0.0785**	0.0833	0.0833	91	94	51 - 105	3	20	
Fluorene	**0.0695**	**0.0766**	0.0833	0.0833	83	92	61 - 107	10	17	
Phenanthrene	**0.0718**	**0.0742**	0.0833	0.0833	86	89	61 - 106	3	12	
Anthracene	**0.0691**	**0.0701**	0.0833	0.0833	83	84	59 - 106	1	12	
Fluoranthene	**0.0708**	**0.0709**	0.0833	0.0833	85	85	66 - 116	0	12	
Pyrene	**0.0787**	**0.0756**	0.0833	0.0833	94	91	67 - 118	4	14	
Benzo[a]anthracene	**0.0677**	**0.0710**	0.0833	0.0833	81	85	60 - 114	5	11	
Chrysene	**0.0623**	**0.0649**	0.0833	0.0833	75	78	64 - 112	4	12	
Benzo[b]fluoranthene	**0.0623**	**0.0660**	0.0833	0.0833	75	79	61 - 123	6	14	
Benzo[k]fluoranthene	**0.0641**	**0.0716**	0.0833	0.0833	77	86	50 - 124	11	17	
Benzo[a]pyrene	**0.0728**	**0.0731**	0.0833	0.0833	87	88	50 - 114	0	17	
Indeno(1,2,3-c,d)pyrene	**0.106**	**0.107**	0.0833	0.0833	127	128	56 - 130	1	16	
Dibenz[a,h]anthracene	**0.111**	**0.112**	0.0833	0.0833	133	134	57 - 134	1	16	
Benzo[g,h,i]perylene	**0.101**	**0.0982**	0.0833	0.0833	121	118	56 - 121	3	15	
Surrogate:										
2-Fluorobiphenyl					*88*	*83*	*45 - 101*			
Pyrene-d10					*83*	*78*	*52 - 118*			
Terphenyl-d14					*97*	*95*	*41 - 106*			

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-1-6**					
Laboratory ID:	09-074-01					
Gasoline	**270**	6.3	NWTPH-Gx	9-9-10	9-9-10	O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				
Client ID:	**H-PEX-2-6**					
Laboratory ID:	09-074-02					
Gasoline	**390**	5.8	NWTPH-Gx	9-9-10	9-9-10	Z,O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*55-127*				
Client ID:	**H-PEX-3-4**					
Laboratory ID:	09-074-03					
Gasoline	**22**	7.3	NWTPH-Gx	9-9-10	9-10-10	O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
METHOD BLANK						
Laboratory ID:	MB0909S1					
Gasoline	**ND**	5.0	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*55-127*				

Analyte	**Result**		**Spike Level**		**Source Result**	**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
DUPLICATE											
Laboratory ID:	09-088-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*100*	*97*	*55-127*			

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-1-6**					
Laboratory ID:	09-074-01					
Diesel Range Organics	**220**	30	NWTPH-Dx	9-9-10	9-10-10	N,M
Lube Oil	**280**	60	NWTPH-Dx	9-9-10	9-10-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*92*	*50-150*				
Client ID:	**H-PEX-2-6**					
Laboratory ID:	09-074-02					
Diesel Range Organics	**ND**	400	NWTPH-Dx	9-9-10	9-9-10	U1
Lube Oil	**720**	56	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				
Client ID:	**H-PEX-3-4**					
Laboratory ID:	09-074-03					
Diesel Range Organics	**1800**	150	NWTPH-Dx	9-9-10	9-10-10	N,M
Lube Oil	**7300**	300	NWTPH-Dx	9-9-10	9-10-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0909S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-074-02							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	U1
Lube Oil	**641**	**624**				3	NA	
Surrogate:								
o-Terphenyl			*105*	*104*	*50-150*			

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-074-01					
Client ID:	**H-PEX-1-6**					
Arsenic	**ND**	12	6010B	9-9-10	9-10-10	
Barium	**69**	3.0	6010B	9-9-10	9-10-10	
Cadmium	**ND**	0.60	6010B	9-9-10	9-10-10	
Chromium	**35**	0.60	6010B	9-9-10	9-10-10	
Lead	**ND**	6.0	6010B	9-9-10	9-10-10	
Mercury	**ND**	0.30	7471A	9-9-10	9-9-10	
Selenium	**ND**	12	6010B	9-9-10	9-10-10	
Silver	**ND**	0.60	6010B	9-9-10	9-10-10	
Lab ID:	09-074-02					
Client ID:	**H-PEX-2-6**					
Arsenic	**ND**	11	6010B	9-9-10	9-10-10	
Barium	**41**	2.8	6010B	9-9-10	9-10-10	
Cadmium	**ND**	0.56	6010B	9-9-10	9-10-10	
Chromium	**27**	0.56	6010B	9-9-10	9-10-10	
Lead	**18**	5.6	6010B	9-9-10	9-10-10	
Mercury	**ND**	0.28	7471A	9-9-10	9-9-10	
Selenium	**ND**	11	6010B	9-9-10	9-10-10	
Silver	**ND**	0.56	6010B	9-9-10	9-10-10	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-074-03					
Client ID:	**H-PEX-3-4**					
Arsenic	**ND**	12	6010B	9-9-10	9-10-10	
Barium	**79**	3.0	6010B	9-9-10	9-10-10	
Cadmium	**ND**	0.61	6010B	9-9-10	9-10-10	
Chromium	**26**	0.61	6010B	9-9-10	9-10-10	
Lead	**130**	6.1	6010B	9-9-10	9-10-10	
Mercury	**ND**	0.30	7471A	9-9-10	9-9-10	
Selenium	**ND**	12	6010B	9-9-10	9-10-10	
Silver	**ND**	0.61	6010B	9-9-10	9-10-10	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-9&10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0909S1&MB0909S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-9&10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-074-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**36.5**	**38.4**	5	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**23.8**	**24.4**	3	0.50	
Lead	**16.5**	**11.4**	37	5.0	C
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-9&10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-074-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**94.2**	94	**95.1**	95	1	
Barium	100	**134**	97	**133**	96	1	
Cadmium	50	**46.4**	93	**45.8**	92	1	
Chromium	100	**118**	94	**118**	95	0	
Lead	250	**231**	86	**235**	87	2	
Mercury	0.50	**0.504**	101	**0.502**	100	0	
Selenium	100	**95.2**	95	**95.2**	95	0	
Silver	25	**21.7**	87	**21.8**	87	0	

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PCBs by EPA 8082

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-1-6**					
Laboratory ID:	09-074-01					
Aroclor 1016	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1221	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1232	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1242	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1248	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1254	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Aroclor 1260	**ND**	0.060	EPA 8082	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*71*	*46-122*				
Client ID:	**H-PEX-2-6**					
Laboratory ID:	09-074-02					
Aroclor 1016	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1221	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1232	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1242	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1248	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1254	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Aroclor 1260	**ND**	0.056	EPA 8082	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*70*	*46-122*				
Client ID:	**H-PEX-3-4**					
Laboratory ID:	09-074-03					
Aroclor 1016	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1221	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1232	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1242	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1248	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1254	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Aroclor 1260	**ND**	0.061	EPA 8082	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*67*	*46-122*				

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

PCBs by EPA 8082
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0909S1					
Aroclor 1016	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1221	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1232	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1242	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1248	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1254	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Aroclor 1260	**ND**	0.050	EPA 8082	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*73*	*46-122*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-074-02										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	**0.432**	**0.403**	0.500	0.500	ND	**86**	**81**	36-121	7	15	
Surrogate:											
DCB						*75*	*70*	*46-122*			

Date of Report: September 14, 2010
Samples Submitted: September 8, 2010
Laboratory Reference: 1009-074
Project: 2007-098

% MOISTURE

Date Analyzed: 9-9-10

Client ID	Lab ID	% Moisture
H-PEX-1-6	09-074-01	17
H-PEX-2-6	09-074-02	10
H-PEX-3-4	09-074-03	17

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits with diesel fuel.

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

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT: OnSite Environmental Inc.
14648 NE 95th Street
Redmond, WA 98052

DATE: 9/13/2010
ALS JOB#: 1009078
DATE RECEIVED: 9/9/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098
CLIENT SAMPLE ID: 9/8/2010 H-PEX-1-6
ALS SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	**40**	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aliphatics	NWEPH	**110**	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aliphatics	NWEPH	**140**	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aliphatics	NWEPH	**100**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aliphatics	NWEPH	**300**	5.0	1	MG/KG	9/10/2010	EBS
>C8-C10 Aromatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aromatics	NWEPH	**13**	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aromatics	NWEPH	**33**	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aromatics	NWEPH	**53**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aromatics	NWEPH	**100**	5.0	1	MG/KG	9/10/2010	EBS
Total Aliphatics	NWEPH	**690**	10	1	MG/KG	9/10/2010	EBS
Total Aromatics	NWEPH	**200**	10	1	MG/KG	9/10/2010	EBS

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	9/13/2010
		ALS JOB#:	1009078
		DATE RECEIVED:	9/9/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098
CLIENT SAMPLE ID: 9/8/2010 H-PEX-2-6
ALS SAMPLE #: -02

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aliphatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aliphatics	NWEPH	**7.0**	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aliphatics	NWEPH	**80**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aliphatics	NWEPH	**230**	5.0	1	MG/KG	9/10/2010	EBS
>C8-C10 Aromatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aromatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aromatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aromatics	NWEPH	**24**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aromatics	NWEPH	**65**	5.0	1	MG/KG	9/10/2010	EBS
Total Aliphatics	NWEPH	**320**	10	1	MG/KG	9/10/2010	EBS
Total Aromatics	NWEPH	**97**	10	1	MG/KG	9/10/2010	EBS

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	9/13/2010
		ALS JOB#:	1009078
		DATE RECEIVED:	9/9/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098
CLIENT SAMPLE ID: 9/8/2010 H-PEX-3-4
ALS SAMPLE #: -03

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	**84**	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aliphatics	NWEPH	**66**	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aliphatics	NWEPH	**45**	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aliphatics	NWEPH	**120**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aliphatics	NWEPH	**1,400**	5.0	1	MG/KG	9/10/2010	EBS
>C8-C10 Aromatics	NWEPH	ND	5.0	1	MG/KG	9/10/2010	EBS
>C10-C12 Aromatics	NWEPH	**7.0**	5.0	1	MG/KG	9/10/2010	EBS
>C12-C16 Aromatics	NWEPH	**18**	5.0	1	MG/KG	9/10/2010	EBS
>C16-C21 Aromatics	NWEPH	**48**	5.0	1	MG/KG	9/10/2010	EBS
>C21-C34 Aromatics	NWEPH	**250**	5.0	1	MG/KG	9/10/2010	EBS
Total Aliphatics	NWEPH	**1,700**	10	1	MG/KG	9/10/2010	EBS
Total Aromatics	NWEPH	**330**	10	1	MG/KG	9/10/2010	EBS

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

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		DATE RECEIVED:	9/9/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

ALS SAMPLE ID	METHOD	SUR ID	% RECV
1009078-01	NWEPH	C25	100%
1009078-01	NWEPH	p-Terphenyl	82%
1009078-02	NWEPH	C25	101%
1009078-02	NWEPH	p-Terphenyl	84%
1009078-03	NWEPH	C25	104%
1009078-03	NWEPH	p-Terphenyl	85%

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		ALS JOB#:	1009078
		DATE RECEIVED:	9/9/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098

QUALITY CONTROL RESULTS

BLANK RESULTS

QC SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS
MBLK-9102010	Soil	NWEPH	>C8-C10 Aliphatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C10-C12 Aliphatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C12-C16 Aliphatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C16-C21 Aliphatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C21-C34 Aliphatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C8-C10 Aromatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C10-C12 Aromatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C12-C16 Aromatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C16-C21 Aromatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	>C21-C34 Aromatics	ND(<5.0)	MG/KG
MBLK-9102010	Soil	NWEPH	Total Aliphatics	ND(<10)	MG/KG
MBLK-9102010	Soil	NWEPH	Total Aromatics	ND(<10)	MG/KG

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ALS Laboratory Group A Campbell Brothers Limited Company

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	9/13/2010
		ALS JOB#:	1009078
		DATE RECEIVED:	9/9/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-074 / Proj #2007-098

QUALITY CONTROL RESULTS

BLANK SPIKE/BLANK SPIKE DUPLICATE RESULTS

QC BATCH ID	MATRIX	METHOD	ANALYTE	SPIKE AMOUNT	BLANK SPIKE RECOVERY	BLANK SPIKE DUPLICATE RECOVERY	RPD
R70469	Soil	NWEPH	>C8-C10 Aliphatics	100	78%	77%	1
R70469	Soil	NWEPH	>C10-C12 Aliphatics	100	83%	81%	2
R70469	Soil	NWEPH	>C12-C16 Aliphatics	100	87%	88%	1
R70469	Soil	NWEPH	>C16-C21 Aliphatics	100	93%	92%	1
R70469	Soil	NWEPH	>C21-C34 Aliphatics	100	82%	80%	2
R70469	Soil	NWEPH	>C8-C10 Aromatics	100	82%	79%	4
R70469	Soil	NWEPH	>C10-C12 Aromatics	100	84%	80%	5
R70469	Soil	NWEPH	>C12-C16 Aromatics	100	86%	83%	4
R70469	Soil	NWEPH	>C16-C21 Aromatics	100	90%	89%	1
R70469	Soil	NWEPH	>C21-C34 Aromatics	100	95%	92%	3

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ALS Laboratory Group A Campbell Brothers Limited Company

1009078

Page 1 of 1

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

[redacted]

Date/Time:

Turnaround Request:

1 Day 2 Day 3 Day

Standard

Other:

Laboratory Reference #: 09-074

Project Manager: David Baumeister

email: dbaumeister@onsite-env.com

Project Number: 2007-098

Project Name:

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analysis
1	H-PEX-1-6	9/8/10		S	1	EPH
2	H-PEX-2-6	[illegible]		[illegible]	[illegible]	[illegible]
3	H-PEX-3-4	[illegible]		[illegible]	[illegible]	[illegible]

	Signature	Company	Date	Time
Relinquished by:	[illegible]	OnSite Env.	9/9/10	1310
Received by:	S. UNION	SPEEDY	9/9	130
Relinquished by:				
Received by:	Shawn [illegible]	AS	9/9/10	3:40
Relinquished by:				
Received by:				

Comments/Special Instructions

RUSH 9/15

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

09-074

DATE: 9/8/10

PAGE: ___ of 1

PROJECT NAME: Bothell Crossroads Heritage #: 2007-098

SITE CODE:

SAMPLERS NAME: Pete Pearson PHONE: 206 794-3113

SAMPLERS SIGNATURE:

HWA CONTACT: Vince Atkins PHONE: 425-774-0106

24-hour TAT

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	VPH / EPH	VOCs	SVOCs (PAHs)	TPH-G/BTEX	TPH-Dx	RCRA-8	PCBs		%moisture	REMARKS
H-PEX-1-6	9/8/10	11:00	S	1	9	X	X	X	X	X	X	X		X	
H-PEX-2-6	↓	11:15	↓	2	↓	X	X	X	X	X	X	X		X	
H-PEX-3-4	↓	11:30	↓	3	↓	X	X	X	X	X	X	X		X	

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson	[signature]	HWA	9/8/10	3:45	
Received by:	Van	~~Speedy~~ Van	Speedy	9/8/10	3:45	
Relinquished by:						
Received by:	[illegible]	Blair Goodrow	OnSite Env	9/8/10	1008	

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 10, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-088

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 9, 2010.

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: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

Case Narrative

Samples were collected on September 9, 2010 and received by the laboratory on September 9, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The MTCA Method A clean-up level for Benzene in sample H-PEX-5-8 is not achievable due to the high moisture content of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-6-4**					
Laboratory ID:	09-088-01					
Benzene	**ND**	0.020	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.062	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.062	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**ND**	0.062	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.062	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	6.2	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-PEX-5-8**					
Laboratory ID:	09-088-02					
Benzene	**ND**	0.063	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.31	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.31	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**ND**	0.31	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.31	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	31	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*55-127*				
Client ID:	**PEX-4-8**					
Laboratory ID:	09-088-03					
Benzene	**ND**	0.020	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.084	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.084	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**ND**	0.084	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.084	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	8.4	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*105*	*55-127*				

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-7-5**					
Laboratory ID:	09-088-04					
Benzene	**ND**	0.020	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.079	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.079	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**ND**	0.079	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.079	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	7.9	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-PEX-8-6**					
Laboratory ID:	09-088-05					
Benzene	**ND**	0.021	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.10	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.10	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**0.11**	0.10	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.10	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	10	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0909S1					
Benzene	**ND**	0.020	EPA 8021	9-9-10	9-9-10	
Toluene	**ND**	0.050	EPA 8021	9-9-10	9-9-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-9-10	9-9-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-9-10	9-9-10	
o-Xylene	**ND**	0.050	EPA 8021	9-9-10	9-9-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-088-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*100*	*97*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0909S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.927**	**0.987**	1.00	1.00		**93**	**99**	75-113	6	9	
Toluene	**0.926**	**0.985**	1.00	1.00		**93**	**99**	75-116	6	10	
Ethyl Benzene	**0.951**	**1.01**	1.00	1.00		**95**	**101**	82-117	6	10	
m,p-Xylene	**0.966**	**1.03**	1.00	1.00		**97**	**103**	81-122	6	10	
o-Xylene	**0.968**	**1.02**	1.00	1.00		**97**	**102**	83-118	5	10	
Surrogate:											
Fluorobenzene						*92*	*95*	*55-127*			

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-6-4**					
Laboratory ID:	09-088-01					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				
Client ID:	**H-PEX-5-8**					
Laboratory ID:	09-088-02					
Diesel Range Organics	**ND**	87	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**210**	170	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*110*	*50-150*				
Client ID:	**H-PEX-4-8**					
Laboratory ID:	09-088-03					
Diesel Range Organics	**ND**	34	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**ND**	68	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				
Client ID:	**H-PEX-7-5**					
Laboratory ID:	09-088-04					
Diesel Range Organics	**ND**	33	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**ND**	66	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				
Client ID:	**H-PEX-8-6**					
Laboratory ID:	09-088-05					
Diesel Range Organics	**140**	28	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil	**70**	56	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0909S2					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-9-10	9-9-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-9-10	9-9-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*120*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-088-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*105*	*97*	*50-150*			

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

TOTAL ARSENIC
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-088-01					
Client ID:	**H-PEX-6-4**					
Arsenic	**ND**	12	6010B	9-9-10	9-10-10	
Lab ID:	09-088-02					
Client ID:	**H-PEX-5-8**					
Arsenic	**ND**	17	6010B	9-9-10	9-10-10	
Lab ID:	09-088-03					
Client ID:	**H-PEX-4-8**					
Arsenic	**ND**	14	6010B	9-9-10	9-10-10	
Lab ID:	09-088-04					
Client ID:	**H-PEX-7-5**					
Arsenic	**ND**	13	6010B	9-9-10	9-10-10	
Lab ID:	09-088-05					
Client ID:	**H-PEX-8-6**					
Arsenic	**ND**	11	6010B	9-9-10	9-10-10	

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

TOTAL ARSENIC
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0909S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	5.0

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

TOTAL ARSENIC
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-074-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

TOTAL ARSENIC
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 9-9-10
Date Analyzed: 9-10-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-074-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**94.2**	94	**95.1**	95	1	

Date of Report: September 10, 2010
Samples Submitted: September 9, 2010
Laboratory Reference: 1009-088
Project: 2007-098

% MOISTURE

Date Analyzed: 9-9-10

Client ID	Lab ID	% Moisture
H-PEX-6-4	09-088-01	19
H-PEX-5-8	09-088-02	71
H-PEX-4-8	09-088-03	27
H-PEX-7-5	09-088-04	24
H-PEX-8-6	09-088-05	11

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 9/9/10
PAGE: 1 of

09-088

PROJECT NAME: Bothell Crossroads #: 2007-098
SITE CODE:
SAMPLERS NAME: Pete Pearson PHONE: 206-794-3113
SAMPLERS SIGNATURE:
HWA CONTACT: Vance Atkens PHONE: 425-774-0106

ANALYSIS REQUESTED

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-G/BTEX	NWTPH-Dx	ARSENIC	% MOISTURE	REMARKS
H-PEX-6-4	9/9/10	12:00	Soil	1	4	X	X	X	X	24-Hour TAT
H-PEX-5-8	11	10:40	11	2	4	X	X	X	X	11
H-PEX-4-8	11	10:30	11	3	4	X	X	X	X	11
H-PEX-7-5	11	12:10	11	4	4	X	X	X	X	11
H-PEX-8-6	11	12:20	11	5	4	X	X	X	X	11

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson		HWA	9/9/10	12:55	
Received by:		OSE	OSE	9/9/10	1255	
Relinquished by:						
Received by:						

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 13, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-095

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 10, 2010.

Please note that the data for NWTPH-G/BTEX analyses is *preliminary* pending QA/QC data.

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: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

Case Narrative

Samples were collected on September 10, 2010 and received by the laboratory on September 10, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The sample chromatogram for H-TP-22-8 is not similar to a typical gas.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-22-8**					
Laboratory ID:	09-095-01					
Diesel Range Organics	**ND**	63	NWTPH-Dx	9-10-10	9-10-10	U1
Lube Oil	**300**	58	NWTPH-Dx	9-10-10	9-10-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-23-7**					
Laboratory ID:	09-095-02					
Diesel Fuel #2	**5400**	30	NWTPH-Dx	9-10-10	9-10-10	
Lube Oil	**680**	60	NWTPH-Dx	9-10-10	9-10-10	N1
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				

Date of Report: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0910S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-10-10	9-10-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-10-10	9-10-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-078-06							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*94*	*101*	*50-150*			

Date of Report: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-22-8**					
Laboratory ID:	09-095-01					
Benzene	**ND**	0.020	EPA 8021	9-10-10	9-13-10	
Toluene	**ND**	0.064	EPA 8021	9-10-10	9-13-10	
Ethyl Benzene	**0.27**	0.064	EPA 8021	9-10-10	9-13-10	
m,p-Xylene	**1.2**	0.064	EPA 8021	9-10-10	9-13-10	
o-Xylene	**0.19**	0.064	EPA 8021	9-10-10	9-13-10	
Gasoline	**12**	6.4	NWTPH-Gx	9-10-10	9-13-10	T
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-23-7**					
Laboratory ID:	09-095-02					
Benzene	**ND**	0.060	EPA 8021	9-10-10	9-10-10	
Toluene	**ND**	0.30	EPA 8021	9-10-10	9-10-10	
Ethyl Benzene	**0.65**	0.30	EPA 8021	9-10-10	9-10-10	
m,p-Xylene	**0.72**	0.30	EPA 8021	9-10-10	9-10-10	
o-Xylene	**ND**	0.15	EPA 8021	9-10-10	9-10-10	U1
Gasoline	**ND**	30	NWTPH-Gx	9-10-10	9-10-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*107*	*55-127*				

Date of Report: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0910S1					
Benzene	**ND**	0.020	EPA 8021	9-10-10	9-13-10	
Toluene	**ND**	0.050	EPA 8021	9-10-10	9-13-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-10-10	9-13-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-10-10	9-13-10	
o-Xylene	**ND**	0.050	EPA 8021	9-10-10	9-13-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-10-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*55-127*				

Date of Report: September 13, 2010
Samples Submitted: September 10, 2010
Laboratory Reference: 1009-095
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-10-10

Client ID	Lab ID	% Moisture
H-TP-22-8	09-095-01	14
H-TP-23-9	09-095-02	17

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-napthalene) 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 gas.

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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 9/10/10
PAGE: 1 of 2

PROJECT NAME: Bothell Crossroads-Hertz #: 2007-098-921
SITE CODE:
SAMPLERS NAME: Pete Pearson PHONE: 206-794-3313
SAMPLERS SIGNATURE:
HWA CONTACT: Vance Atkins PHONE: 425 774 0106

09-095

24-hour TAT

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH-G/BTEX	% MOISTURE	REMARKS
H-TP-22-8	9/10/10	10:25	S	1	4	X	X	X	
H-TP-23-7	9/10/10	12:20	S	2	4	X	X	X	

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson		HWA	9/10/10	1310	
Received by:	M. Vaun		OSE	9/10/10	1310	
Relinquished by:						
Received by:						

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 16, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-106

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 13, 2010.

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: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

Case Narrative

Samples were collected on September 13, 2010 and received by the laboratory on September 13, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The MTCA Method A clean-up level for Benzene for sample H-TP-25-8 is not achievable due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Volatiles EPA 8260B Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Some MTCA Method A cleanup levels are non-achievable due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Semivolatiles EPA 8270D/SIM Analysis

Sample MS/MSD pair had several recoveries fall outside of control limits believed to be caused by sample matrix. Due to the dilution of the sample MS/MSD two analytes were lost 1,4-Dichlorobenzene and 1,2,4-Trichlorobenzene. The SB/SBD pair extracted with this batch had all parameters in control, no further action was deemed necessary.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Total Metals EPA 6010B/7471A Analysis

The duplicate RPD for chromium is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-9-5**					
Laboratory ID:	09-106-02					
Diesel Fuel #2	**820**	30	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	110	NWTPH-Dx	9-14-10	9-14-10	U1
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**H-PEX-10-7**					
Laboratory ID:	09-106-03					
Diesel Fuel #2	**600**	29	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil	**86**	58	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**H-PEX-11-6**					
Laboratory ID:	09-106-04					
Diesel Fuel #2	**1900**	29	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil	**2700**	57	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				
Client ID:	**H-SP-1**					
Laboratory ID:	09-106-05					
Diesel Range Organics	**ND**	27	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	55	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*107*	*50-150*				
Client ID:	**H-SP-2**					
Laboratory ID:	09-106-06					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil	**78**	58	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**H-TP-24-3**					
Laboratory ID:	09-106-07					
Diesel Range Organics	**ND**	55	NWTPH-Dx	9-14-10	9-14-10	U1
Lube Oil	**200**	57	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-24-8**					
Laboratory ID:	09-106-08					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	58	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**H-TP-25-2**					
Laboratory ID:	09-106-09					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				
Client ID:	**H-TP-25-8**					
Laboratory ID:	09-106-10					
Diesel Fuel #2	**5400**	33	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil	**1700**	65	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*88*	*50-150*				
Client ID:	**H-DUP-091310**					
Laboratory ID:	09-106-11					
Diesel Fuel #2	**950**	29	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	120	NWTPH-Dx	9-14-10	9-14-10	U1
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0914S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-14-10	9-14-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*113*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-106-05							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*107*	*99*	*50-150*			

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-9-5**					
Laboratory ID:	09-106-02					
Benzene	**ND**	0.027	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.14	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.14	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.14	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.14	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	14	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-PEX-10-7**					
Laboratory ID:	09-106-03					
Benzene	**ND**	0.023	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	12	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*105*	*55-127*				
Client ID:	**H-PEX-11-6**					
Laboratory ID:	09-106-04					
Benzene	**ND**	0.027	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.13	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**0.25**	0.13	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**0.38**	0.13	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.65	EPA 8021	9-13-10	9-13-10	U1
Gasoline	**ND**	13	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-1**					
Laboratory ID:	09-106-05					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.065	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.065	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.065	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	6.5	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-SP-2**					
Laboratory ID:	09-106-06					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.061	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.061	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.061	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.061	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	6.1	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-24-3**					
Laboratory ID:	09-106-07					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.064	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.064	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.064	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.064	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	6.4	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-24-8**					
Laboratory ID:	09-106-08					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.051	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.051	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.051	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.051	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	5.1	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-TP-25-2**					
Laboratory ID:	09-106-09					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.063	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.063	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.063	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.063	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	6.3	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*55-127*				
Client ID:	**H-TP-25-8**					
Laboratory ID:	09-106-10					
Benzene	**ND**	0.032	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.16	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**0.31**	0.16	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**0.42**	0.16	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.80	EPA 8021	9-13-10	9-13-10	U1
Gasoline	**ND**	16	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				

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NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-DUP-091310**					
Laboratory ID:	09-106-11					
Benzene	**ND**	0.025	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.12	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	12	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0913S1					
Benzene	**ND**	0.020	EPA 8021	9-13-10	9-13-10	
Toluene	**ND**	0.050	EPA 8021	9-13-10	9-13-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-13-10	9-13-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-13-10	9-13-10	
o-Xylene	**ND**	0.050	EPA 8021	9-13-10	9-13-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-13-10	9-13-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-106-07										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*98*	*98*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0913S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.01**	**0.985**	1.00	1.00		**101**	**99**	75-113	3	9	
Toluene	**0.983**	**0.961**	1.00	1.00		**98**	**96**	75-116	2	10	
Ethyl Benzene	**0.978**	**0.954**	1.00	1.00		**98**	**95**	82-117	2	10	
m,p-Xylene	**0.998**	**0.976**	1.00	1.00		**100**	**98**	81-122	2	10	
o-Xylene	**0.988**	**0.962**	1.00	1.00		**99**	**96**	83-118	3	10	
Surrogate:											
Fluorobenzene						*95*	*93*	*55-127*			

Date of Report: September 16, 2010
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Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-11-6**					
Laboratory ID:	09-106-04					
n-Nitrosodimethylamine	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Pyridine	**ND**	1.9	EPA 8270	9-13-10	9-14-10	
Phenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Aniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroethyl)ether	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Chlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,3-Dichlorobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,4-Dichlorobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Benzyl alcohol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,2-Dichlorobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Methylphenol (o-Cresol)	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroisopropyl)ether	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
n-Nitroso-di-n-propylamine	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Hexachloroethane	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Nitrobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Isophorone	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Nitrophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,4-Dimethylphenol	**ND**	4.8	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroethoxy)methane	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,4-Dichlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,2,4-Trichlorobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Naphthalene	**1.4**	0.19	EPA 8270	9-13-10	9-14-10	
4-Chloroaniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Hexachlorobutadiene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
4-Chloro-3-methylphenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Methylnaphthalene	**14**	0.77	EPA 8270	9-13-10	9-14-10	
1-Methylnaphthalene	**8.4**	0.19	EPA 8270	9-13-10	9-14-10	
Hexachlorocyclopentadiene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,4,6-Trichlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,3-Dichloroaniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,4,5-Trichlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Chloronaphthalene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2-Nitroaniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,4-Dinitrobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Dimethylphthalate	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,3-Dinitrobenzene	**ND**	0.96	EPA 8270	9-13-10	9-14-10	
2,6-Dinitrotoluene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,2-Dinitrobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Acenaphthylene	**0.16**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
3-Nitroaniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-11-6**					
Laboratory ID:	09-106-04					
2,4-Dinitrophenol	**ND**	0.96	EPA 8270	9-13-10	9-14-10	
Acenaphthene	**0.43**	0.19	EPA 8270	9-13-10	9-14-10	
4-Nitrophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,4-Dinitrotoluene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Dibenzofuran	**0.44**	0.19	EPA 8270	9-13-10	9-14-10	
2,3,5,6-Tetrachlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
2,3,4,6-Tetrachlorophenol	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Diethylphthalate	**ND**	0.96	EPA 8270	9-13-10	9-14-10	
4-Chlorophenyl-phenylether	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
4-Nitroaniline	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Fluorene	**0.96**	0.19	EPA 8270	9-13-10	9-14-10	
4,6-Dinitro-2-methylphenol	**ND**	0.96	EPA 8270	9-13-10	9-14-10	
n-Nitrosodiphenylamine	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
1,2-Diphenylhydrazine	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
4-Bromophenyl-phenylether	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Hexachlorobenzene	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Pentachlorophenol	**ND**	0.96	EPA 8270	9-13-10	9-14-10	
Phenanthrene	**1.8**	0.19	EPA 8270	9-13-10	9-14-10	
Anthracene	**0.20**	0.19	EPA 8270	9-13-10	9-14-10	
Carbazole	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Di-n-butylphthalate	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Fluoranthene	**0.093**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Benzidine	**ND**	1.9	EPA 8270	9-13-10	9-14-10	
Pyrene	**0.20**	0.19	EPA 8270	9-13-10	9-14-10	
Butylbenzylphthalate	**2.4**	0.19	EPA 8270	9-13-10	9-14-10	
bis-2-Ethylhexyladipate	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
3,3'-Dichlorobenzidine	**ND**	1.9	EPA 8270	9-13-10	9-14-10	
Benzo[a]anthracene	**0.073**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Chrysene	**0.21**	0.19	EPA 8270	9-13-10	9-14-10	
bis(2-Ethylhexyl)phthalate	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Di-n-octylphthalate	**ND**	0.19	EPA 8270	9-13-10	9-14-10	
Benzo[b]fluoranthene	**0.055**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[k]fluoranthene	**0.0078**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[a]pyrene	**0.043**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Indeno[1,2,3-cd]pyrene	**0.020**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Dibenz[a,h]anthracene	**ND**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[g,h,i]perylene	**0.039**	0.0077	EPA 8270/SIM	9-13-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*49*	*22 - 107*				
Phenol-d6	*69*	*28 - 116*				
Nitrobenzene-d5	*48*	*25 - 111*				
2-Fluorobiphenyl	*76*	*35 - 108*				
2,4,6-Tribromophenol	*71*	*42 - 118*				
Terphenyl-d14	*74*	*44 - 121*				

Date of Report: September 16, 2010
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Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0913S1					
n-Nitrosodimethylamine	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Pyridine	**ND**	0.33	EPA 8270	9-13-10	9-14-10	
Phenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Aniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroethyl)ether	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Chlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,3-Dichlorobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,4-Dichlorobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Benzyl alcohol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,2-Dichlorobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Methylphenol (o-Cresol)	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroisopropyl)ether	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
n-Nitroso-di-n-propylamine	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Hexachloroethane	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Nitrobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Isophorone	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Nitrophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,4-Dimethylphenol	**ND**	0.83	EPA 8270	9-13-10	9-14-10	
bis(2-Chloroethoxy)methane	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,4-Dichlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,2,4-Trichlorobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Naphthalene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
4-Chloroaniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Hexachlorobutadiene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
4-Chloro-3-methylphenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Hexachlorocyclopentadiene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,4,6-Trichlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,3-Dichloroaniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,4,5-Trichlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Chloronaphthalene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2-Nitroaniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,4-Dinitrobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Dimethylphthalate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,3-Dinitrobenzene	**ND**	0.17	EPA 8270	9-13-10	9-14-10	
2,6-Dinitrotoluene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,2-Dinitrobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Acenaphthylene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
3-Nitroaniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	

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SEMIVOLATILES by EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0913S1					
2,4-Dinitrophenol	**ND**	0.17	EPA 8270	9-13-10	9-14-10	
Acenaphthene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
4-Nitrophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,4-Dinitrotoluene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Dibenzofuran	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,3,5,6-Tetrachlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
2,3,4,6-Tetrachlorophenol	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Diethylphthalate	**ND**	0.17	EPA 8270	9-13-10	9-14-10	
4-Chlorophenyl-phenylether	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
4-Nitroaniline	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Fluorene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
4,6-Dinitro-2-methylphenol	**ND**	0.17	EPA 8270	9-13-10	9-14-10	
n-Nitrosodiphenylamine	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
1,2-Diphenylhydrazine	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
4-Bromophenyl-phenylether	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Hexachlorobenzene	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Pentachlorophenol	**ND**	0.17	EPA 8270	9-13-10	9-14-10	
Phenanthrene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Anthracene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Carbazole	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Di-n-butylphthalate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Benzidine	**ND**	0.33	EPA 8270	9-13-10	9-14-10	
Pyrene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Butylbenzylphthalate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
bis-2-Ethylhexyladipate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
3,3'-Dichlorobenzidine	**ND**	0.33	EPA 8270	9-13-10	9-14-10	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Chrysene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
bis(2-Ethylhexyl)phthalate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Di-n-octylphthalate	**ND**	0.033	EPA 8270	9-13-10	9-14-10	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[k]fluoranthene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Indeno[1,2,3-cd]pyrene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270/SIM	9-13-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*52*	*22 - 107*				
Phenol-d6	*57*	*28 - 116*				
Nitrobenzene-d5	*51*	*25 - 111*				
2-Fluorobiphenyl	*57*	*35 - 108*				
2,4,6-Tribromophenol	*74*	*42 - 118*				
Terphenyl-d14	*73*	*44 - 121*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

SEMIVOLATILES by EPA 8270D/SIM
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-106-01										
	MS	MSD	MS	MSD		MS	MSD				
Phenol	**1.25**	**0.982**	1.33	1.33	ND	94	74	31 - 111	24	27	
2-Chlorophenol	**1.23**	**0.895**	1.33	1.33	ND	92	67	36 - 106	32	32	
1,4-Dichlorobenzene	**ND**	**ND**	0.667	0.667	ND	0	0	25 - 96	NA	42	I,I,L
n-Nitroso-di-n-propylamine	**0.795**	**0.691**	0.667	0.667	ND	119	104	37 - 107	14	36	I
1,2,4-Trichlorobenzene	**ND**	**ND**	0.667	0.667	ND	0	0	29 - 101	NA	31	I,I,L
4-Chloro-3-methylphenol	**1.36**	**1.27**	1.33	1.33	ND	102	95	47 - 112	7	18	
Acenaphthene	**0.901**	**0.893**	0.667	0.667	ND	135	134	43 - 104	1	19	I,I
4-Nitrophenol	**1.53**	**1.74**	1.33	1.33	ND	115	131	24 - 133	13	18	
2,4-Dinitrotoluene	**1.24**	**0.757**	0.667	0.667	ND	186	113	42 -117	48	19	I,I,L
Pentachlorophenol	**0.860**	**0.865**	1.33	1.33	ND	65	65	25 - 135	0	20	
Pyrene	**0.802**	**0.639**	0.667	0.667	ND	120	96	29 - 129	31	29	L
Surrogate:											
2-Fluorophenol						*78*	*51*	*22 - 107*			
Phenol-d6						*93*	*70*	*28 - 116*			
Nitrobenzene-d5						*80*	*68*	*25 - 111*			
2-Fluorobiphenyl						*91*	*75*	*35 - 108*			
2,4,6-Tribromophenol						*86*	*80*	*42 - 118*			
Terphenyl-d14						*90*	*78*	*44 - 121*			

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

SEMIVOLATILES by EPA 8270D/SIM
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0913S1									
	SB	SBD	SB	SBD	SB	SBD				
Phenol	**1.02**	**0.971**	1.33	1.33	77	73	28 - 112	5	31	
2-Chlorophenol	**1.04**	**1.00**	1.33	1.33	78	75	24 - 115	4	39	
1,4-Dichlorobenzene	**0.425**	**0.451**	0.667	0.667	64	68	16 - 108	6	36	
n-Nitroso-di-n-propylamine	**0.468**	**0.445**	0.667	0.667	70	67	24 - 111	5	31	
1,2,4-Trichlorobenzene	**0.427**	**0.437**	0.667	0.667	64	66	18 - 110	2	34	
4-Chloro-3-methylphenol	**1.10**	**1.10**	1.33	1.33	83	83	51 - 106	0	24	
Acenaphthene	**0.507**	**0.482**	0.667	0.667	76	72	45 - 99	5	24	
4-Nitrophenol	**1.23**	**1.30**	1.33	1.33	92	98	38 - 134	6	25	
2,4-Dinitrotoluene	**0.575**	**0.587**	0.667	0.667	86	88	51 - 114	2	25	
Pentachlorophenol	**1.30**	**1.38**	1.33	1.33	98	104	44 - 130	6	26	
Pyrene	**0.537**	**0.578**	0.667	0.667	81	87	58 - 110	7	22	
Surrogate:										
2-Fluorophenol					*70*	*70*	*22 - 107*			
Phenol-d6					*76*	*72*	*28 - 116*			
Nitrobenzene-d5					*71*	*70*	*25 - 111*			
2-Fluorobiphenyl					*69*	*66*	*35 - 108*			
2,4,6-Tribromophenol					*83*	*85*	*42 - 118*			
Terphenyl-d14					*80*	*85*	*44 - 121*			

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

VOLATILES by EPA 8260B
Page 1 of 2

Date Extracted:	9-13-10
Date Analyzed:	9-13-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	09-106-04
Client ID:	**H-PEX-11-6**

Compound	**Results**	**Flags**	**PQL**
Dichlorodifluoromethane	ND		0.062
Chloromethane	ND		0.31
Vinyl Chloride	ND		0.062
Bromomethane	ND		0.062
Chloroethane	ND		0.31
Trichlorofluoromethane	ND		0.062
1,1-Dichloroethene	ND		0.062
Acetone	ND		0.31
Iodomethane	ND		0.31
Carbon Disulfide	ND		0.062
Methylene Chloride	ND		0.31
(trans) 1,2-Dichloroethene	ND		0.062
Methyl t-Butyl Ether	ND		0.062
1,1-Dichloroethane	ND		0.062
Vinyl Acetate	ND		0.31
2,2-Dichloropropane	ND		0.062
(cis) 1,2-Dichloroethene	ND		0.062
2-Butanone	ND		0.31
Bromochloromethane	ND		0.062
Chloroform	ND		0.062
1,1,1-Trichloroethane	ND		0.062
Carbon Tetrachloride	ND		0.062
1,1-Dichloropropene	ND		0.062
Benzene	ND		0.062
1,2-Dichloroethane	ND		0.062
Trichloroethene	ND		0.062
1,2-Dichloropropane	ND		0.062
Dibromomethane	ND		0.062
Bromodichloromethane	ND		0.062
2-Chloroethyl Vinyl Ether	ND		0.31
(cis) 1,3-Dichloropropene	ND		0.062
Methyl Isobutyl Ketone	ND		0.31
Toluene	ND		0.31
(trans) 1,3-Dichloropropene	ND		0.062

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

VOLATILES by EPA 8260B
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Lab ID: 09-106-04
Client ID: H-PEX-11-6

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.062
Tetrachloroethene	ND		0.062
1,3-Dichloropropane	ND		0.062
2-Hexanone	ND		0.31
Dibromochloromethane	ND		0.062
1,2-Dibromoethane	ND		0.062
Chlorobenzene	ND		0.062
1,1,1,2-Tetrachloroethane	ND		0.062
Ethylbenzene	ND		0.062
m,p-Xylene	ND		0.12
o-Xylene	ND		0.062
Styrene	ND		0.062
Bromoform	ND		0.062
Isopropylbenzene	0.19		0.062
Bromobenzene	ND		0.062
1,1,2,2-Tetrachloroethane	ND		0.062
1,2,3-Trichloropropane	ND		0.062
n-Propylbenzene	0.39		0.062
2-Chlorotoluene	ND		0.062
4-Chlorotoluene	ND		0.062
1,3,5-Trimethylbenzene	ND		0.062
tert-Butylbenzene	ND		0.062
1,2,4-Trimethylbenzene	0.37		0.062
sec-Butylbenzene	0.34		0.062
1,3-Dichlorobenzene	ND		0.062
p-Isopropyltoluene	0.095		0.062
1,4-Dichlorobenzene	ND		0.062
1,2-Dichlorobenzene	ND		0.062
n-Butylbenzene	0.55		0.062
1,2-Dibromo-3-chloropropane	ND		0.31
1,2,4-Trichlorobenzene	ND		0.062
Hexachlorobutadiene	ND		0.31
Naphthalene	0.39		0.062
1,2,3-Trichlorobenzene	ND		0.062

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	79	66-128
Toluene-d8	104	68-126
4-Bromofluorobenzene	85	53-134

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
Page 1 of 2

Date Extracted:	9-13-10
Date Analyzed:	9-13-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0913S1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0010
Chloromethane	ND		0.0050
Vinyl Chloride	ND		0.0010
Bromomethane	ND		0.0010
Chloroethane	ND		0.0050
Trichlorofluoromethane	ND		0.0010
1,1-Dichloroethene	ND		0.0010
Acetone	ND		0.0050
Iodomethane	ND		0.0050
Carbon Disulfide	ND		0.0010
Methylene Chloride	ND		0.0050
(trans) 1,2-Dichloroethene	ND		0.0010
Methyl t-Butyl Ether	ND		0.0010
1,1-Dichloroethane	ND		0.0010
Vinyl Acetate	ND		0.0050
2,2-Dichloropropane	ND		0.0010
(cis) 1,2-Dichloroethene	ND		0.0010
2-Butanone	ND		0.0050
Bromochloromethane	ND		0.0010
Chloroform	ND		0.0010
1,1,1-Trichloroethane	ND		0.0010
Carbon Tetrachloride	ND		0.0010
1,1-Dichloropropene	ND		0.0010
Benzene	ND		0.0010
1,2-Dichloroethane	ND		0.0010
Trichloroethene	ND		0.0010
1,2-Dichloropropane	ND		0.0010
Dibromomethane	ND		0.0010
Bromodichloromethane	ND		0.0010
2-Chloroethyl Vinyl Ether	ND		0.0050
(cis) 1,3-Dichloropropene	ND		0.0010
Methyl Isobutyl Ketone	ND		0.0050
Toluene	ND		0.0050
(trans) 1,3-Dichloropropene	ND		0.0010

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
Page 2 of 2

Lab ID: MB0913S1

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0010
Tetrachloroethene	ND		0.0010
1,3-Dichloropropane	ND		0.0010
2-Hexanone	ND		0.0050
Dibromochloromethane	ND		0.0010
1,2-Dibromoethane	ND		0.0010
Chlorobenzene	ND		0.0010
1,1,1,2-Tetrachloroethane	ND		0.0010
Ethylbenzene	ND		0.0010
m,p-Xylene	ND		0.0020
o-Xylene	ND		0.0010
Styrene	ND		0.0010
Bromoform	ND		0.0010
Isopropylbenzene	ND		0.0010
Bromobenzene	ND		0.0010
1,1,2,2-Tetrachloroethane	ND		0.0010
1,2,3-Trichloropropane	ND		0.0010
n-Propylbenzene	ND		0.0010
2-Chlorotoluene	ND		0.0010
4-Chlorotoluene	ND		0.0010
1,3,5-Trimethylbenzene	ND		0.0010
tert-Butylbenzene	ND		0.0010
1,2,4-Trimethylbenzene	ND		0.0010
sec-Butylbenzene	ND		0.0010
1,3-Dichlorobenzene	ND		0.0010
p-Isopropyltoluene	ND		0.0010
1,4-Dichlorobenzene	ND		0.0010
1,2-Dichlorobenzene	ND		0.0010
n-Butylbenzene	ND		0.0010
1,2-Dibromo-3-chloropropane	ND		0.0050
1,2,4-Trichlorobenzene	ND		0.0010
Hexachlorobutadiene	ND		0.0050
Naphthalene	ND		0.0010
1,2,3-Trichlorobenzene	ND		0.0010

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	87	66-128
Toluene-d8	101	68-126
4-Bromofluorobenzene	88	53-134

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

VOLATILES by EPA 8260B
MS/MSD QUALITY CONTROL

Date Extracted: 9-13-10
Date Analyzed: 9-13-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-106-04

Compound	Sample Amount	Spike Amount	MS	Percent Recovery	MSD	Percent Recovery	Recovery Limits	Flags
1,1-Dichloroethene	ND	1.02/0.969	1.01	99	0.920	95	70-130	
Benzene	ND	1.02/0.969	0.941	92	0.870	90	70-130	
Trichloroethene	ND	1.02/0.969	1.04	102	0.975	101	70-130	
Toluene	ND	1.02/0.969	1.01	99	0.946	98	70-126	
Chlorobenzene	ND	1.02/0.969	1.01	99	0.982	101	70-130	

	RPD	RPD Limit	Flags
1,1-Dichloroethene	4	14	
Benzene	2	14	
Trichloroethene	1	18	
Toluene	1	20	
Chlorobenzene	2	15	

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-106-04					
Client ID:	**H-PEX-11-6**					
Arsenic	**ND**	11	6010B	9-13-10	9-13-10	
Barium	**50**	2.9	6010B	9-13-10	9-13-10	
Cadmium	**ND**	0.57	6010B	9-13-10	9-13-10	
Chromium	**23**	0.57	6010B	9-13-10	9-13-10	
Lead	**37**	5.7	6010B	9-13-10	9-13-10	
Mercury	**ND**	0.29	7471A	9-13-10	9-13-10	
Selenium	**ND**	11	6010B	9-13-10	9-13-10	
Silver	**ND**	0.57	6010B	9-13-10	9-13-10	

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-13-10
Date Analyzed:	9-13-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0913S1&MB0913S3

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-13-10
Date Analyzed: 9-13-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-091-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**13.9**	**16.7**	18	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**6.40**	**7.95**	22	0.50	K
Lead	**18.8**	**22.2**	17	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-13-10
Date Analyzed: 9-13-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-091-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**97.9**	98	**97.4**	97	0	
Barium	100	**108**	94	**110**	96	2	
Cadmium	50	**42.6**	85	**43.0**	86	1	
Chromium	100	**95.1**	89	**97.5**	91	3	
Lead	250	**235**	86	**241**	89	3	
Mercury	0.50	**0.508**	102	**0.509**	102	0	
Selenium	100	**92.7**	93	**91.7**	92	1	
Silver	25	**22.2**	89	**22.3**	89	0	

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

PCBs by EPA 8082

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-11-6**					
Laboratory ID:	09-106-04					
Aroclor 1016	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1221	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1232	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1242	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1248	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1254	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Aroclor 1260	**ND**	0.057	EPA 8082	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*88*	*46-122*				

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

PCBs by EPA 8082
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0914S1					
Aroclor 1016	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1221	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1232	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1242	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1248	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1254	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Aroclor 1260	**ND**	0.050	EPA 8082	9-14-10	9-14-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*102*	*46-122*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-106-04										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	**0.474**	**0.523**	0.500	0.500	ND	**95**	**105**	36-121	10	15	
Surrogate:											
DCB						*86*	*92*	*46-122*			

Date of Report: September 16, 2010
Samples Submitted: September 13, 2010
Laboratory Reference: 1009-106
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-13-10

Client ID	Lab ID	% Moisture
H-PEX-9-5	09-106-02	17
H-PEX-10-7	09-106-03	13
H-PEX-11-6	09-106-04	13
H-SP-1	09-106-05	9
H-SP-2	09-106-06	13
H-TP-24-3	09-106-07	12
H-TP-24-8	09-106-08	14
H-TP-25-2	09-106-09	11
H-TP-25-8	09-106-10	23
H-DUP-091310	09-106-11	15

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

CERTIFICATE OF ANALYSIS

CLIENT: OnSite Environmental Inc.
14648 NE 95th Street
Redmond, WA 98052

DATE: 9/16/2010
ALS JOB#: 1009094
DATE RECEIVED: 9/14/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-106 / Proj #2007-098-921
CLIENT SAMPLE ID: 9/13/2010 H-PEX-11-6
ALS SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
C5-C6 Aliphatics	NWVPH	ND	5.0	1	MG/KG	9/15/2010	DLC
>C6-C8 Aliphatics	NWVPH	**9.3**	5.0	1	MG/KG	9/15/2010	DLC
>C8-C10 Aliphatics	NWVPH	**17**	5.0	1	MG/KG	9/15/2010	DLC
>C8-C10 Aromatics	NWVPH	**66**	5.0	1	MG/KG	9/15/2010	DLC
Total Aliphatics	NWVPH	**29**	5.0	1	MG/KG	9/15/2010	DLC
Total Aromatics	NWVPH	**66**	5.0	1	MG/KG	9/15/2010	DLC
Hexane	NWVPH	ND	0.20	1	MG/KG	9/15/2010	DLC
>C10-C12 Aliphatics	NWEPH	**290**	5.0	1	MG/KG	9/15/2010	GAP
>C12-C16 Aliphatics	NWEPH	**1,100**	5.0	1	MG/KG	9/15/2010	GAP
>C16-C21 Aliphatics	NWEPH	**870**	5.0	1	MG/KG	9/15/2010	GAP
>C21-C34 Aliphatics	NWEPH	**1,200**	5.0	1	MG/KG	9/15/2010	GAP
>C10-C12 Aromatics	NWEPH	**61**	5.0	1	MG/KG	9/15/2010	GAP
>C12-C16 Aromatics	NWEPH	**780**	5.0	1	MG/KG	9/15/2010	GAP
>C16-C21 Aromatics	NWEPH	**800**	5.0	1	MG/KG	9/15/2010	GAP
>C21-C34 Aromatics	NWEPH	**810**	5.0	1	MG/KG	9/15/2010	GAP
Total Aliphatics	NWEPH	**3,500**	10	1	MG/KG	9/15/2010	GAP
Total Aromatics	NWEPH	**2,500**	10	1	MG/KG	9/15/2010	GAP

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	9/16/2010
		ALS JOB#:	1009094
		DATE RECEIVED:	9/14/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-106 / Proj #2007-098-921

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

ALS SAMPLE ID	METHOD	SUR ID	% RECV
1009094-01	NWVPH	TFT - Aliphatic	75%
1009094-01	NWVPH	TFT - Aromatic	76%
1009094-01	NWVPH	TFT - Hexane	84%
1009094-01	NWEPH	C25	71%
1009094-01	NWEPH	p-Terphenyl	78%

APPROVED BY:

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	9/16/2010
		ALS JOB#:	1009094
		DATE RECEIVED:	9/14/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-106 / Proj #2007-098-921

QUALITY CONTROL RESULTS

BLANK RESULTS

QC SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS
MBLK-9152010	Soil	NWVPH	C5-C6 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	>C6-C8 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	>C8-C10 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	>C8-C10 Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	Total Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	Total Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWVPH	Hexane	ND(<0.20)	MG/KG
MBLK-9152010	Soil	NWEPH	>C10-C12 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C12-C16 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C16-C21 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C21-C34 Aliphatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C10-C12 Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C12-C16 Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C16-C21 Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	>C21-C34 Aromatics	ND(<5.0)	MG/KG
MBLK-9152010	Soil	NWEPH	Total Aliphatics	ND(<10)	MG/KG
MBLK-9152010	Soil	NWEPH	Total Aromatics	ND(<10)	MG/KG

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ALS Laboratory Group A Campbell Brothers Limited Company

CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental Inc. 14648 NE 95th Street Redmond, WA 98052	DATE:	9/16/2010
		ALS JOB#:	1009094
		DATE RECEIVED:	9/14/2010
		WDOE ACCREDITATION #:	C1336

CLIENT CONTACT: Dave Baumeister
CLIENT PROJECT ID: Lab Ref #09-106 / Proj #2007-098-921

QUALITY CONTROL RESULTS

BLANK SPIKE/BLANK SPIKE DUPLICATE RESULTS

QC BATCH ID	MATRIX	METHOD	ANALYTE	SPIKE AMOUNT	BLANK SPIKE RECOVERY	BLANK SPIKE DUPLICATE RECOVERY	RPD
R70527	Soil	NWVPH	C5-C6 Aliphatics	100	88%	93%	6
R70527	Soil	NWVPH	>C6-C8 Aliphatics	100	101%	107%	6
R70527	Soil	NWVPH	>C8-C10 Aliphatics	100	100%	107%	7
R70527	Soil	NWVPH	>C8-C10 Aromatics	100	97%	106%	9
R70527	Soil	NWVPH	Hexane	100	89%	95%	7
R70528	Soil	NWEPH	>C10-C12 Aliphatics	100	83%	81%	2
R70528	Soil	NWEPH	>C12-C16 Aliphatics	100	87%	88%	1
R70528	Soil	NWEPH	>C16-C21 Aliphatics	100	93%	92%	1
R70528	Soil	NWEPH	>C21-C34 Aliphatics	100	82%	80%	2
R70528	Soil	NWEPH	>C10-C12 Aromatics	100	84%	80%	5
R70528	Soil	NWEPH	>C12-C16 Aromatics	100	86%	83%	4
R70528	Soil	NWEPH	>C16-C21 Aromatics	100	90%	89%	1
R70528	Soil	NWEPH	>C21-C34 Aromatics	100	95%	92%	3

APPROVED BY:

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

1009094

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

Page 1 of 1

Subcontract Laboratory: ALS
Contact Person:
Address:
Phone Number:
Date/Time:

Turnaround Request: ~~1 Day~~ 2 Day 3 Day
Standard
Other:

Laboratory Reference #: 09-106
Project Manager: David Baumeister
email: dbaumeister@onsite-env.com
Project Number: 2007-098-921
Project Name:

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analysis
1	H-PEX-11-6	9/13/10	1120	S	2	VPH/EPH
						CLIENT QA/QC

Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by:	OSE	9/14/10	1015	EIM
Received by:	Speedy	9/14/10	1015	
Relinquished by:	Speedy	9/14/10	1111	
Received by:	ALS	9/14/10	11:15am	
Relinquished by:				
Received by:				

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 9/13/10
PAGE: 1 of 1

09-106
24-hour TAT ASAP DB

PROJECT NAME: Bothell Crossroads Mats #: 2007-098-921
SITE CODE:
SAMPLERS NAME: P. Pearson PHONE: 206 794-3113
SAMPLERS SIGNATURE:
HWA CONTACT: V. Allen PHONE: 425 774 0106

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH G/BTEX	VPH/EPH	SVOCs	VOCs	RCRA-8	PCBs	HOLD	%MOISTURE	REMARKS
WCB-water-1	9/13/10	11:25	W	1	3	X	X		X	X	X	X	X		
H-PEX-9-5		9:30	S	2	4	X	X							X	
H-PEX-10-7		11:00		3	4	X	X								
H-PEX-11-6		11:20		4	8	X	X	X	X	X	X	X			
H-SP-1		11:30		5	4	X	X								
H-SP-2		11:40		6	4	X	X								
H-TP-24-3		11:45		7	4	X	X								
H-TP-24-8		11:50		8	4	X	X								
H-TP-25-2		12:20		9	4	X	X								
H-TP-25-8		12:25		10	4	X	X								
H-DUP-091310		-		11	4	X	X								

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson	[signature]	HWA	9/13/10	13:22	
Received by:	Van	~~Speedy~~ Van	Speedy	9/13/10	13:22	
Relinquished by:	Van	[signature]	Speedy	9/13/10	13:45	
Received by:	M. VOON	[signature]	OSE	9/13/10	1345	

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

September 16, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-119

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 14, 2010.

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: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

Case Narrative

Samples were collected on September 14, 2010 and received by the laboratory on September 14, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

<u>NWTPH Gx/BTEX Analysis</u>

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

The MTCA Method A clean-up level for Benzene is not achievable for sample H-TP-26-9 due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-26-4**					
Laboratory ID:	09-119-01					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-15-10	9-15-10	
Lube Oil	**150**	56	NWTPH-Dx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*115*	*50-150*				
Client ID:	**H-TP-26-9**					
Laboratory ID:	09-119-02					
Diesel Fuel #2	**3600**	29	NWTPH-Dx	9-15-10	9-15-10	
Lube Oil	**1800**	58	NWTPH-Dx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*106*	*50-150*				
Client ID:	**H-TP-27-5**					
Laboratory ID:	09-119-03					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-15-10	9-15-10	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*110*	*50-150*				
Client ID:	**H-TP-27-9**					
Laboratory ID:	09-119-04					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-15-10	9-15-10	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*103*	*50-150*				

Date of Report: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0915S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-15-10	9-15-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*117*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-119-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil	**134**	**80.9**				49	NA	
Surrogate:								
o-Terphenyl			*115*	*98*	*50-150*			

Date of Report: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-26-4**					
Laboratory ID:	09-119-01					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.060	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.060	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.060	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.060	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	6.0	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-26-9**					
Laboratory ID:	09-119-02					
Benzene	**ND**	0.056	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.28	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**0.53**	0.28	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**0.72**	0.28	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.28	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	28	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-27-5**					
Laboratory ID:	09-119-03					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	5.7	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-27-9**					
Laboratory ID:	09-119-04					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.068	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.068	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.068	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.068	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	6.8	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0915S1					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*84*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-119-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*97*	*94*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0915S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.974**	**0.994**	1.00	1.00		**97**	**99**	75-113	2	9	
Toluene	**0.961**	**0.981**	1.00	1.00		**96**	**98**	75-116	2	10	
Ethyl Benzene	**0.976**	**1.00**	1.00	1.00		**98**	**100**	82-117	2	10	
m,p-Xylene	**0.990**	**1.01**	1.00	1.00		**99**	**101**	81-122	2	10	
o-Xylene	**0.989**	**1.01**	1.00	1.00		**99**	**101**	83-118	2	10	
Surrogate:											
Fluorobenzene						*95*	*96*	*55-127*			

Date of Report: September 16, 2010
Samples Submitted: September 14, 2010
Laboratory Reference: 1009-119
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-14-10

Client ID	Lab ID	% Moisture
H-TP-26-4	09-119-01	11
H-TP-26-9	09-119-02	14
H-TP-27-5	09-119-03	15
H-TP-27-9	09-119-04	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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

DATE: 9/14/10
PAGE: 1 of 1

09 - 119

24HR TAT

PROJECT NAME: Bothell Crossroads #: 2007-098-921
SITE CODE:
SAMPLERS NAME: P. Pearson PHONE: 206-794-3113
SAMPLERS SIGNATURE:
HWA CONTACT: Vance Atkins PHONE: 425 774 0106

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH-Gx/BTEX	%MOISTURE	REMARKS
H-TP-26-4	9/14/10	1400	S	1	4	X	X	X	
H-TP-26-9	"	1405	"	2	"	X	X		
H-TP-27-5	"	1430	"	3	"	X	X		
H-TP-27-9	"	1440	"	4	"	X	X		

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Pete Pearson		HWA	9/14/10	1520	
Received by:	M. Vown		OSE	9/14/10	1520	
Relinquished by:						
Received by:						

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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Environmental Inc.

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September 16, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-140

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 15, 2010.

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: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

Case Narrative

Samples were collected on September 15, 2010 and received by the laboratory on September 15, 2010. They were maintained at the laboratory at a temperature of $2^{o}C$ to $6^{o}C$.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between $-7^{o}C$ and $-20^{o}C$ until extraction or analysis.

The MTCA Method A clean-up level for Benzene is not achievable for samples H-PEX-14-14 and H-PEX-16-14 due to the high moisture content of these samples.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-12-12**					
Laboratory ID:	09-140-01					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	5.7	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-PEX-13-14**					
Laboratory ID:	09-140-02					
Benzene	**ND**	0.029	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.15	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.15	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.15	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.15	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	15	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*117*	*55-127*				
Client ID:	**H-PEX-14-14**					
Laboratory ID:	09-140-03					
Benzene	**ND**	0.064	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.32	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.32	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.32	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.32	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	32	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*107*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-15-10**					
Laboratory ID:	09-140-04					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	7.2	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				
Client ID:	**H-PEX-16-14**					
Laboratory ID:	09-140-05					
Benzene	**ND**	0.053	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.27	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.27	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**0.94**	0.27	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.27	EPA 8021	9-15-10	9-15-10	
Gasoline	**30**	27	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*107*	*55-127*				
Client ID:	**H-DUP-091510**					
Laboratory ID:	09-140-06					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.057	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	5.7	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-17-7**					
Laboratory ID:	09-140-07					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.072	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	7.2	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0915S2					
Benzene	**ND**	0.020	EPA 8021	9-15-10	9-15-10	
Toluene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
o-Xylene	**ND**	0.050	EPA 8021	9-15-10	9-15-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-15-10	9-15-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-140-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*98*	*99*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0915S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.974**	**0.994**	1.00	1.00		**97**	**99**	75-113	2	9	
Toluene	**0.961**	**0.981**	1.00	1.00		**96**	**98**	75-116	2	10	
Ethyl Benzene	**0.976**	**1.00**	1.00	1.00		**98**	**100**	82-117	2	10	
m,p-Xylene	**0.990**	**1.01**	1.00	1.00		**99**	**101**	81-122	2	10	
o-Xylene	**0.989**	**1.01**	1.00	1.00		**99**	**101**	83-118	2	10	
Surrogate:											
Fluorobenzene						*95*	*96*	*55-127*			

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
Client ID:	**H-PEX-12-12**					
Laboratory ID:	09-140-01					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*81*	*50-150*				
Client ID:	**H-PEX-13-14**					
Laboratory ID:	09-140-02					
Diesel Range Organics	**ND**	120	NWTPH-Dx	9-16-10	9-16-10	U1
Lube Oil	**700**	100	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**H-PEX-14-14**					
Laboratory ID:	09-140-03					
Diesel Range Organics	**ND**	91	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil	**390**	180	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**H-PEX-15-10**					
Laboratory ID:	09-140-04					
Diesel Range Organics	**ND**	33	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	65	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				
Client ID:	**H-PEX-16-14**					
Laboratory ID:	09-140-05					
Diesel Range Organics	**ND**	130	NWTPH-Dx	9-16-10	9-16-10	U1
Lube Oil	**980**	150	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*89*	*50-150*				

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-DUP-091510**					
Laboratory ID:	09-140-06					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				
Client ID:	**H-PEX-17-7**					
Laboratory ID:	09-140-07					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0916S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-140-07							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*97*	*99*	*50-150*			

Date of Report: September 16, 2010
Samples Submitted: September 15, 2010
Laboratory Reference: 1009-140
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-15-10

Client ID	Lab ID	% Moisture
H-PEX-12-12	09-140-01	18
H-PEX-13-14	09-140-02	50
H-PEX-14-14	09-140-03	72
H-PEX-15-10	09-140-04	23
H-PEX-16-14	09-140-05	67
DUP-091510	09-140-06	11
H-PEX-17-7	09-140-07	18

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

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

Chain of Custody

Page ____ of ____

Laboratory Number: 09-140

Company: HWA
Project Number: 2007-098-921
Project Name: Bothell - Hertz
Project Manager: Atkins
Sampled by: Atkins

Turnaround Request (in working days)
(Check One)
- [ ] Same Day
- [x] 1 Day
- [ ] 2 Day
- [ ] 3 Day
- [ ] Standard (7 working days) (TPH analysis 5 working days)
- [ ] ________ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664							% Moisture
1	H-Pex-12-12	9/15/10	1145		2		\	\																	X
2	H-Pex-13-14		1150				\	\																	X
3	H-Pex-14-14		1155				\	\																	X
4	H-Pex-15-10		1200				\	\																	X
5	H-Pex-16-14		1300				\	\																	X
6	H-DUP-091510		1205				\	\																	X
7	H-Pex-17-7		1330				\	\																	X

	Signature	Company	Date	Time
Relinquished by	[signature]	HWA	9/15/10	1420
Received by	[signature]	OnSite Env	9/15/10	1420
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Client Copy

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Environmental Inc.
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September 17, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-154

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 16, 2010.

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: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

Case Narrative

Samples were received by the laboratory on September 16, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-18-11**					
Laboratory ID:	09-154-01					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-17-10	
Toluene	**ND**	0.069	EPA 8021	9-16-10	9-17-10	
Ethyl Benzene	**ND**	0.069	EPA 8021	9-16-10	9-17-10	
m,p-Xylene	**ND**	0.069	EPA 8021	9-16-10	9-17-10	
o-Xylene	**ND**	0.069	EPA 8021	9-16-10	9-17-10	
Gasoline	**ND**	6.9	NWTPH-Gx	9-16-10	9-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*55-127*				
Client ID:	**H-PEX-19-6**					
Laboratory ID:	09-154-02					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-17-10	
Toluene	**ND**	0.070	EPA 8021	9-16-10	9-17-10	
Ethyl Benzene	**ND**	0.070	EPA 8021	9-16-10	9-17-10	
m,p-Xylene	**ND**	0.070	EPA 8021	9-16-10	9-17-10	
o-Xylene	**ND**	0.070	EPA 8021	9-16-10	9-17-10	
Gasoline	**ND**	7.0	NWTPH-Gx	9-16-10	9-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*55-127*				
Client ID:	**H-PEX-20-6**					
Laboratory ID:	09-154-03					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-16-10	
Toluene	**ND**	0.073	EPA 8021	9-16-10	9-16-10	
Ethyl Benzene	**ND**	0.073	EPA 8021	9-16-10	9-16-10	
m,p-Xylene	**ND**	0.073	EPA 8021	9-16-10	9-16-10	
o-Xylene	**ND**	0.073	EPA 8021	9-16-10	9-16-10	
Gasoline	**ND**	7.3	NWTPH-Gx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*108*	*55-127*				

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-TP-28-9**					
Laboratory ID:	09-154-04					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-16-10	
Toluene	**ND**	0.051	EPA 8021	9-16-10	9-16-10	
Ethyl Benzene	**ND**	0.051	EPA 8021	9-16-10	9-16-10	
m,p-Xylene	**ND**	0.051	EPA 8021	9-16-10	9-16-10	
o-Xylene	**ND**	0.051	EPA 8021	9-16-10	9-16-10	
Gasoline	**ND**	5.1	NWTPH-Gx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*55-127*				
Client ID:	**H-TP-29-6**					
Laboratory ID:	09-154-05					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-16-10	
Toluene	**ND**	0.046	EPA 8021	9-16-10	9-16-10	
Ethyl Benzene	**ND**	0.046	EPA 8021	9-16-10	9-16-10	
m,p-Xylene	**ND**	0.046	EPA 8021	9-16-10	9-16-10	
o-Xylene	**ND**	0.046	EPA 8021	9-16-10	9-16-10	
Gasoline	**ND**	4.6	NWTPH-Gx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*111*	*55-127*				
Client ID:	**H-Dup-091610**					
Laboratory ID:	09-154-06					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-16-10	
Toluene	**ND**	0.049	EPA 8021	9-16-10	9-16-10	
Ethyl Benzene	**ND**	0.049	EPA 8021	9-16-10	9-16-10	
m,p-Xylene	**ND**	0.049	EPA 8021	9-16-10	9-16-10	
o-Xylene	**ND**	0.049	EPA 8021	9-16-10	9-16-10	
Gasoline	**ND**	4.9	NWTPH-Gx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0916S2					
Benzene	**ND**	0.020	EPA 8021	9-16-10	9-16-10	
Toluene	**ND**	0.050	EPA 8021	9-16-10	9-16-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-16-10	9-16-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-16-10	9-16-10	
o-Xylene	**ND**	0.050	EPA 8021	9-16-10	9-16-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-154-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*107*	*107*	*55-127*			
MATRIX SPIKES											
Laboratory ID:	09-094-42										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**0.973**	**0.993**	1.00	1.00	ND	**97**	**99**	80-120	2	10	
Toluene	**0.982**	**1.00**	1.00	1.00	ND	**98**	**100**	82-120	2	11	
Ethyl Benzene	**1.02**	**1.04**	1.00	1.00	ND	**102**	**104**	83-120	2	10	
m,p-Xylene	**1.03**	**1.05**	1.00	1.00	ND	**103**	**105**	82-120	2	10	
o-Xylene	**1.02**	**1.05**	1.00	1.00	ND	**102**	**105**	80-120	3	10	
Surrogate:											
Fluorobenzene						*97*	*98*	*55-127*			

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-18-11**					
Laboratory ID:	09-154-01					
Diesel Fuel #2	**300**	31	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil	**320**	62	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				
Client ID:	**H-PEX-19-6**					
Laboratory ID:	09-154-02					
Diesel Fuel #2	**320**	29	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil	**740**	59	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				
Client ID:	**H-PEX-20-6**					
Laboratory ID:	09-154-03					
Diesel Range Organics	**ND**	32	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	64	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**H-TP-28-9**					
Laboratory ID:	09-154-04					
Diesel Range Organics	**ND**	29	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*89*	*50-150*				
Client ID:	**H-TP-29-6**					
Laboratory ID:	09-154-05					
Diesel Range Organics	**ND**	31	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				
Client ID:	**H-Dup-091610**					
Laboratory ID:	09-154-06					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0916S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-16-10	9-16-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-16-10	9-16-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*93*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-146-03							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*84*	*86*	*50-150*			

Date of Report: September 17, 2010
Samples Submitted: September 16, 2010
Laboratory Reference: 1009-154
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-16-10

Client ID	Lab ID	% Moisture
H-PEX-18-11	09-154-01	20
H-PEX-19-6	09-154-02	15
H-PEX-20-6	09-154-03	21
H-TP-28-9	09-154-04	15
H-TP-29-6	09-154-05	19
H-Dup-091610	09-154-06	16

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

OnSite Environmental Inc.

14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Laboratory Number: 09-154

Company: Hwa

Project Number: 2007-098-921

Project Name: Bothell - Hertz

Project Manager: Atkins

Sampled by: Atkins

Turnaround Request (in working days)

(Check One)

- [ ] Same Day
- [x] 1 Day
- [ ] 2 Day
- [ ] 3 Day
- [ ] Standard (7 working days) (TPH analysis 5 working days)
- [ ] ______ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664							% Moisture
1	H-PEA-18-11		1140				/	/																	X
2	H-PEA-19-6		1145				/	/																	X
3	H-PEA-20-6		1245				/	/																	X
4	H-JP-28-9		1330				/	/																	X
5	H-JP-29-6		1400				/	/																	X
6	H-Dup-091610		1500				/	/																	X

	Signature	Company	Date	Time
Relinquished by	[signature]	Hwa	9/16/10	1530
Received by	[signature]	OnSite Env	9/16/10	1530
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Client Copy

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

September 21, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-821
Laboratory Reference No. 1009-169

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 17, 2010.

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: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

Case Narrative

Samples were collected on September 17, 2010 and received by the laboratory on September 17, 2010. They were maintained at the laboratory at a temperature of $2^{o}C$ to $6^{o}C$.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between $-7^{o}C$ and $-20^{o}C$ until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-21-16**					
Laboratory ID:	09-169-01					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.068	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.068	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.068	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.068	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	6.8	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*55-127*				
Client ID:	**H-PEX-22-12**					
Laboratory ID:	09-169-02					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.063	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.063	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.063	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.063	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	6.3	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*55-127*				
Client ID:	**H-PEX-23-9**					
Laboratory ID:	09-169-03					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.061	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.061	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.061	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.061	EPA 8021	9-20-10	9-20-10	
Gasoline	**12**	6.1	NWTPH-Gx	9-20-10	9-20-10	O
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*55-127*				

Date of Report: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0920S1					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-169-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**10.1**	**9.26**	NA	NA		NA		NA	9	30	
Surrogate:											
Fluorobenzene						*103*	*99*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0920S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.936**	**0.958**	1.00	1.00		**94**	**96**	75-113	2	9	
Toluene	**0.973**	**0.993**	1.00	1.00		**97**	**99**	75-116	2	10	
Ethyl Benzene	**1.01**	**1.03**	1.00	1.00		**101**	**103**	82-117	2	10	
m,p-Xylene	**1.03**	**1.05**	1.00	1.00		**103**	**105**	81-122	2	10	
o-Xylene	**1.02**	**1.04**	1.00	1.00		**102**	**104**	83-118	2	10	
Surrogate:											
Fluorobenzene						*96*	*98*	*55-127*			

Date of Report: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-21-16**					
Laboratory ID:	09-169-01					
Diesel Range Organics	**ND**	33	NWTPH-Dx	9-18-10	9-19-10	
Lube Oil Range Organics	**ND**	65	NWTPH-Dx	9-18-10	9-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				
Client ID:	**H-PEX-22-12**					
Laboratory ID:	09-169-02					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-18-10	9-19-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	9-18-10	9-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				
Client ID:	**H-PEX-23-9**					
Laboratory ID:	09-169-03					
Diesel Range Organics	**ND**	310	NWTPH-Dx	9-18-10	9-19-10	U1
Lube Oil	**1600**	59	NWTPH-Dx	9-18-10	9-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				

Date of Report: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0918S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-18-10	9-19-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-18-10	9-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-169-02							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*108*	*111*	*50-150*			

Date of Report: September 21, 2010
Samples Submitted: September 17, 2010
Laboratory Reference: 1009-169
Project: 2007-098-821

% MOISTURE

Date Analyzed: 9-18-10

Client ID	Lab ID	% Moisture
H-PEX-21-16	09-169-01	24
H-PEX-22-12	09-169-02	16
H-PEX-23-9	09-169-03	15

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

OnSite Environmental Inc.
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Chain of Custody

Laboratory Number: 09-169

Company: AWA
Project Number: 2007-098-921
Project Name: BOTHELL HUNTZ
Project Manager: ATKINS
Sampled by: ATKINS

Turnaround Request (in working days)
(Check One)
- ☐ Same Day
- ☑ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☐ Standard (7 working days) (TPH analysis 5 working days)
- ☐ ______ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664							% Moisture
1	H-PEX-21-16	9/17/10	930	Soil	2		✓	✓																	X
2	H-PEX-22-12	↓	1830	↓	2		✓	✓																	↓
3	H-PEX-23-9	↓	1240	↓	2		✓	✓																	✓

	Signature	Company	Date	Time
Relinquished by	[signature]	Hwa	9/17/10	1650
Received by	[signature]	OSE	9/17/10	1830
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

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September 22, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1009-192

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 20, 2010.

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: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

Case Narrative

Samples were collected on September 20, 2010 and received by the laboratory on September 20, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-24-6**					
Laboratory ID:	09-192-01					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.057	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.057	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.057	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.057	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	5.7	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*55-127*				
Client ID:	**H-PEX-25-6**					
Laboratory ID:	09-192-02					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.065	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.065	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.065	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	6.5	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				
Client ID:	**H-DUP-0920**					
Laboratory ID:	09-192-03					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.066	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.066	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.066	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.066	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	6.6	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0920S1					
Benzene	**ND**	0.020	EPA 8021	9-20-10	9-20-10	
Toluene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
m,p-Xylene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
o-Xylene	**ND**	0.050	EPA 8021	9-20-10	9-20-10	
Gasoline	**ND**	5.0	NWTPH-Gx	9-20-10	9-20-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-169-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**10.1**	**9.26**	NA	NA		NA		NA	9	30	
Surrogate:											
Fluorobenzene						*103*	*99*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB0920S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.936**	**0.958**	1.00	1.00		**94**	**96**	75-113	2	9	
Toluene	**0.973**	**0.993**	1.00	1.00		**97**	**99**	75-116	2	10	
Ethyl Benzene	**1.01**	**1.03**	1.00	1.00		**101**	**103**	82-117	2	10	
m,p-Xylene	**1.03**	**1.05**	1.00	1.00		**103**	**105**	81-122	2	10	
o-Xylene	**1.02**	**1.04**	1.00	1.00		**102**	**104**	83-118	2	10	
Surrogate:											
Fluorobenzene						*96*	*98*	*55-127*			

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-24-6**					
Laboratory ID:	09-192-01					
Diesel Range Organics	**ND**	27	NWTPH-Dx	9-21-10	9-21-10	
Lube Oil	**58**	55	NWTPH-Dx	9-21-10	9-21-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*90*	*50-150*				
Client ID:	**H-PEX-25-6**					
Laboratory ID:	09-192-02					
Diesel Range Organics	**41**	28	NWTPH-Dx	9-21-10	9-21-10	
Lube Oil	**220**	56	NWTPH-Dx	9-21-10	9-21-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**H-DUP-0920**					
Laboratory ID:	09-192-03					
Diesel Range Organics	**ND**	34	NWTPH-Dx	9-21-10	9-21-10	U1
Lube Oil	**270**	57	NWTPH-Dx	9-21-10	9-21-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0921S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-21-10	9-21-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-21-10	9-21-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*122*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-192-03							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	U1
Lube Oil	**240**	**225**				6	NA	
Surrogate:								
o-Terphenyl			*97*	*102*	*50-150*			

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-192-01					
Client ID:	**H-PEX-24-6**					
Arsenic	**ND**	11	6010B	9-21-10	9-21-10	
Barium	**49**	2.7	6010B	9-21-10	9-21-10	
Cadmium	**ND**	0.55	6010B	9-21-10	9-21-10	
Chromium	**25**	0.55	6010B	9-21-10	9-21-10	
Lead	**28**	5.5	6010B	9-21-10	9-21-10	
Mercury	**ND**	0.27	7471A	9-21-10	9-21-10	
Selenium	**ND**	11	6010B	9-21-10	9-21-10	
Silver	**ND**	0.55	6010B	9-21-10	9-21-10	
Lab ID:	09-192-02					
Client ID:	**H-PEX-25-6**					
Arsenic	**ND**	11	6010B	9-21-10	9-21-10	
Barium	**49**	2.8	6010B	9-21-10	9-21-10	
Cadmium	**ND**	0.56	6010B	9-21-10	9-21-10	
Chromium	**23**	0.56	6010B	9-21-10	9-21-10	
Lead	**22**	5.6	6010B	9-21-10	9-21-10	
Mercury	**ND**	0.28	7471A	9-21-10	9-21-10	
Selenium	**ND**	11	6010B	9-21-10	9-21-10	
Silver	**ND**	0.56	6010B	9-21-10	9-21-10	

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	09-192-03					
Client ID:	**H-DUP-0920**					
Arsenic	**ND**	11	6010B	9-21-10	9-21-10	
Barium	**51**	2.8	6010B	9-21-10	9-21-10	
Cadmium	**ND**	0.57	6010B	9-21-10	9-21-10	
Chromium	**29**	0.57	6010B	9-21-10	9-21-10	
Lead	**21**	5.7	6010B	9-21-10	9-21-10	
Mercury	**ND**	0.28	7471A	9-21-10	9-21-10	
Selenium	**ND**	11	6010B	9-21-10	9-21-10	
Silver	**ND**	0.57	6010B	9-21-10	9-21-10	

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 9-21-10
Date Analyzed: 9-21-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0921S1&MB0921S4

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-21-10
Date Analyzed: 9-21-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-192-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**45.1**	**43.3**	4	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**26.0**	**21.5**	19	0.50	
Lead	**18.3**	**17.0**	7	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-21-10
Date Analyzed: 9-21-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-192-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**96.6**	97	**98.9**	99	2	
Barium	100	**142**	97	**148**	103	4	
Cadmium	50	**46.1**	92	**47.9**	96	4	
Chromium	100	**114**	88	**117**	91	3	
Lead	250	**255**	95	**259**	96	2	
Mercury	0.50	**0.379**	76	**0.416**	83	9	
Selenium	100	**97.7**	98	**99.4**	99	2	
Silver	25	**22.6**	90	**23.3**	93	3	

Date of Report: September 22, 2010
Samples Submitted: September 20, 2010
Laboratory Reference: 1009-192
Project: 2007-098-921

% MOISTURE

Date Analyzed: 9-20-10

Client ID	Lab ID	% Moisture
H-PEX-24-6	09-192-01	9
H-PEX-25-6	09-192-02	10
H-DUP-0920	09-192-03	12

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

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Chain of Custody

Page 1 of 1

Laboratory Number: 09-192

Company: HWA
Project Number: 2007-098-921
Project Name: Bothell Crossroads
Project Manager: Vance Atkins
Sampled by: Pete Pearson

Turnaround Request (in working days) (Check One)

- ☐ Same Day
- ☒ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☐ Standard (7 Days) (TPH analysis 5 Days)
- ☐ ________ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664							% Moisture
1	H-PEX-24-6	9/20/10	13:30	S			X		X									X									X
2	H-PEX-25-6	↓	14:00	↓			X		X									X									X
3	H-DUP-0920	↓	–	↓			X		X									X									X

	Signature	Company	Date	Time
Relinquished	[signature]	HWA	9/20/10	1330
Received	[signature]	OnSite Env	9/20/10	1530
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ________

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

September 23, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1009-226

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on September 22, 2010.

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: September 23, 2010
Samples Submitted: September 22, 2010
Laboratory Reference: 1009-226
Project: 2007-098

Case Narrative

Samples were collected on September 22, 2010 and received by the laboratory on September 22, 2010. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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: September 23, 2010
Samples Submitted: September 22, 2010
Laboratory Reference: 1009-226
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-PEX-26-8**					
Laboratory ID:	09-226-01					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-23-10	9-23-10	
Lube Oil	**81**	60	NWTPH-Dx	9-23-10	9-23-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				

Date of Report: September 23, 2010
Samples Submitted: September 22, 2010
Laboratory Reference: 1009-226
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	**Result**	**PQL**	**Method**	**Date Prepared**	**Date Analyzed**	**Flags**
METHOD BLANK						
Laboratory ID:	MB0923S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-23-10	9-23-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-23-10	9-23-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*121*	*50-150*				

Analyte	**Result**		**Percent Recovery**		**Recovery Limits**	**RPD**	**RPD Limit**	**Flags**
DUPLICATE								
Laboratory ID:	09-226-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil	**67.9**	**64.2**				6	NA	
Surrogate:								
o-Terphenyl			*109*	*101*	*50-150*			

Date of Report: September 23, 2010
Samples Submitted: September 22, 2010
Laboratory Reference: 1009-226
Project: 2007-098

% MOISTURE

Date Analyzed: 9-22-10

Client ID	Lab ID	% Moisture
H-PEX-26-8	09-226-01	16

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

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

October 7, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1010-034

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on October 5, 2010.

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, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

Case Narrative

Samples were collected on October 5, 2010 and received by the laboratory on October 5, 2010. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-1**					
Laboratory ID:	10-034-01					
Diesel Range Organics	**ND**	28	NWTPH-Dx	10-6-10	10-6-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				
Client ID:	**H-SP-2**					
Laboratory ID:	10-034-02					
Diesel Range Organics	**55**	31	NWTPH-Dx	10-6-10	10-6-10	
Lube Oil	**250**	61	NWTPH-Dx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*107*	*50-150*				
Client ID:	**H-SP-3**					
Laboratory ID:	10-034-03					
Diesel Range Organics	**ND**	28	NWTPH-Dx	10-6-10	10-6-10	
Lube Oil	**250**	56	NWTPH-Dx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*107*	*50-150*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1006S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	10-6-10	10-6-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	10-033-03							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*93*	*106*	*50-150*			

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-1**					
Laboratory ID:	10-034-01					
Benzene	**ND**	0.020	EPA 8021	10-6-10	10-6-10	
Toluene	**ND**	0.055	EPA 8021	10-6-10	10-6-10	
Ethyl Benzene	**ND**	0.055	EPA 8021	10-6-10	10-6-10	
m,p-Xylene	**ND**	0.055	EPA 8021	10-6-10	10-6-10	
o-Xylene	**ND**	0.055	EPA 8021	10-6-10	10-6-10	
Gasoline	**ND**	5.5	NWTPH-Gx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*55-127*				
Client ID:	**H-SP-2**					
Laboratory ID:	10-034-02					
Benzene	**ND**	0.020	EPA 8021	10-6-10	10-6-10	
Toluene	**ND**	0.072	EPA 8021	10-6-10	10-6-10	
Ethyl Benzene	**ND**	0.072	EPA 8021	10-6-10	10-6-10	
m,p-Xylene	**ND**	0.072	EPA 8021	10-6-10	10-6-10	
o-Xylene	**ND**	0.072	EPA 8021	10-6-10	10-6-10	
Gasoline	**ND**	7.2	NWTPH-Gx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*55-127*				
Client ID:	**H-SP-3**					
Laboratory ID:	10-034-03					
Benzene	**ND**	0.020	EPA 8021	10-6-10	10-6-10	
Toluene	**ND**	0.051	EPA 8021	10-6-10	10-6-10	
Ethyl Benzene	**ND**	0.051	EPA 8021	10-6-10	10-6-10	
m,p-Xylene	**ND**	0.051	EPA 8021	10-6-10	10-6-10	
o-Xylene	**ND**	0.051	EPA 8021	10-6-10	10-6-10	
Gasoline	**ND**	5.1	NWTPH-Gx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*55-127*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1006S1					
Benzene	**ND**	0.020	EPA 8021	10-6-10	10-6-10	
Toluene	**ND**	0.050	EPA 8021	10-6-10	10-6-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	10-6-10	10-6-10	
m,p-Xylene	**ND**	0.050	EPA 8021	10-6-10	10-6-10	
o-Xylene	**ND**	0.050	EPA 8021	10-6-10	10-6-10	
Gasoline	**ND**	5.0	NWTPH-Gx	10-6-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*55-127*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-033-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*88*	*91*	*55-127*			
SPIKE BLANKS											
Laboratory ID:	SB1006S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.945**	**0.969**	1.00	1.00		**95**	**97**	75-113	3	9	
Toluene	**0.932**	**0.971**	1.00	1.00		**93**	**97**	75-116	4	10	
Ethyl Benzene	**0.946**	**0.972**	1.00	1.00		**95**	**97**	82-117	3	10	
m,p-Xylene	**0.953**	**0.979**	1.00	1.00		**95**	**98**	81-122	3	10	
o-Xylene	**0.955**	**0.973**	1.00	1.00		**96**	**97**	83-118	2	10	
Surrogate:											
Fluorobenzene						*91*	*92*	*55-127*			

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-1**					
Laboratory ID:	10-034-01					
Naphthalene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
2-Methylnaphthalene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
1-Methylnaphthalene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthylene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthene	**0.045**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Fluorene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Phenanthrene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Anthracene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Fluoranthene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Pyrene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]anthracene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Chrysene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[b]fluoranthene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[k]fluoranthene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]pyrene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Dibenz[a,h]anthracene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[g,h,i]perylene	**ND**	0.0075	EPA 8270/SIM	10-5-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*92*	*45 - 101*				
Pyrene-d10	*101*	*52 - 118*				
Terphenyl-d14	*97*	*41 - 106*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-2**					
Laboratory ID:	10-034-02					
Naphthalene	**0.33**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
2-Methylnaphthalene	**0.13**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
1-Methylnaphthalene	**0.25**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthylene	**0.010**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthene	**0.75**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Fluorene	**0.66**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Phenanthrene	**1.5**	0.041	EPA 8270/SIM	10-5-10	10-6-10	
Anthracene	**0.22**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Fluoranthene	**0.95**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Pyrene	**0.56**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]anthracene	**0.16**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Chrysene	**0.16**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[b]fluoranthene	**0.052**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[k]fluoranthene	**0.043**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]pyrene	**0.051**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Indeno(1,2,3-c,d)pyrene	**0.020**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Dibenz[a,h]anthracene	**0.0083**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[g,h,i]perylene	**0.023**	0.0082	EPA 8270/SIM	10-5-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*90*	*45 - 101*				
Pyrene-d10	*95*	*52 - 118*				
Terphenyl-d14	*95*	*41 - 106*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-SP-3**					
Laboratory ID:	10-034-03					
Naphthalene	**0.0081**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
2-Methylnaphthalene	**ND**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
1-Methylnaphthalene	**0.029**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthylene	**ND**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthene	**0.29**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Fluorene	**0.17**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Phenanthrene	**0.18**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Anthracene	**0.015**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Fluoranthene	**0.094**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Pyrene	**0.057**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]anthracene	**0.020**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Chrysene	**0.029**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[b]fluoranthene	**0.014**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[k]fluoranthene	**0.0091**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]pyrene	**0.014**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Indeno(1,2,3-c,d)pyrene	**0.011**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Dibenz[a,h]anthracene	**ND**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[g,h,i]perylene	**0.018**	0.0074	EPA 8270/SIM	10-5-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*90*	*45 - 101*				
Pyrene-d10	*95*	*52 - 118*				
Terphenyl-d14	*100*	*41 - 106*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1005S1					
Naphthalene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthylene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Acenaphthene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Fluorene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Phenanthrene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Anthracene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Fluoranthene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Pyrene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Chrysene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[k]fluoranthene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270/SIM	10-5-10	10-6-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*81*	*45 - 101*				
Pyrene-d10	*91*	*52 - 118*				
Terphenyl-d14	*100*	*41 - 106*				

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	10-023-05										
	MS	MSD	MS	MSD		MS	MSD				
Naphthalene	**0.0572**	**0.0627**	0.0833	0.0833	ND	69	75	31 - 115	9	19	
Acenaphthylene	**0.0665**	**0.0743**	0.0833	0.0833	ND	80	89	40 - 134	11	22	
Acenaphthene	**0.0680**	**0.0737**	0.0833	0.0833	ND	82	88	48 - 118	8	17	
Fluorene	**0.0690**	**0.0751**	0.0833	0.0833	ND	83	90	54 - 122	8	16	
Phenanthrene	**0.0685**	**0.0727**	0.0833	0.0833	ND	82	87	46 - 123	6	19	
Anthracene	**0.0674**	**0.0733**	0.0833	0.0833	ND	81	88	53 - 123	8	27	
Fluoranthene	**0.0708**	**0.0789**	0.0833	0.0833	ND	85	95	47 - 132	11	26	
Pyrene	**0.0710**	**0.0773**	0.0833	0.0833	ND	85	93	41 - 137	8	25	
Benzo[a]anthracene	**0.0775**	**0.0819**	0.0833	0.0833	ND	93	98	43 - 132	6	26	
Chrysene	**0.0733**	**0.0772**	0.0833	0.0833	ND	88	93	46 - 126	5	24	
Benzo[b]fluoranthene	**0.0649**	**0.0695**	0.0833	0.0833	ND	78	83	44 - 134	7	24	
Benzo[k]fluoranthene	**0.0646**	**0.0713**	0.0833	0.0833	ND	78	86	45 - 132	10	20	
Benzo[a]pyrene	**0.0702**	**0.0765**	0.0833	0.0833	ND	84	92	36 - 136	9	23	
Indeno(1,2,3-c,d)pyrene	**0.0866**	**0.0880**	0.0833	0.0833	ND	104	106	40 - 136	2	16	
Dibenz[a,h]anthracene	**0.0866**	**0.0875**	0.0833	0.0833	ND	104	105	40 - 142	1	13	
Benzo[g,h,i]perylene	**0.0773**	**0.0782**	0.0833	0.0833	ND	93	94	37 - 137	1	18	
Surrogate:											
2-Fluorobiphenyl						*76*	*82*	*45 - 101*			
Pyrene-d10						*86*	*94*	*52 - 118*			
Terphenyl-d14						*87*	*89*	*41 - 106*			

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-034-01					
Client ID:	**H-SP-1**					
Arsenic	**ND**	11	6010B	10-5-10	10-5-10	
Barium	**37**	2.8	6010B	10-5-10	10-5-10	
Cadmium	**ND**	0.56	6010B	10-5-10	10-5-10	
Chromium	**21**	0.56	6010B	10-5-10	10-5-10	
Lead	**8.2**	5.6	6010B	10-5-10	10-5-10	
Mercury	**ND**	0.28	7471A	10-6-10	10-6-10	
Selenium	**ND**	11	6010B	10-5-10	10-5-10	
Silver	**ND**	0.56	6010B	10-5-10	10-5-10	
Lab ID:	10-034-02					
Client ID:	**H-SP-2**					
Arsenic	**ND**	12	6010B	10-5-10	10-5-10	
Barium	**48**	3.1	6010B	10-5-10	10-5-10	
Cadmium	**ND**	0.61	6010B	10-5-10	10-5-10	
Chromium	**25**	0.61	6010B	10-5-10	10-5-10	
Lead	**31**	6.1	6010B	10-5-10	10-5-10	
Mercury	**ND**	0.31	7471A	10-6-10	10-6-10	
Selenium	**ND**	12	6010B	10-5-10	10-5-10	
Silver	**ND**	0.61	6010B	10-5-10	10-5-10	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-034-03					
Client ID:	**H-SP-3**					
Arsenic	**ND**	11	6010B	10-5-10	10-5-10	
Barium	**34**	2.8	6010B	10-5-10	10-5-10	
Cadmium	**ND**	0.56	6010B	10-5-10	10-5-10	
Chromium	**17**	0.56	6010B	10-5-10	10-5-10	
Lead	**19**	5.6	6010B	10-5-10	10-5-10	
Mercury	**ND**	0.28	7471A	10-6-10	10-6-10	
Selenium	**ND**	11	6010B	10-5-10	10-5-10	
Silver	**ND**	0.56	6010B	10-5-10	10-5-10	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-5-10
Date Analyzed:	10-5-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1005S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-6-10
Date Analyzed:	10-6-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1006S1

Analyte	Method	Result	PQL
Mercury	7471A	**ND**	0.25

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 10-5-10
Date Analyzed: 10-5-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-013-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**28.5**	**26.6**	7	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**26.4**	**25.8**	2	0.50	
Lead	**ND**	**ND**	NA	5.0	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 10-6-10
Date Analyzed: 10-6-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-013-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 10-5-10
Date Analyzed: 10-5-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-013-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**95.3**	95	**99.1**	99	4	
Barium	100	**114**	86	**124**	95	8	
Cadmium	50	**43.3**	87	**45.4**	91	5	
Chromium	100	**118**	91	**124**	98	5	
Lead	250	**213**	85	**225**	90	5	
Selenium	100	**91.0**	91	**96.5**	96	6	
Silver	25	**21.4**	85	**22.3**	89	4	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

TOTAL METALS
EPA 7471A
MS/MSD QUALITY CONTROL

Date Extracted: 10-6-10
Date Analyzed: 10-6-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-013-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	0.50	**0.511**	102	**0.504**	101	1	

Date of Report: October 7, 2010
Samples Submitted: October 5, 2010
Laboratory Reference: 1010-034
Project: 2007-098-921

% MOISTURE

Date Analyzed: 10-5-10

Client ID	Lab ID	% Moisture
H-SP-1	10-034-01	11
H-SP-2	10-034-02	18
H-SP-3	10-034-03	10

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

HWA GEOSCIENCES INC.
19730 64th Ave. W., Suite 200, Lynnwood, WA 98036 (425) 774-0106

Chain of Custody and Laboratory Analysis Request

10-034

DATE: 10/5/10
PAGE: ____ of ____

PROJECT NAME: Bothell #: 2003-098-921
SITE CODE: Hertz
SAMPLERS NAME: Atkins PHONE:
SAMPLERS SIGNATURE: [signature]
HWA CONTACT: Atkins PHONE:

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH-G/BTEX	PAHs -	Metals-RCRA		% Moisture	REMARKS
H-SP-1	10/5/10	1100	Soil	1	3	/	/	/	/		X	
H-SP-2	↓	1105	↓	2	3	/	/	/	/		X	
H-SP-3	↓	1110	↓	3	3	/	/	/	/		X	

24-Hour TAT

	PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by:	Nate Pearson	[signature]	HWA	10/5/10	15:30	
Received by:	Blair Goodrow	[signature]	OnSite Env	10/5/10	1530	
Relinquished by:						
Received by:						

DISTRIBUTION: WHITE - Return to HWA; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

October 12, 2010

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098-921
Laboratory Reference No. 1010-095

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on October 11, 2010.

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 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

Case Narrative

Samples were collected on October 11, 2010 and received by the laboratory on October 11, 2010. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HZ-SP-101110-1**					
Laboratory ID:	10-095-01					
Diesel Range Organics	**ND**	29	NWTPH-Dx	10-11-10	10-11-10	
Lube Oil Range Organics	**ND**	57	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				
Client ID:	**HZ-SP-101110-2**					
Laboratory ID:	10-095-02					
Diesel Range Organics	**ND**	29	NWTPH-Dx	10-11-10	10-11-10	
Lube Oil	**100**	59	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*106*	*50-150*				
Client ID:	**HZ-SP-101110-3**					
Laboratory ID:	10-095-03					
Diesel Range Organics	**ND**	33	NWTPH-Dx	10-11-10	10-11-10	U1
Lube Oil	**230**	58	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*116*	*50-150*				
Client ID:	**HZ-SP-101110-4**					
Laboratory ID:	10-095-04					
Diesel Range Organics	**ND**	52	NWTPH-Dx	10-11-10	10-11-10	U1
Lube Oil	**320**	62	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				
Client ID:	**HZ-SP-101110-5**					
Laboratory ID:	10-095-05					
Diesel Range Organics	**ND**	31	NWTPH-Dx	10-11-10	10-11-10	
Lube Oil	**220**	62	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*118*	*50-150*				

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1011S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	10-11-10	10-11-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	10-11-10	10-11-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*128*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	10-095-02							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil	**85.2**	**68.6**				22	NA	
Surrogate:								
o-Terphenyl			*106*	*106*	*50-150*			

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-095-01					
Client ID:	**HZ-SP-101110-1**					
Arsenic	**ND**	11	6010B	10-11-10	10-11-10	
Cadmium	**ND**	0.57	6010B	10-11-10	10-11-10	
Chromium	**31**	0.57	6010B	10-11-10	10-11-10	
Lead	**ND**	5.7	6010B	10-11-10	10-11-10	
Mercury	**ND**	0.29	7471A	10-11-10	10-11-10	
Lab ID:	10-095-02					
Client ID:	**HZ-SP-101110-2**					
Arsenic	**ND**	12	6010B	10-11-10	10-11-10	
Cadmium	**ND**	0.59	6010B	10-11-10	10-11-10	
Chromium	**30**	0.59	6010B	10-11-10	10-11-10	
Lead	**13**	5.9	6010B	10-11-10	10-11-10	
Mercury	**ND**	0.29	7471A	10-11-10	10-11-10	
Lab ID:	10-095-03					
Client ID:	**HZ-SP-101110-3**					
Arsenic	**ND**	12	6010B	10-11-10	10-11-10	
Cadmium	**ND**	0.58	6010B	10-11-10	10-11-10	
Chromium	**24**	0.58	6010B	10-11-10	10-11-10	
Lead	**14**	5.8	6010B	10-11-10	10-11-10	
Mercury	**ND**	0.29	7471A	10-11-10	10-11-10	

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-095-04					
Client ID:	**HZ-SP-101110-4**					
Arsenic	**ND**	12	6010B	10-11-10	10-11-10	
Cadmium	**ND**	0.62	6010B	10-11-10	10-11-10	
Chromium	**30**	0.62	6010B	10-11-10	10-11-10	
Lead	**91**	6.2	6010B	10-11-10	10-11-10	
Mercury	**ND**	0.31	7471A	10-11-10	10-11-10	

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-095-05					
Client ID:	**HZ-SP-101110-5**					
Arsenic	**ND**	12	6010B	10-11-10	10-11-10	
Cadmium	**ND**	0.62	6010B	10-11-10	10-11-10	
Chromium	**30**	0.62	6010B	10-11-10	10-11-10	
Lead	**28**	6.2	6010B	10-11-10	10-11-10	
Mercury	**ND**	0.31	7471A	10-11-10	10-11-10	

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-11-10
Date Analyzed:	10-11-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1011S1&MB1011S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 10-11-10
Date Analyzed: 10-11-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-077-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**9.15**	**9.05**	1	0.50	
Lead	**9.45**	**8.45**	11	5.0	
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 10-11-10
Date Analyzed: 10-11-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-077-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**97.8**	98	**99.6**	100	2	
Cadmium	50	**45.2**	90	**45.7**	91	1	
Chromium	100	**108**	99	**108**	99	0	
Lead	250	**228**	87	**230**	88	1	
Mercury	0.50	**0.522**	104	**0.506**	101	3	

Date of Report: October 12, 2010
Samples Submitted: October 11, 2010
Laboratory Reference: 1010-095
Project: 2007-098-921

% MOISTURE

Date Analyzed: 10-11-10

Client ID	Lab ID	% Moisture
HZ-SP-101110-1	10-095-01	13
HZ-SP-101110-2	10-095-02	15
HZ-SP-101110-3	10-095-03	13
HZ-SP-101110-4	10-095-04	19
HZ-SP-101110-5	10-095-05	19

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

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

Chain of Custody

Page _______ of _______

Laboratory Number: 10-095

Company: HWA

Project Number: 2007-098-~~920~~ 921 (DB)

Project Name: BOTHELL - HERTZ

Project Manager: ATKINS

Sampled by: ATKINS

Turnaround Request (in working days)

(Check One)

- [ ] Same Day
- [ ] 1 Day
- [x] 2 Day
- [ ] 3 Day
- [ ] Standard (7 working days) (TPH analysis 5 working days)
- [ ] ______ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total ~~RCRA~~ Metals ~~(8)~~ MTCA	TCLP Metals	HEM by 1664							% Moisture
1	HZ-SP-101110-1	10/11/10	1250	S	2			✓								✓									X
2	HZ-SP-101110-2		1255					✓								✓									
3	HZ-SP-101110-3		1300					✓								✓									
4	HZ-SP-101110-4		1305					✓								✓									
5	HZ-SP-101110-5		1310					✓								✓									

	Signature	Company	Date	Time
Relinquished by	[signature]	HWA	10/11/10	1350
Received by	[signature]	OSE	10/11/10	1350
Relinquished by				
Received by				
Relinquished by				
Received by				

Reviewed by/Date

Reviewed by/Date

Comments/Special Instructions:

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Client Copy

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

February 24 2012

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project Bothell Stormwater
Laboratory Reference No. 1202-163

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on February 21, 2012.

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 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

Case Narrative

Samples were collected on February 21, 2012 and received by the laboratory on February 21, 2012. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

The chromatograms for samples TP-2-4, TP-3-6 and T-P-4-8 are similar to mineral spirits.

The MTCA Method A clean-up level for Benzene could not be achieved for sample TP-7-8 due to the low dry-weight of the sample.

Halogenated Volatiles EPA 8260B Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

Surrogate 4-Bromofluorobenzene is outside control limits for sample TP-4-8 due to co-eluting non-target analytes.

Please note that any other QA/QC issues associated with these extractions and analyses will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-3**					
Laboratory ID:	02-163-01					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.048	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.048	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.048	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.048	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	4.8	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*68-124*				
Client ID:	**TP-1-8**					
Laboratory ID:	02-163-02					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.079	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.079	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.079	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.079	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	7.9	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*68-124*				
Client ID:	**TP-2-4**					
Laboratory ID:	02-163-03					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.056	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.056	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.056	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.056	EPA 8021	2-21-12	2-21-12	
Gasoline	**12**	5.6	NWTPH-Gx	2-21-12	2-21-12	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*68-124*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-10**					
Laboratory ID:	02-163-04					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	7.2	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*68-124*				
Client ID:	**TP-3-6**					
Laboratory ID:	02-163-05					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.062	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.062	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**0.18**	0.062	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.062	EPA 8021	2-21-12	2-21-12	
Gasoline	**77**	6.2	NWTPH-Gx	2-21-12	2-21-12	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*68-124*				

Z--The sample chromatogram is similar to mineral spirits.

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-3-12**					
Laboratory ID:	02-163-06					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.072	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	7.2	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*68-124*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-4**					
Laboratory ID:	02-163-07					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.068	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.068	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.068	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.068	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	6.8	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*68-124*				
Client ID:	**TP-4-8**					
Laboratory ID:	02-163-08					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.078	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.078	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**0.16**	0.078	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.078	EPA 8021	2-21-12	2-21-12	
Gasoline	**130**	7.8	NWTPH-Gx	2-21-12	2-21-12	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*68-124*				

Z--The sample chromatogram is similar to mineral spirits.

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-4**					
Laboratory ID:	02-163-09					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.061	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.061	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.061	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.061	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	6.1	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*68-124*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-8**					
Laboratory ID:	02-163-10					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.065	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.065	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.065	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.065	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	6.5	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*68-124*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0221S1					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	5.0	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*68-124*				
Laboratory ID:	MB0221S2					
Benzene	**ND**	0.020	EPA 8021	2-21-12	2-21-12	
Toluene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
Ethyl Benzene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
m,p-Xylene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
o-Xylene	**ND**	0.050	EPA 8021	2-21-12	2-21-12	
Gasoline	**ND**	5.0	NWTPH-Gx	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*68-124*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Gx/BTEX
QUALITY CONTROL

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	02-163-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*97*	*98*	*68-124*			
Laboratory ID:	02-163-02										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*103*	*109*	*68-124*			
SPIKE BLANKS											
Laboratory ID:	SB0221S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.11**	**1.05**	1.00	1.00		**111**	**105**	77-114	6	9	
Toluene	**1.12**	**1.12**	1.00	1.00		**112**	**112**	80-115	0	9	
Ethyl Benzene	**1.09**	**1.08**	1.00	1.00		**109**	**108**	80-118	1	9	
m,p-Xylene	**1.09**	**1.15**	1.00	1.00		**109**	**115**	82-118	5	9	
o-Xylene	**1.05**	**1.09**	1.00	1.00		**105**	**109**	82-116	4	9	
Surrogate:											
Fluorobenzene						*96*	*88*	*68-124*			

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-3**					
Laboratory ID:	02-163-01					
Diesel Range Organics	**ND**	27	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	54	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**TP-1-8**					
Laboratory ID:	02-163-02					
Diesel Range Organics	**ND**	34	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil	**130**	68	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*76*	*50-150*				
Client ID:	**TP-2-4**					
Laboratory ID:	02-163-03					
Diesel Range Organics	**ND**	29	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil	**230**	58	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*87*	*50-150*				
Client ID:	**TP-2-10**					
Laboratory ID:	02-163-04					
Diesel Range Organics	**ND**	30	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*92*	*50-150*				
Client ID:	**TP-3-6**					
Laboratory ID:	02-163-05					
Diesel Range Organics	**ND**	29	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil	**130**	59	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**TP-3-12**					
Laboratory ID:	02-163-06					
Diesel Range Organics	**ND**	31	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	63	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*89*	*50-150*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-4**					
Laboratory ID:	02-163-07					
Diesel Range Organics	**ND**	31	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**TP-4-8**					
Laboratory ID:	02-163-08					
Diesel Range Organics	**61**	32	NWTPH-Dx	2-21-12	2-22-12	M,N
Lube Oil	**220**	64	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*79*	*50-150*				
Client ID:	**TP-5-4**					
Laboratory ID:	02-163-09					
Diesel Range Organics	**ND**	29	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	58	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**TP-5-8**					
Laboratory ID:	02-163-10					
Diesel Range Organics	**ND**	30	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*92*	*50-150*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0221S2					
Diesel Range Organics	**ND**	25	NWTPH-Dx	2-21-12	2-22-12	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	02-163-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*96*	*104*	*50-150*			
Laboratory ID:	02-163-15							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*91*	*89*	*50-150*			

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

HALOGENATED VOLATILES by EPA 8260B
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-3**					
Laboratory ID:	02-163-01					
Dichlorodifluoromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0052	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0052	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0052	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0052	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0052	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-3**					
Laboratory ID:	02-163-01					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0052	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0052	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*84*	*63-127*				
Toluene-d8	*91*	*65-129*				
4-Bromofluorobenzene	*96*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-8**					
Laboratory ID:	02-163-02					
Dichlorodifluoromethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0070	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0070	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0070	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0070	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0070	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0014	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-8**					
Laboratory ID:	02-163-02					
1,1,2-Trichloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0014	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0070	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0070	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0014	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*85*	*63-127*				
Toluene-d8	*92*	*65-129*				
4-Bromofluorobenzene	*88*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-4**					
Laboratory ID:	02-163-03					
Dichlorodifluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-4**					
Laboratory ID:	02-163-03					
1,1,2-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*82*	*63-127*				
Toluene-d8	*91*	*65-129*				
4-Bromofluorobenzene	*102*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-10**					
Laboratory ID:	02-163-04					
Dichlorodifluoromethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0061	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0061	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0061	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0061	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0061	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0012	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-10**					
Laboratory ID:	02-163-04					
1,1,2-Trichloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0012	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0061	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0061	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0012	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*81*	*63-127*				
Toluene-d8	*89*	*65-129*				
4-Bromofluorobenzene	*91*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-3-6**					
Laboratory ID:	02-163-05					
Dichlorodifluoromethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Chloromethane	ND	0.0051	EPA 8260	2-21-12	2-22-12	
Vinyl Chloride	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Bromomethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Chloroethane	ND	0.0051	EPA 8260	2-21-12	2-22-12	
Trichlorofluoromethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Iodomethane	ND	0.0051	EPA 8260	2-21-12	2-22-12	
Methylene Chloride	ND	0.0051	EPA 8260	2-21-12	2-22-12	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
2,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Bromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Chloroform	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Carbon Tetrachloride	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Trichloroethene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Dibromomethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Bromodichloromethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
2-Chloroethyl Vinyl Ether	ND	0.0051	EPA 8260	2-21-12	2-22-12	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-22-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-3-6**					
Laboratory ID:	02-163-05					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Tetrachloroethene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,3-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Dibromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2-Dibromoethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Chlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Bromoform	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Bromobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260	2-21-12	2-22-12	
2-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
4-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
1,2-Dibromo-3-chloropropane	ND	0.0051	EPA 8260	2-21-12	2-22-12	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Hexachlorobutadiene	ND	0.0051	EPA 8260	2-21-12	2-22-12	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*73*	*63-127*				
Toluene-d8	*88*	*65-129*				
4-Bromofluorobenzene	*110*	*55-121*				

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-3-12**					
Laboratory ID:	02-163-06					
Dichlorodifluoromethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Chloromethane	ND	0.0069	EPA 8260	2-23-12	2-23-12	
Vinyl Chloride	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Bromomethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Chloroethane	ND	0.0069	EPA 8260	2-23-12	2-23-12	
Trichlorofluoromethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1-Dichloroethene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Iodomethane	ND	0.0069	EPA 8260	2-23-12	2-23-12	
Methylene Chloride	ND	0.0069	EPA 8260	2-23-12	2-23-12	
(trans) 1,2-Dichloroethene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1-Dichloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
2,2-Dichloropropane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
(cis) 1,2-Dichloroethene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Bromochloromethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Chloroform	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1,1-Trichloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Carbon Tetrachloride	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1-Dichloropropene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2-Dichloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Trichloroethene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2-Dichloropropane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Dibromomethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Bromodichloromethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
2-Chloroethyl Vinyl Ether	ND	0.0069	EPA 8260	2-23-12	2-23-12	
(cis) 1,3-Dichloropropene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
(trans) 1,3-Dichloropropene	ND	0.0014	EPA 8260	2-23-12	2-23-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-3-12**					
Laboratory ID:	02-163-06					
1,1,2-Trichloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Tetrachloroethene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,3-Dichloropropane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Dibromochloromethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2-Dibromoethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Chlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1,1,2-Tetrachloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Bromoform	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Bromobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,1,2,2-Tetrachloroethane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2,3-Trichloropropane	ND	0.0014	EPA 8260	2-23-12	2-23-12	
2-Chlorotoluene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
4-Chlorotoluene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,3-Dichlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,4-Dichlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2-Dichlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
1,2-Dibromo-3-chloropropane	ND	0.0069	EPA 8260	2-23-12	2-23-12	
1,2,4-Trichlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Hexachlorobutadiene	ND	0.0069	EPA 8260	2-23-12	2-23-12	
1,2,3-Trichlorobenzene	ND	0.0014	EPA 8260	2-23-12	2-23-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*91*	*63-127*				
Toluene-d8	*92*	*65-129*				
4-Bromofluorobenzene	*91*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-4**					
Laboratory ID:	02-163-07					
Dichlorodifluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-4**					
Laboratory ID:	02-163-07					
1,1,2-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*80*	*63-127*				
Toluene-d8	*90*	*65-129*				
4-Bromofluorobenzene	*103*	*55-121*				

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HALOGENATED VOLATILES by EPA 8260B
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-8**					
Laboratory ID:	02-163-08					
Dichlorodifluoromethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Chloromethane	ND	0.0053	EPA 8260	2-21-12	2-22-12	
Vinyl Chloride	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Bromomethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Chloroethane	ND	0.0053	EPA 8260	2-21-12	2-22-12	
Trichlorofluoromethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Iodomethane	ND	0.0053	EPA 8260	2-21-12	2-22-12	
Methylene Chloride	ND	0.0053	EPA 8260	2-21-12	2-22-12	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
2,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Bromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Chloroform	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Carbon Tetrachloride	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Trichloroethene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Dibromomethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Bromodichloromethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
2-Chloroethyl Vinyl Ether	ND	0.0053	EPA 8260	2-21-12	2-22-12	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-22-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-8**					
Laboratory ID:	02-163-08					
1,1,2-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Tetrachloroethene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,3-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Dibromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2-Dibromoethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Chlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Bromoform	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Bromobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260	2-21-12	2-22-12	
2-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
4-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
1,2-Dibromo-3-chloropropane	ND	0.0053	EPA 8260	2-21-12	2-22-12	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Hexachlorobutadiene	ND	0.0053	EPA 8260	2-21-12	2-22-12	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-22-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*82*	*63-127*				
Toluene-d8	*92*	*65-129*				
4-Bromofluorobenzene	*161*	*55-121*				Q

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-4**					
Laboratory ID:	02-163-09					
Dichlorodifluoromethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0049	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0049	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0049	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0049	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0049	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.00099	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-4**					
Laboratory ID:	02-163-09					
1,1,2-Trichloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.00099	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0049	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0049	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.00099	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*70*	*63-127*				
Toluene-d8	*83*	*65-129*				
4-Bromofluorobenzene	*83*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-8**					
Laboratory ID:	02-163-10					
Dichlorodifluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0053	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-8**					
Laboratory ID:	02-163-10					
1,1,2-Trichloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0053	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*81*	*63-127*				
Toluene-d8	*92*	*65-129*				
4-Bromofluorobenzene	*90*	*55-121*				

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0221S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloromethane	ND	0.0050	EPA 8260	2-21-12	2-21-12	
Vinyl Chloride	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromomethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloroethane	ND	0.0050	EPA 8260	2-21-12	2-21-12	
Trichlorofluoromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Iodomethane	ND	0.0050	EPA 8260	2-21-12	2-21-12	
Methylene Chloride	ND	0.0050	EPA 8260	2-21-12	2-21-12	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chloroform	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Carbon Tetrachloride	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Trichloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Dibromomethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromodichloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260	2-21-12	2-21-12	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-21-12	2-21-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0221S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Tetrachloroethene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,3-Dichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Dibromochloromethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dibromoethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Chlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromoform	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Bromobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260	2-21-12	2-21-12	
2-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
4-Chlorotoluene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260	2-21-12	2-21-12	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Hexachlorobutadiene	ND	0.0050	EPA 8260	2-21-12	2-21-12	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260	2-21-12	2-21-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*87*	*63-127*				
Toluene-d8	*93*	*65-129*				
4-Bromofluorobenzene	*98*	*55-121*				

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HALOGENATED VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0223S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Chloromethane	ND	0.0050	EPA 8260	2-23-12	2-23-12	
Vinyl Chloride	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Bromomethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Chloroethane	ND	0.0050	EPA 8260	2-23-12	2-23-12	
Trichlorofluoromethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1-Dichloroethene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Iodomethane	ND	0.0050	EPA 8260	2-23-12	2-23-12	
Methylene Chloride	ND	0.0050	EPA 8260	2-23-12	2-23-12	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1-Dichloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
2,2-Dichloropropane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Bromochloromethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Chloroform	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Carbon Tetrachloride	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1-Dichloropropene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2-Dichloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Trichloroethene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2-Dichloropropane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Dibromomethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Bromodichloromethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260	2-23-12	2-23-12	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260	2-23-12	2-23-12	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0223S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Tetrachloroethene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,3-Dichloropropane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Dibromochloromethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2-Dibromoethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Chlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Bromoform	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Bromobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260	2-23-12	2-23-12	
2-Chlorotoluene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
4-Chlorotoluene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260	2-23-12	2-23-12	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Hexachlorobutadiene	ND	0.0050	EPA 8260	2-23-12	2-23-12	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260	2-23-12	2-23-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*94*	*63-127*				
Toluene-d8	*99*	*65-129*				
4-Bromofluorobenzene	*97*	*55-121*				

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Project: Bothell Stormwater

HALOGENATED VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0221S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0371**	**0.0381**	0.0500	0.0500	74	76	70-130	3	19	
Benzene	**0.0387**	**0.0394**	0.0500	0.0500	77	79	70-125	2	15	
Trichloroethene	**0.0411**	**0.0435**	0.0500	0.0500	82	87	70-122	6	14	
Toluene	**0.0411**	**0.0425**	0.0500	0.0500	82	85	73-120	3	16	
Chlorobenzene	**0.0512**	**0.0517**	0.0500	0.0500	102	103	74-109	1	12	
Surrogate:										
Dibromofluoromethane					*75*	*79*	*63-127*			
Toluene-d8					*83*	*85*	*65-129*			
4-Bromofluorobenzene					*87*	*91*	*55-121*			

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Project: Bothell Stormwater

HALOGENATED VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0223S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0486**	**0.0501**	0.0500	0.0500	97	100	70-130	3	19	
Benzene	**0.0472**	**0.0458**	0.0500	0.0500	94	92	70-125	3	15	
Trichloroethene	**0.0464**	**0.0454**	0.0500	0.0500	93	91	70-122	2	14	
Toluene	**0.0476**	**0.0473**	0.0500	0.0500	95	95	73-120	1	16	
Chlorobenzene	**0.0505**	**0.0503**	0.0500	0.0500	101	101	74-109	0	12	
Surrogate:										
Dibromofluoromethane					*84*	*83*	*63-127*			
Toluene-d8					*86*	*88*	*65-129*			
4-Bromofluorobenzene					*88*	*87*	*55-121*			

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Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-01					
Client ID:	**TP-1-3**					
Arsenic	**ND**	11	6010B	2-22-12	2-22-12	
Barium	**29**	2.7	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.54	6010B	2-22-12	2-22-12	
Chromium	**26**	0.54	6010B	2-22-12	2-22-12	
Lead	**ND**	5.4	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.27	7471A	2-22-12	2-22-12	
Selenium	**ND**	11	6010B	2-22-12	2-22-12	
Silver	**ND**	0.54	6010B	2-22-12	2-22-12	
Lab ID:	02-163-02					
Client ID:	**TP-1-8**					
Arsenic	**ND**	14	6010B	2-22-12	2-22-12	
Barium	**76**	3.4	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.68	6010B	2-22-12	2-22-12	
Chromium	**41**	0.68	6010B	2-22-12	2-22-12	
Lead	**27**	6.8	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.34	7471A	2-22-12	2-22-12	
Selenium	**ND**	14	6010B	2-22-12	2-22-12	
Silver	**ND**	0.68	6010B	2-22-12	2-22-12	

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Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-03					
Client ID:	**TP-2-4**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**54**	2.9	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.58	6010B	2-22-12	2-22-12	
Chromium	**35**	0.58	6010B	2-22-12	2-22-12	
Lead	**10**	5.8	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.29	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.58	6010B	2-22-12	2-22-12	

Lab ID:	02-163-04					
Client ID:	**TP-2-10**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**73**	3.0	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.61	6010B	2-22-12	2-22-12	
Chromium	**47**	0.61	6010B	2-22-12	2-22-12	
Lead	**ND**	6.1	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.30	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.61	6010B	2-22-12	2-22-12	

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Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-05					
Client ID:	**TP-3-6**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**150**	2.9	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.59	6010B	2-22-12	2-22-12	
Chromium	**70**	0.59	6010B	2-22-12	2-22-12	
Lead	**18**	5.9	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.29	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.59	6010B	2-22-12	2-22-12	

Lab ID:	02-163-06					
Client ID:	**TP-3-12**					
Arsenic	**ND**	13	6010B	2-22-12	2-22-12	
Barium	**92**	3.1	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.63	6010B	2-22-12	2-22-12	
Chromium	**34**	0.63	6010B	2-22-12	2-22-12	
Lead	**ND**	6.3	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.31	7471A	2-22-12	2-22-12	
Selenium	**ND**	13	6010B	2-22-12	2-22-12	
Silver	**ND**	0.63	6010B	2-22-12	2-22-12	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-07					
Client ID:	**TP-4-4**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**79**	3.1	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.61	6010B	2-22-12	2-22-12	
Chromium	**38**	0.61	6010B	2-22-12	2-22-12	
Lead	**6.2**	6.1	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.31	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.61	6010B	2-22-12	2-22-12	

Lab ID:	02-163-08					
Client ID:	**TP-4-8**					
Arsenic	**ND**	13	6010B	2-22-12	2-22-12	
Barium	**84**	3.2	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.64	6010B	2-22-12	2-22-12	
Chromium	**47**	0.64	6010B	2-22-12	2-22-12	
Lead	**ND**	6.4	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.32	7471A	2-22-12	2-22-12	
Selenium	**ND**	13	6010B	2-22-12	2-22-12	
Silver	**ND**	0.64	6010B	2-22-12	2-22-12	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-163-09					
Client ID:	**TP-5-4**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**53**	2.9	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.58	6010B	2-22-12	2-22-12	
Chromium	**35**	0.58	6010B	2-22-12	2-22-12	
Lead	**ND**	5.8	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.29	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.58	6010B	2-22-12	2-22-12	

Lab ID:	02-163-10					
Client ID:	**TP-5-8**					
Arsenic	**ND**	12	6010B	2-22-12	2-22-12	
Barium	**63**	3.0	6010B	2-22-12	2-22-12	
Cadmium	**ND**	0.60	6010B	2-22-12	2-22-12	
Chromium	**42**	0.60	6010B	2-22-12	2-22-12	
Lead	**6.3**	6.0	6010B	2-22-12	2-22-12	
Mercury	**ND**	0.30	7471A	2-22-12	2-22-12	
Selenium	**ND**	12	6010B	2-22-12	2-22-12	
Silver	**ND**	0.60	6010B	2-22-12	2-22-12	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 2-22-12
Date Analyzed: 2-22-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0222SM1&MB0222S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 2-22-12
Date Analyzed: 2-22-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-163-15

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**44.9**	**41.8**	7	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**32.6**	**29.6**	10	0.50	
Lead	**ND**	**ND**	NA	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 2-22-12
Date Analyzed: 2-22-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-163-15

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**91.7**	92	**90.9**	91	1	
Barium	100	**136**	91	**136**	91	0	
Cadmium	50.0	**44.8**	90	**44.7**	89	0	
Chromium	100	**123**	90	**115**	82	7	
Lead	250	**235**	94	**236**	94	0	
Mercury	0.500	**0.501**	100	**0.510**	102	2	
Selenium	100	**91.3**	91	**89.9**	90	2	
Silver	25.0	**22.2**	89	**22.2**	89	0	

Date of Report: February 24 2012
Samples Submitted: February 21, 2012
Laboratory Reference: 1202-163
Project: Bothell Stormwater

% MOISTURE

Date Analyzed: 2-21-12

Client ID	Lab ID	% Moisture
TP-1-3	02-163-01	7
TP-1-8	02-163-02	26
TP-2-4	02-163-03	13
TP-2-10	02-163-04	17
TP-3-6	02-163-05	15
TP-3-12	02-163-06	20
TP-4-4	02-163-07	18
TP-4-8	02-163-08	21
TP-5-4	02-163-09	14
TP-5-8	02-163-10	17
TP-6-4	02-163-11	31
TP-6-10	02-163-12	22
TP-7-4	02-163-13	11
TP-7-8	02-163-14	54
TP-8-4	02-163-15	6
TP-8-8	02-163-16	15

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits.

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

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

Chain of Custody

Page 1 of 2

Laboratory Number: 02-163

Company: HWA
Project Number:
Project Name: Bothell Stormwater
Project Manager: Atkins
Sampled by: "

Turnaround Request (in working days)
(Check One)
- ☐ Same Day
- ☑ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☐ Standard (7 Days) (TPH analysis 5 Days)
- ☐ ________ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664					% Moisture
1	TP-1-3	2/21	900	S	5		/		/		/							/								X
2	TP-1-8		905				/		/		/							/								
3	TP-2-4		915				/		/		/							/								
4	TP-2-10		920				/		/		/							/								
5	TP-3-6		930				/		/		/							/								
6	TP-3-12		935				/		/		/							/								
7	TP-4-4		945				/		/		/							/								
8	TP-4-8		950				/		/		/							/								
9	TP-5-4		1000				/		/		/							/								
10	TP-5-8		1005				/		/		/							/								

	Signature	Company	Date	Time
Relinquished	[signature]	HWA	2/21/12	1405
Received	[signature]	OSE	2/21/12	1405
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ________

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Chain of Custody

Page 2 of 2

Laboratory Number: 02-163

Company: Hwa

Project Number:

Project Name: Bothell Stormwater

Project Manager: Atkins

Sampled by: "

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☑ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☐ Standard (7 Days) (TPH analysis 5 Days)
- ☐ ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664					% Moisture
11	TP-6-4	2/21/12	1015	S	5		/		/		/							/								X
12	TP-6-10		1020				/		/		/							/								
13	TP-7-4		1030				/		/		/							/								
14	TP-7-8		1035				/		/		/							/								
15	TP-8-4		1043				/		/		/							/								
16	TP-8-8		1045				/		/		/							/								

	Signature	Company	Date	Time
Relinquished	[signature]	Hwa	2/21/12	1405
Received	[signature]	OSE	2/21/12	1405
Relinquished				
Received				
Relinquished				
Received				

Comments/Special Instructions:

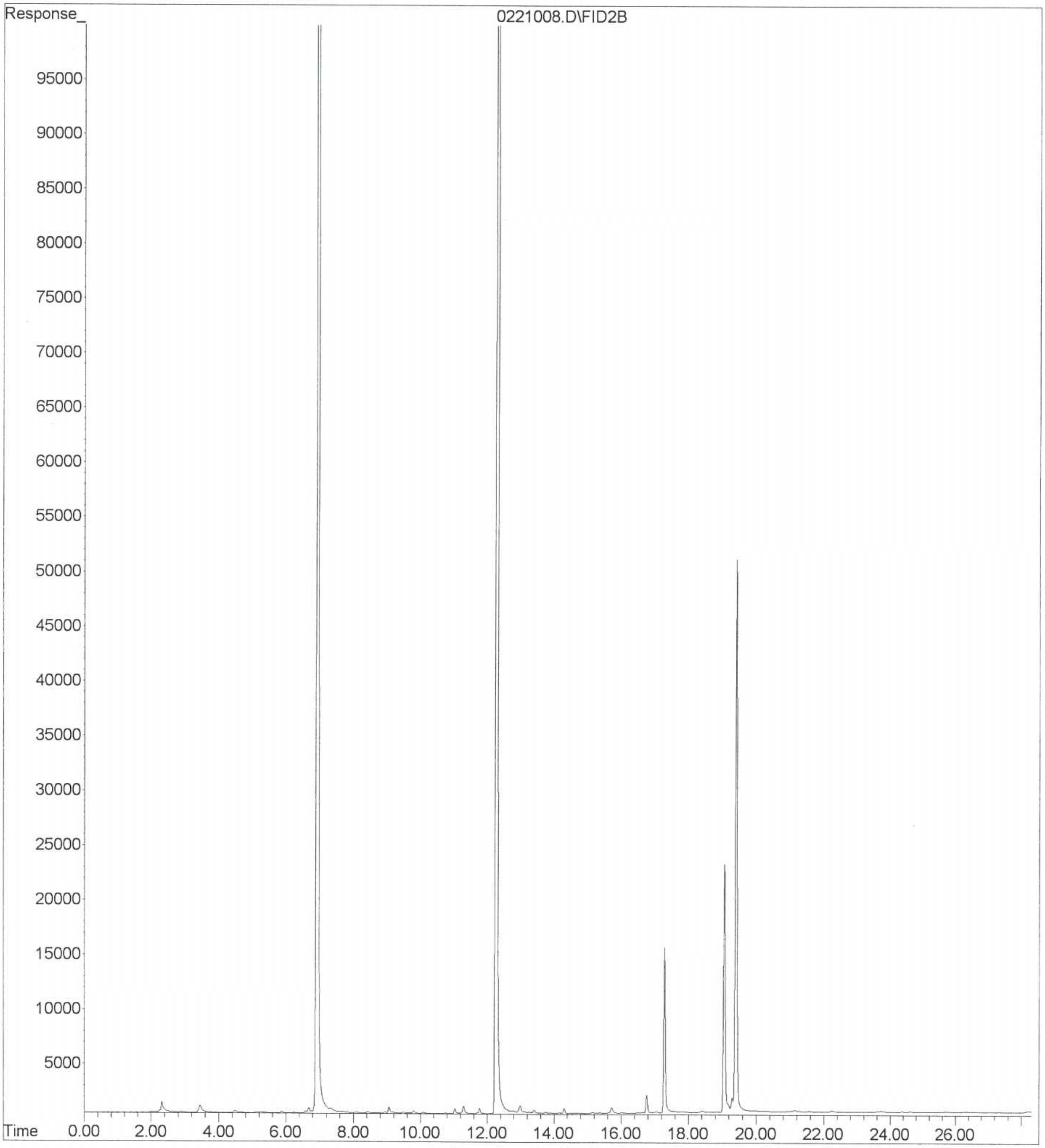
Reviewed/Date

Reviewed/Date

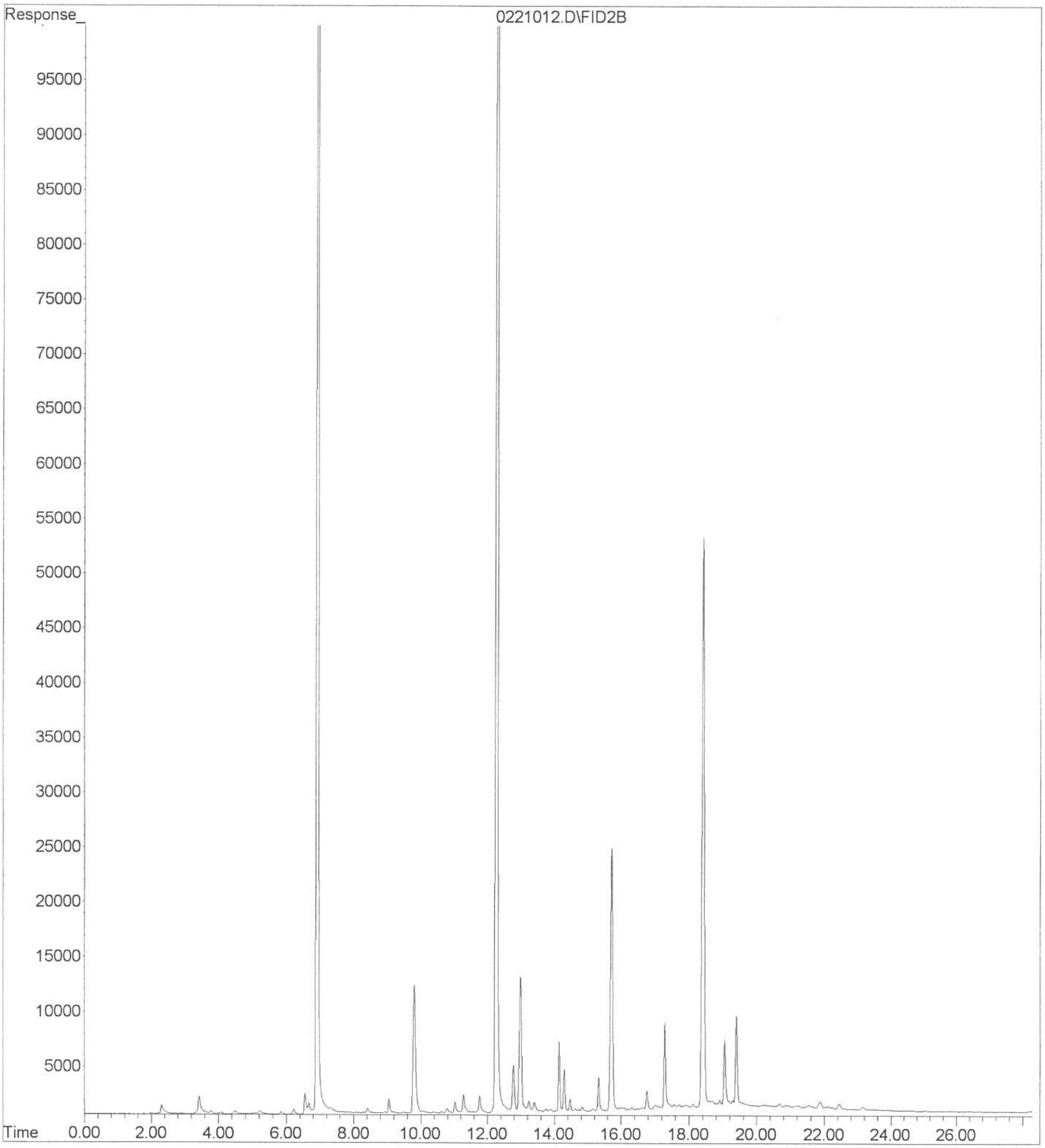
Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

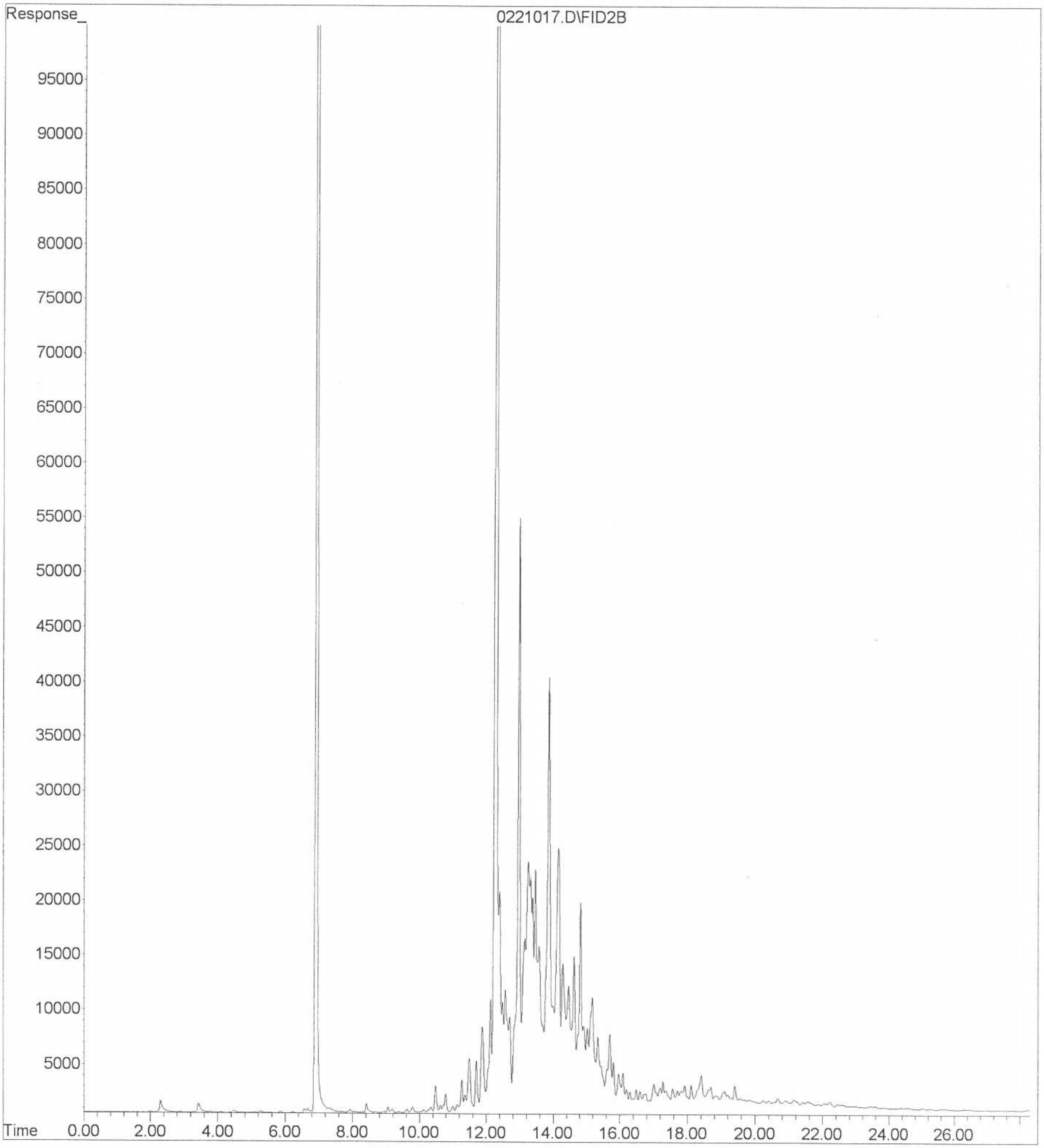
```
File        : X:\BTEX\DARYL\DATA\D120221\0221008.D
Operator    :
Acquired    : 21 Feb 2012  18:10     using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 02-163-01s
Misc Info   : V2-27-25
Vial Number: 8
```



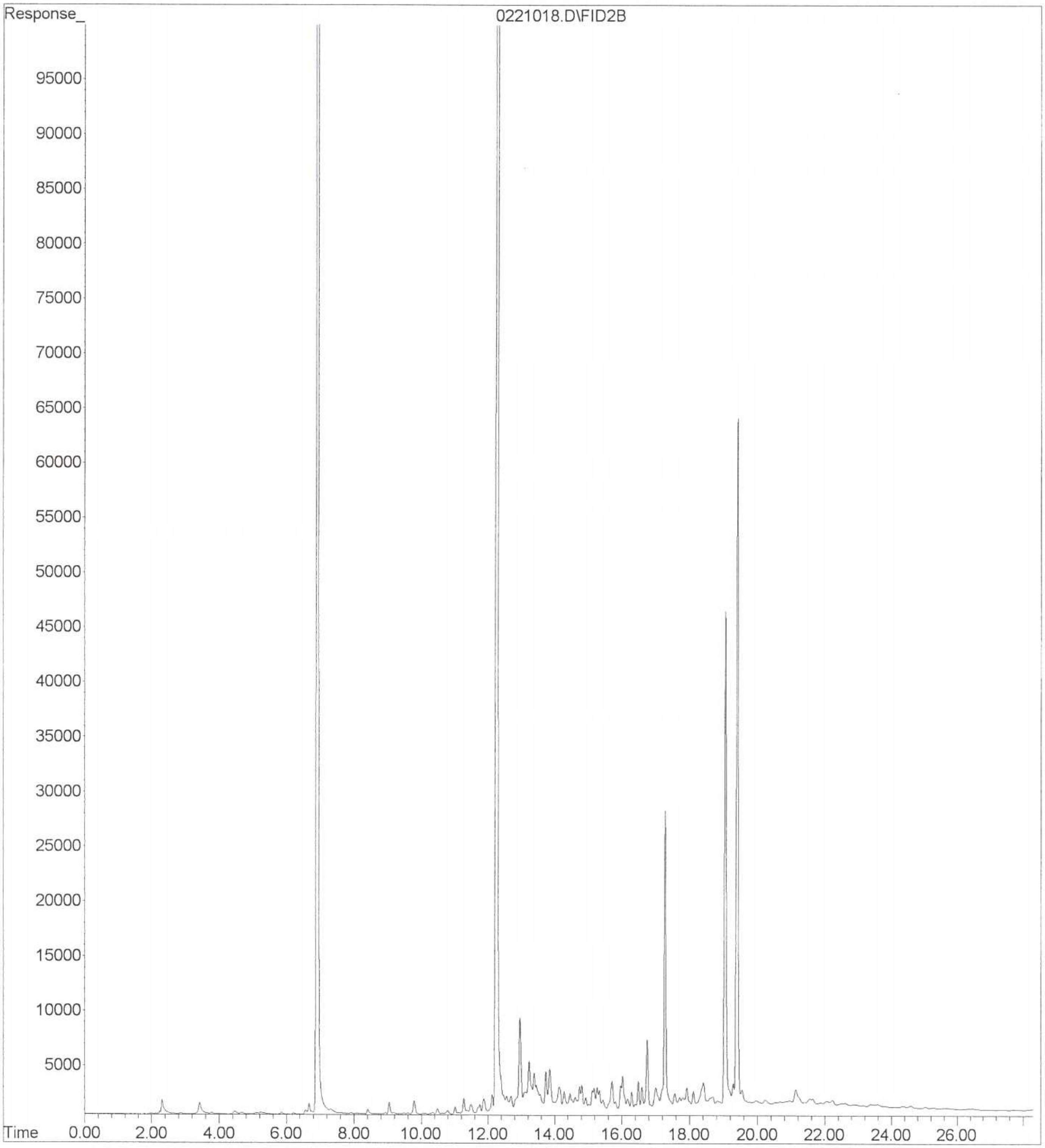
File : X:\BTEX\DARYL\DATA\D120221\0221012.D
Operator :
Acquired : 21 Feb 2012 20:27 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 02-163-02s
Misc Info : V2-27-25
Vial Number: 12



File : X:\BTEX\DARYL\DATA\D120221\0221017.D
Operator :
Acquired : 21 Feb 2012 23:18 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 02-163-03s
Misc Info : V2-27-25
Vial Number: 17



File : X:\BTEX\DARYL\DATA\D120221\0221018.D
Operator :
Acquired : 21 Feb 2012 23:52 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 02-163-04s
Misc Info : V2-27-25
Vial Number: 18



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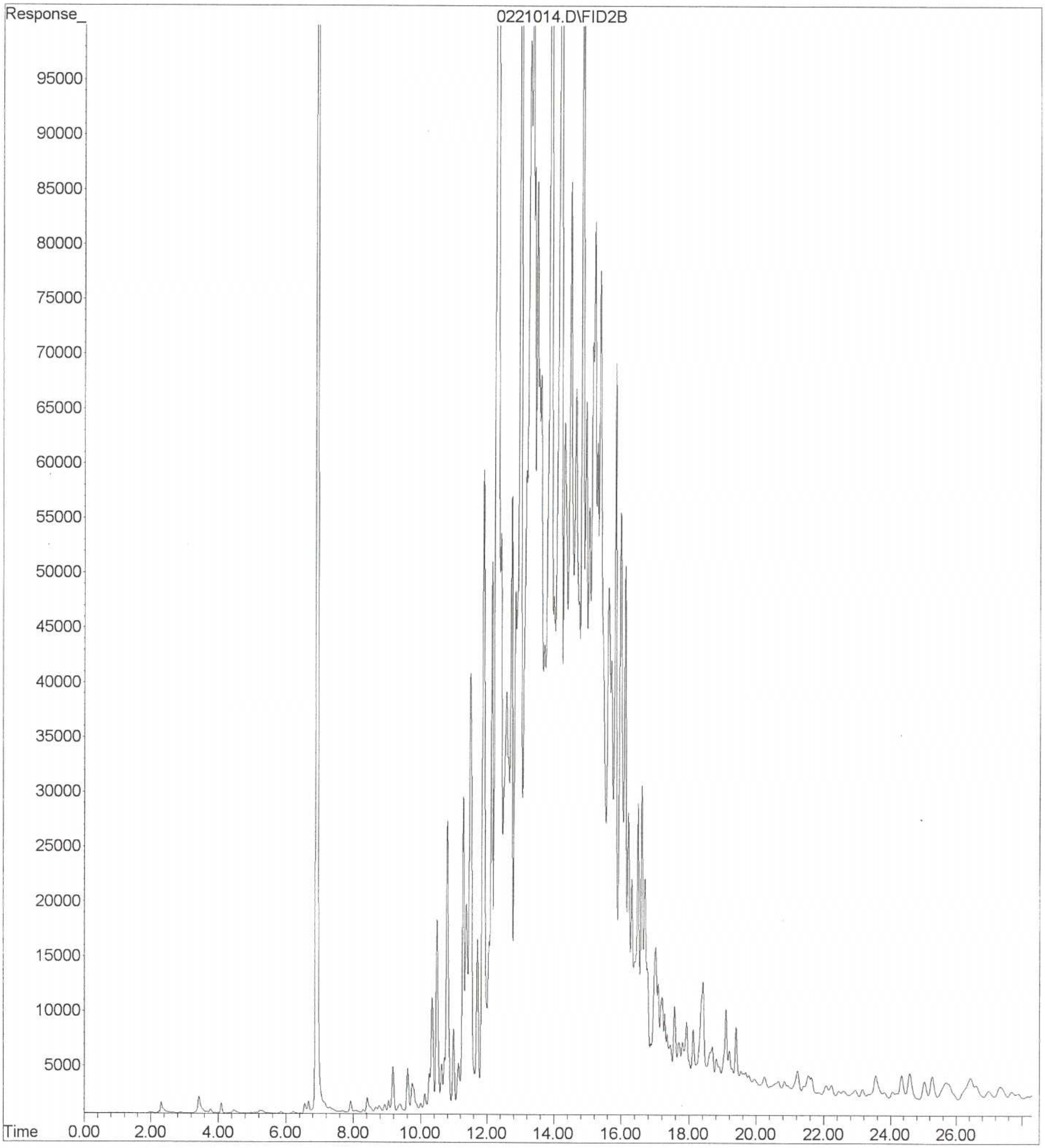
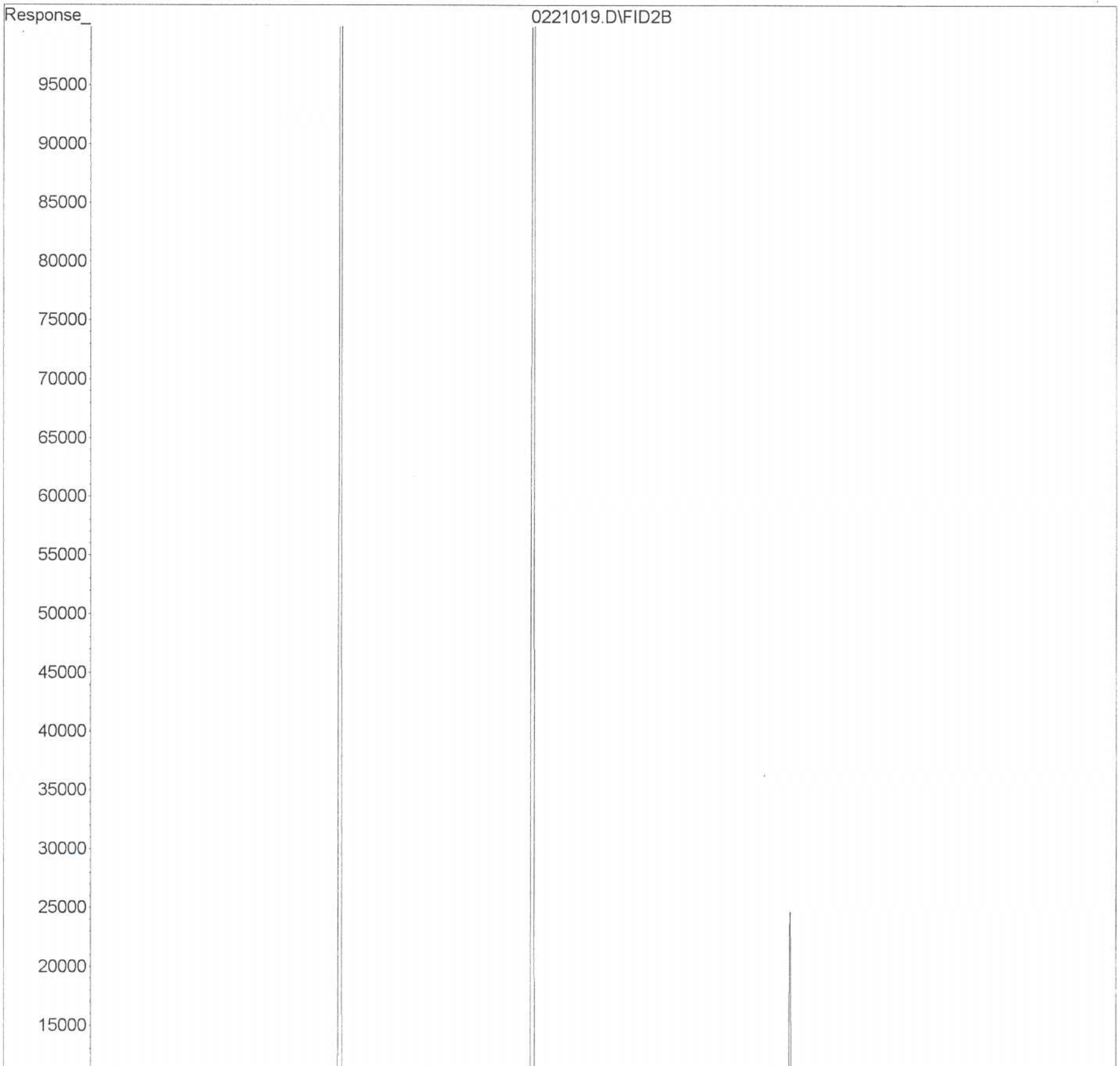
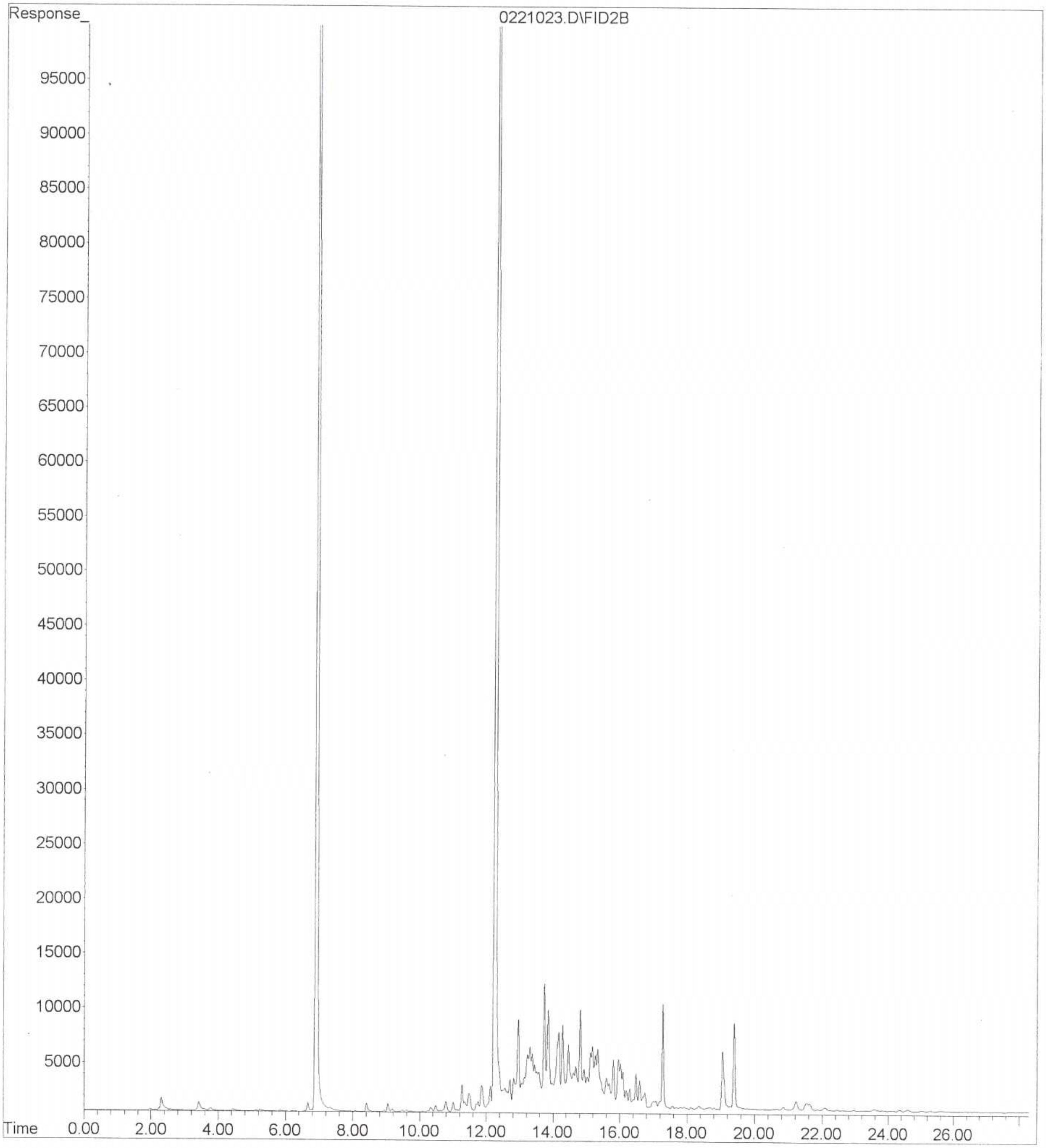
File         : X:\BTEX\DARYL\DATA\D120221\0221014.D
Operator     :
Acquired     : 21 Feb 2012  21:36      using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 02-163-05s
Misc Info   : V2-27-25
Vial Number: 14
```



File : X:\BTEX\DARYL\DATA\D120221\0221019.D
Operator :
Acquired : 22 Feb 2012 00:26 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 02-163-06s
Misc Info : V2-27-25
Vial Number: 19



File   : X:\BTEX\DARYL\DATA\D120221\0221023.D
Operator   :
Acquired   : 22 Feb 2012   2:41   using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 02-163-07s
Misc Info   : V2-27-25
Vial Number: 23



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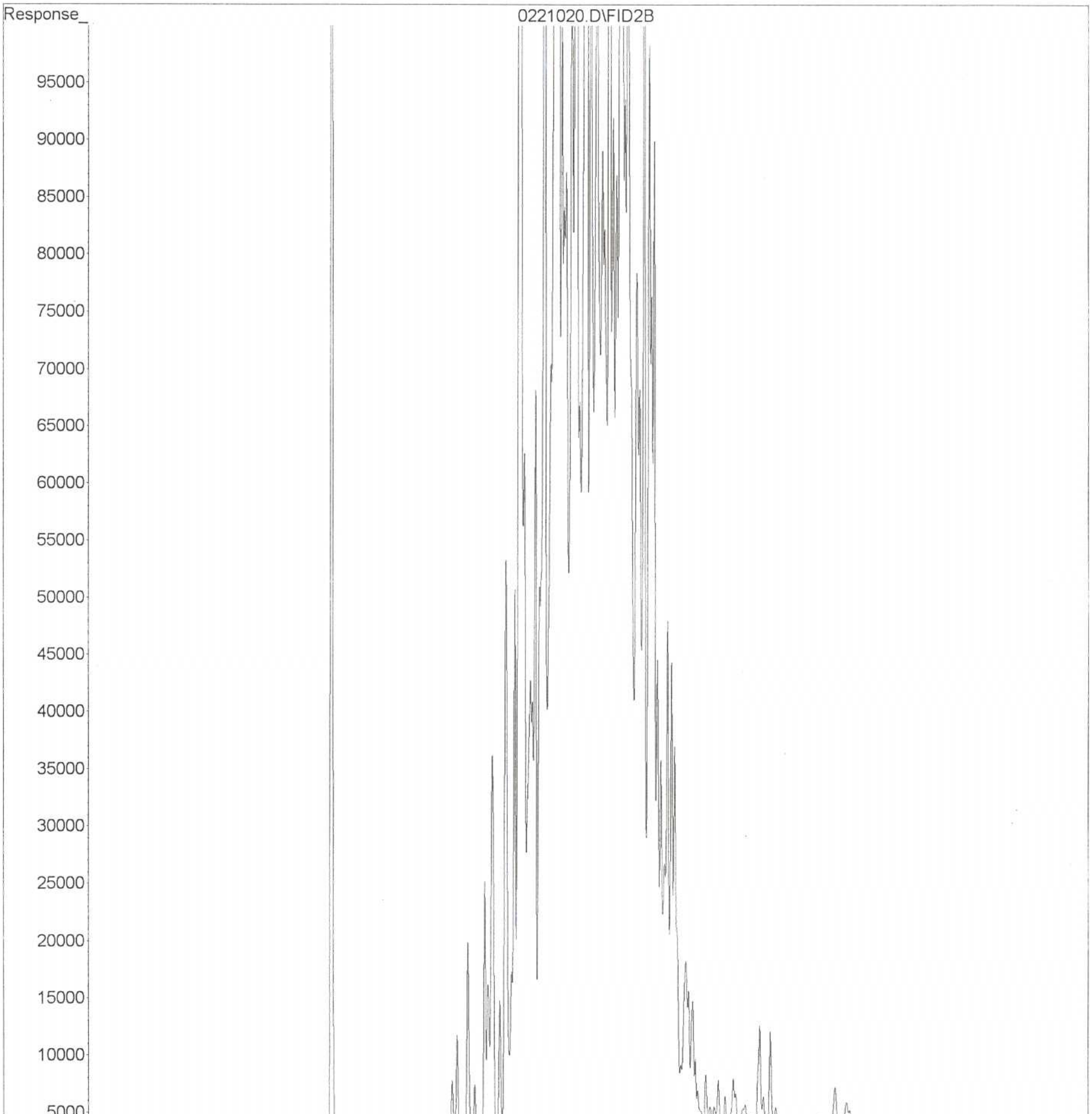
File       : X:\BTEX\DARYL\DATA\D120221\0221020.D
Operator   :
Acquired   : 22 Feb 2012   1:00     using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 02-163-08s
Misc Info  : V2-27-25
Vial Number: 20
```



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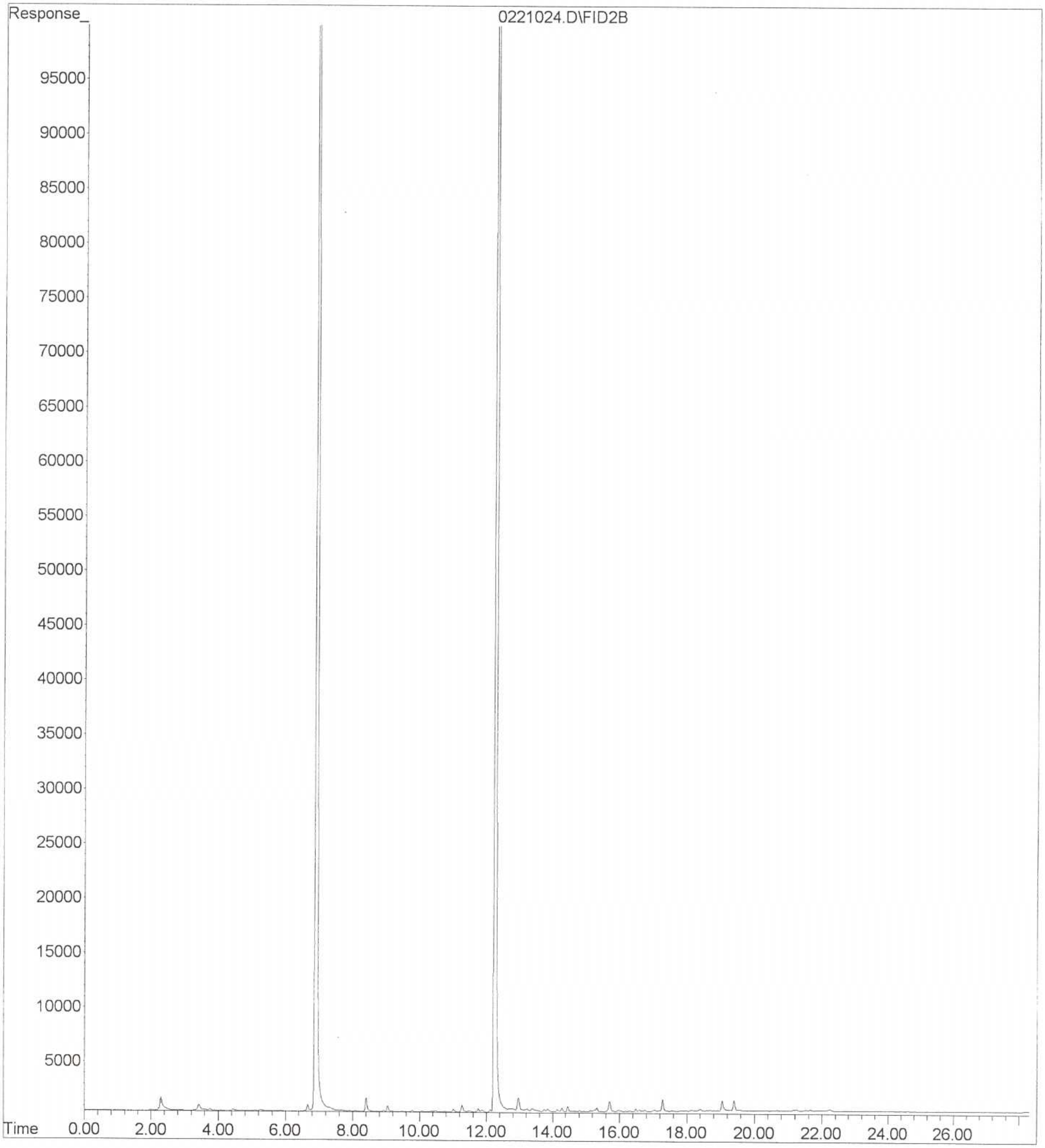
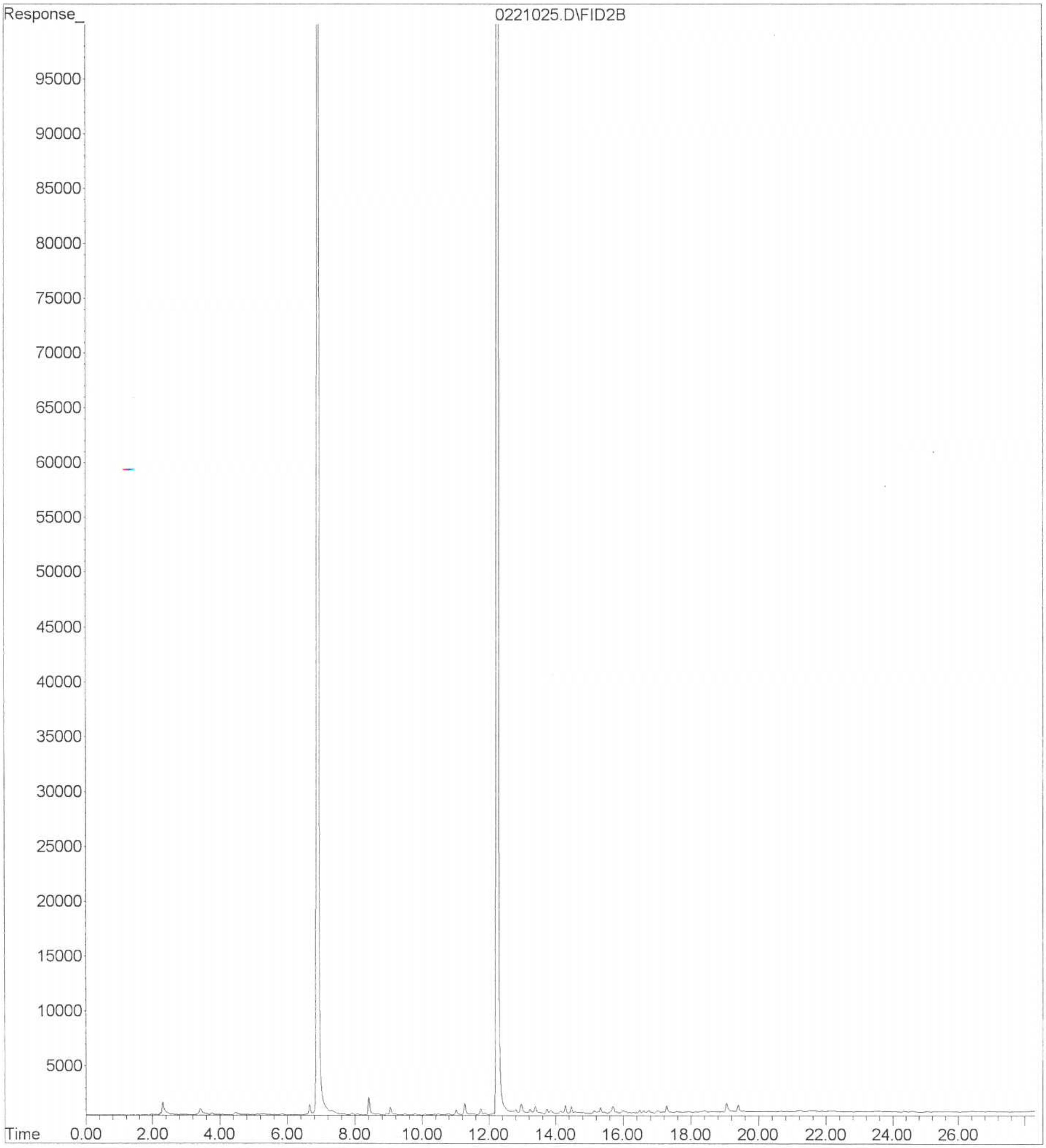
File       : X:\BTEX\DARYL\DATA\D120221\0221024.D
Operator   :
Acquired   : 22 Feb 2012   3:15     using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 02-163-09s
Misc Info  : V2-27-25
Vial Number: 24
```



File   : X:\BTEX\DARYL\DATA\D120221\0221025.D
Operator   :
Acquired   : 22 Feb 2012   3:49   using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 02-163-10s
Misc Info   : V2-27-25
Vial Number: 25



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File         :C:\msdchem\2\DATA\V120222\0222-V04.D
Operator     :
Acquired     : 22 Feb 2012   9:43    using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 02-163-01
Misc Info    :
Vial Number: 4
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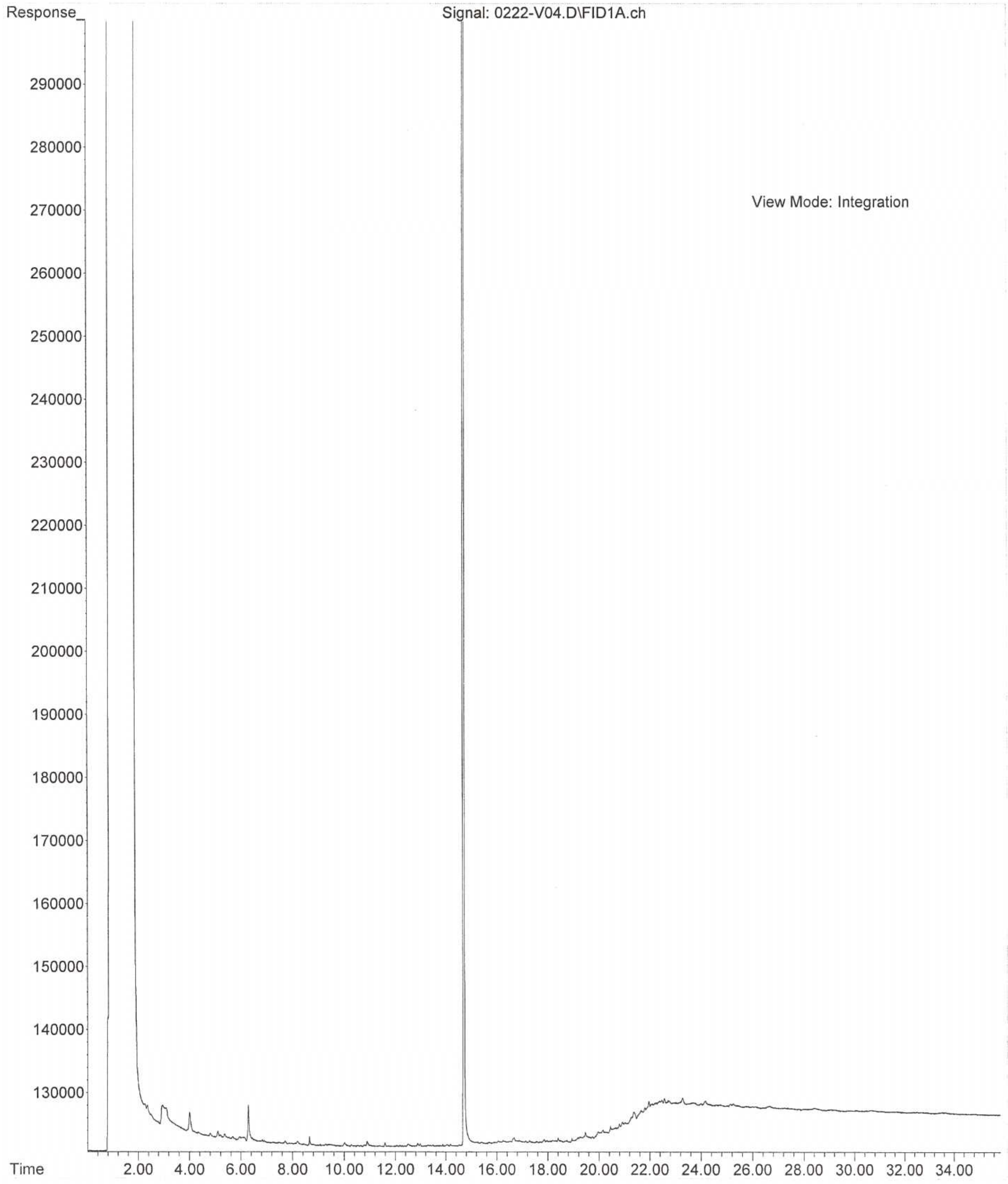
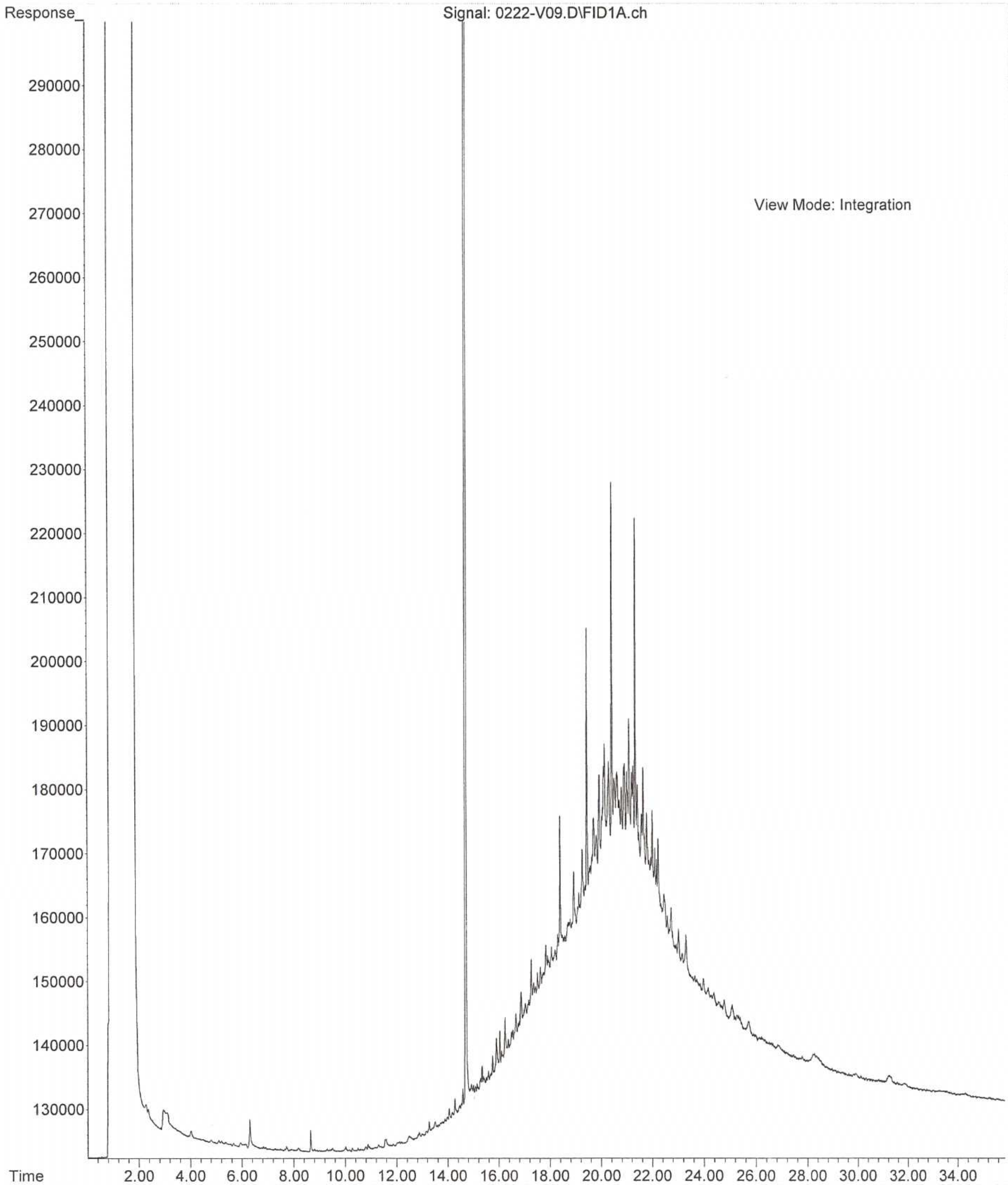


```
File        :C:\msdchem\2\DATA\V120222\0222-V09.D
Operator    :
Acquired    : 22 Feb 2012  13:05     using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 02-163-02
Misc Info   :
Vial Number: 9
```



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File        :C:\msdchem\2\DATA\V120222.SEC\0222-V56.D
Operator    :
Acquired    : 22 Feb 2012  11:03     using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 02-163-03
Misc Info   :
Vial Number: 56
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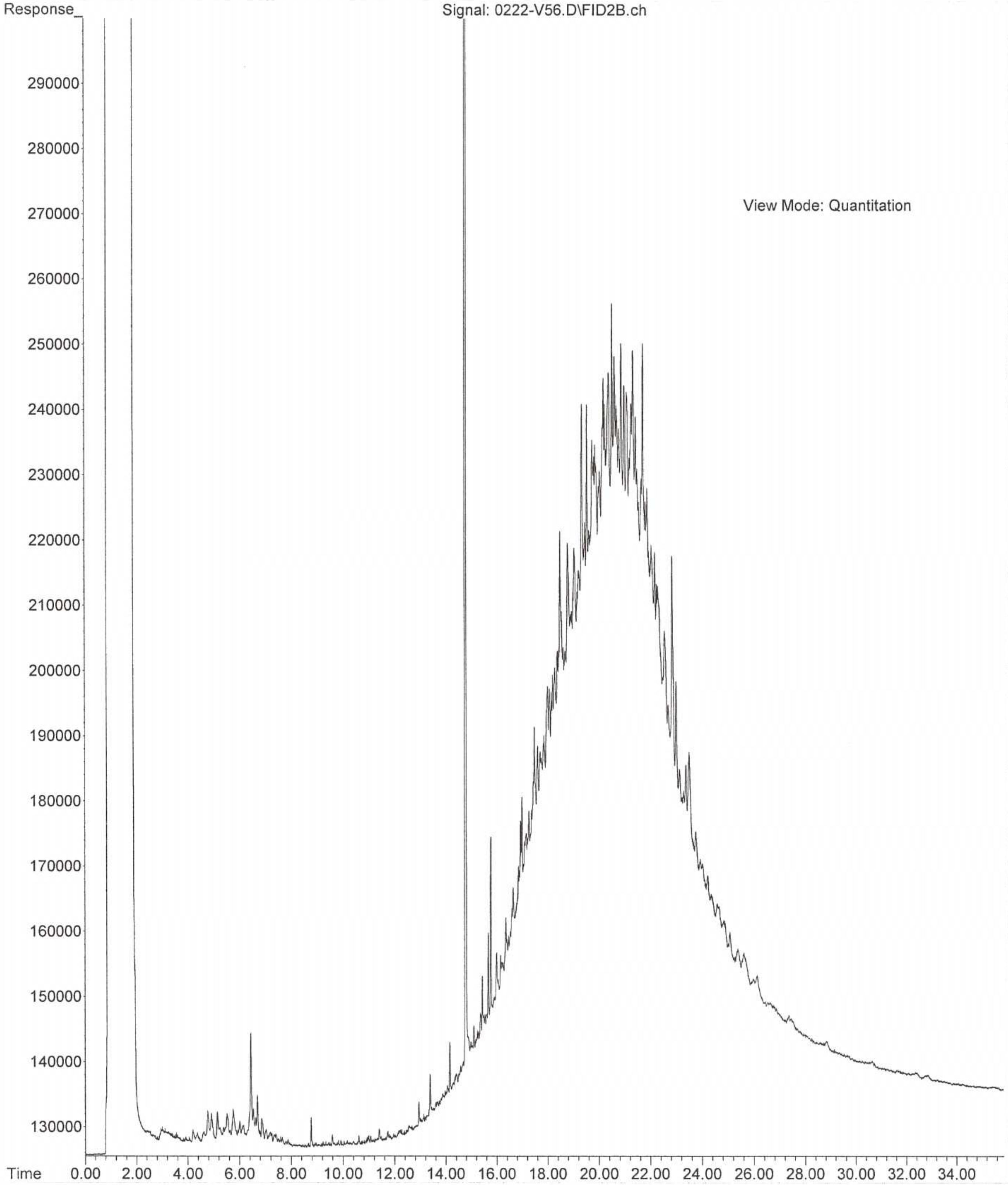

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File        :C:\msdchem\2\DATA\V120222\0222-V06.D
Operator    :
Acquired    : 22 Feb 2012  11:03     using AcqMethod V120125F.M
Instrument  :   VIGO
Sample Name: 02-163-04
Misc Info   :
Vial Number: 6
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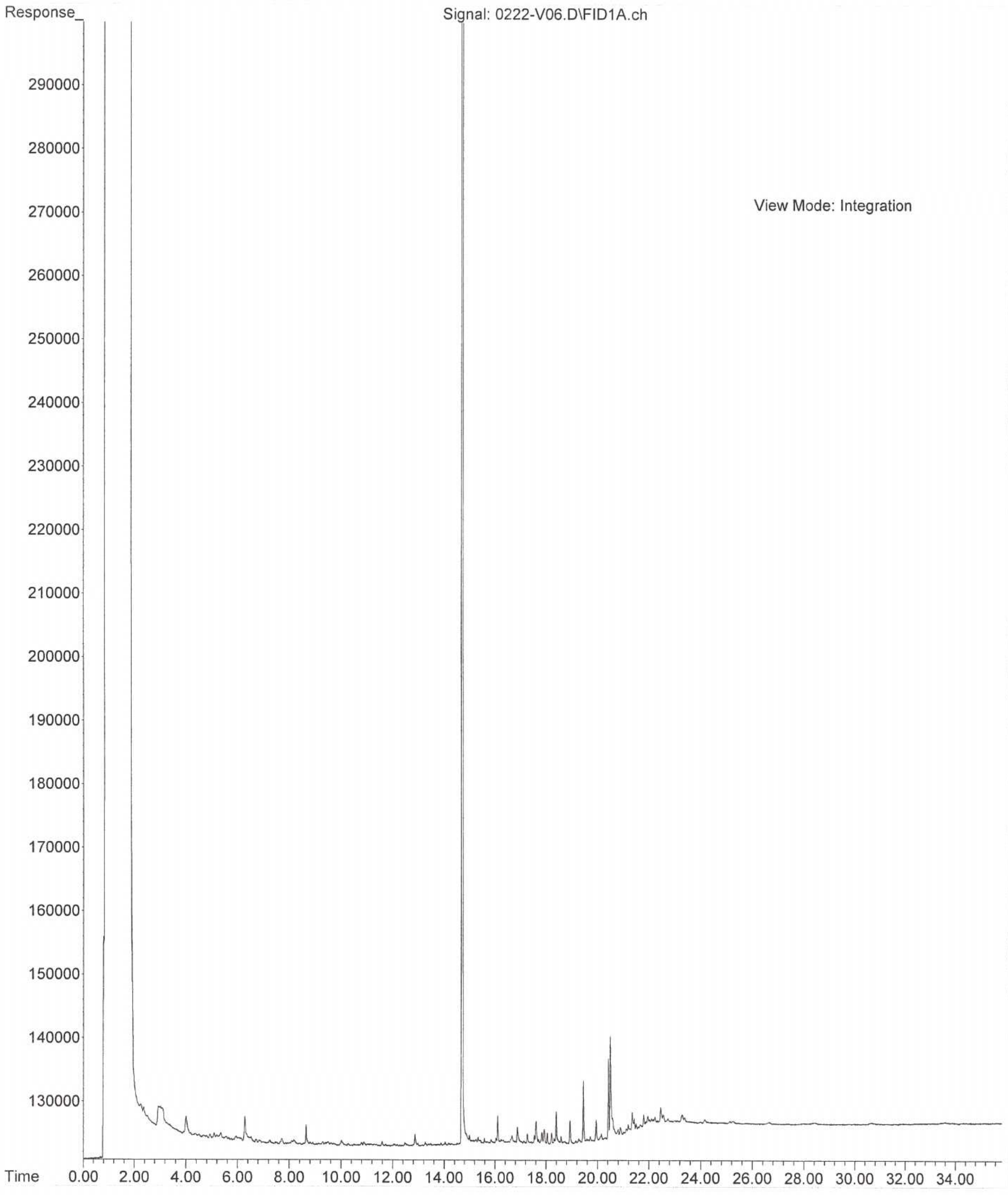
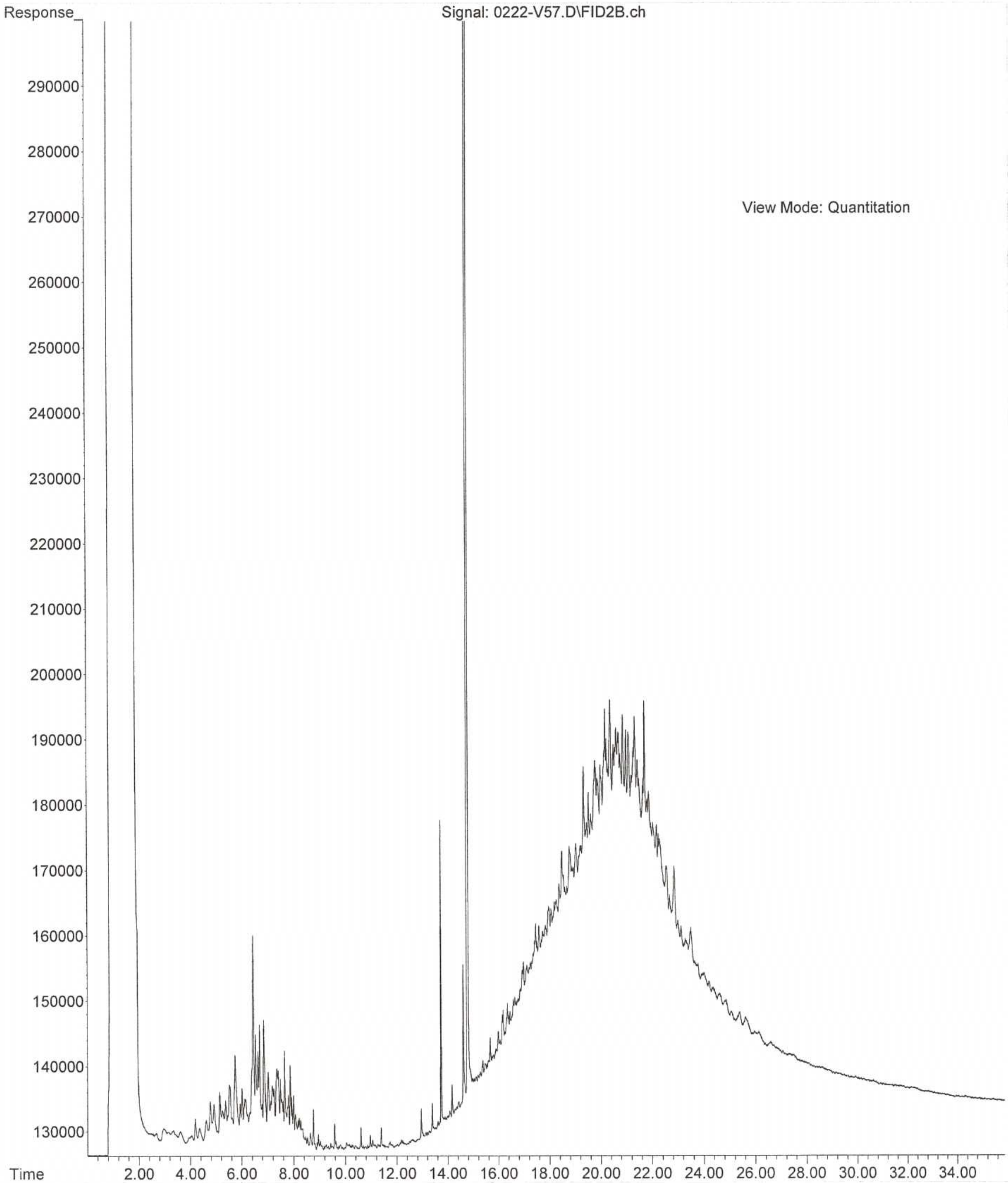


```
File         :C:\msdchem\2\DATA\V120222.SEC\0222-V57.D
Operator     :
Acquired     : 22 Feb 2012  11:43      using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 02-163-05
Misc Info    :
Vial Number: 57
```



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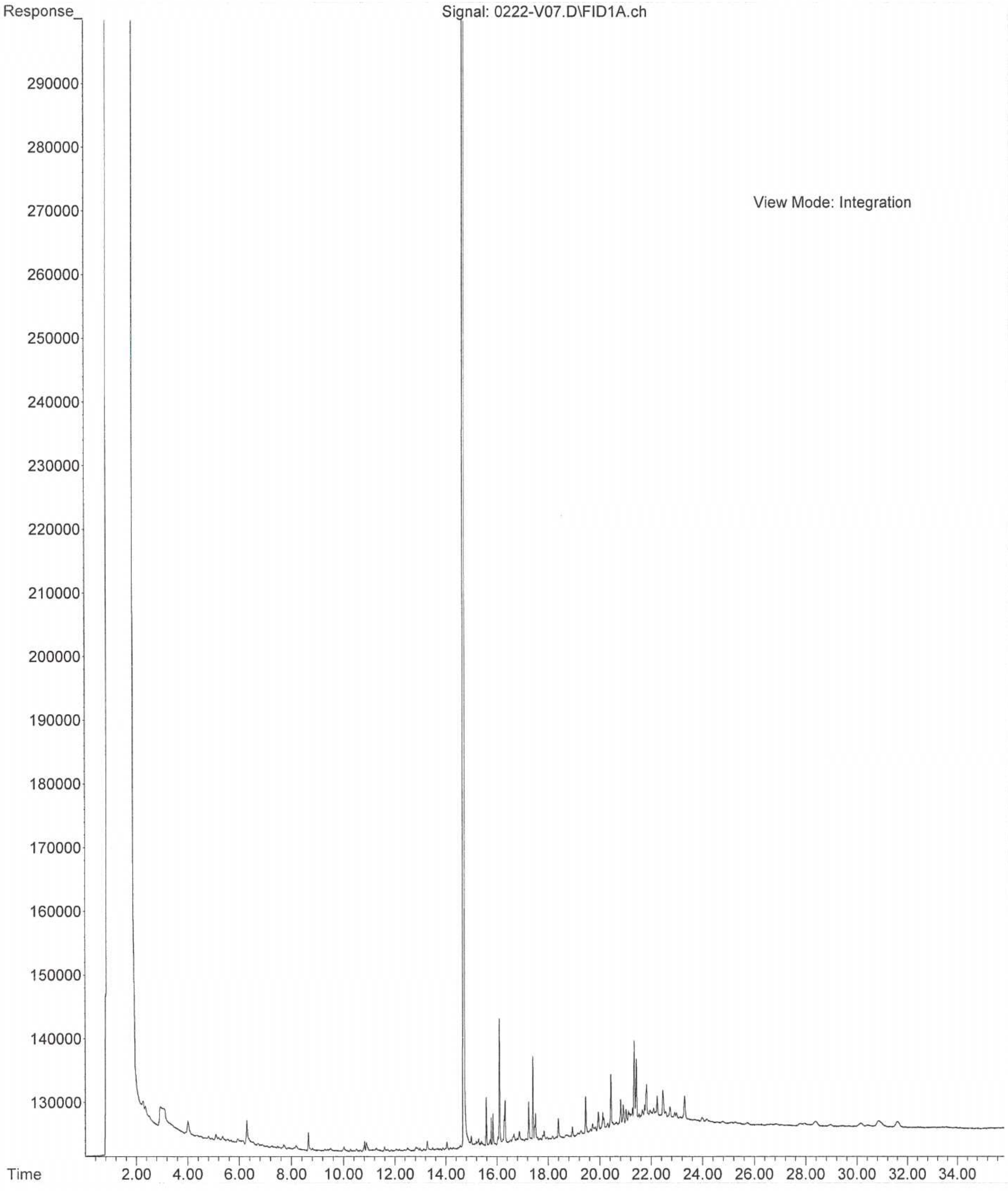
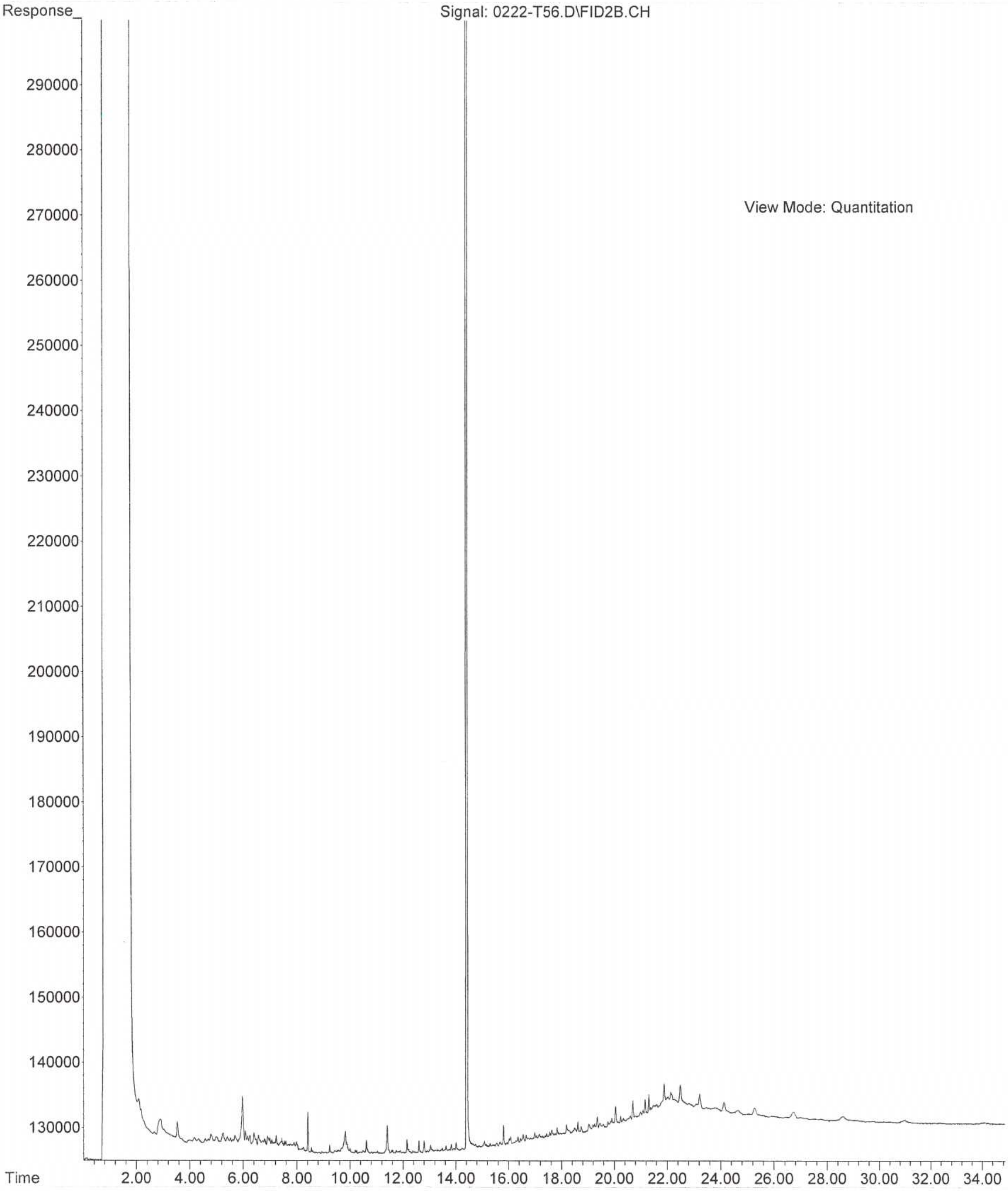
File         :C:\msdchem\2\DATA\V120222\0222-V07.D
Operator     :
Acquired     : 22 Feb 2012  11:43     using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 02-163-06
Misc Info    :
Vial Number: 7
```



```
File          :C:\msdchem\1\DATA\T120222.SEC\0222-T56.D
Operator      : ZT
Acquired      : 22 Feb 2012  11:28      using AcqMethod T120124F.M
Instrument :    Teri
Sample Name: 02-163-07
Misc Info  :
Vial Number: 56
```



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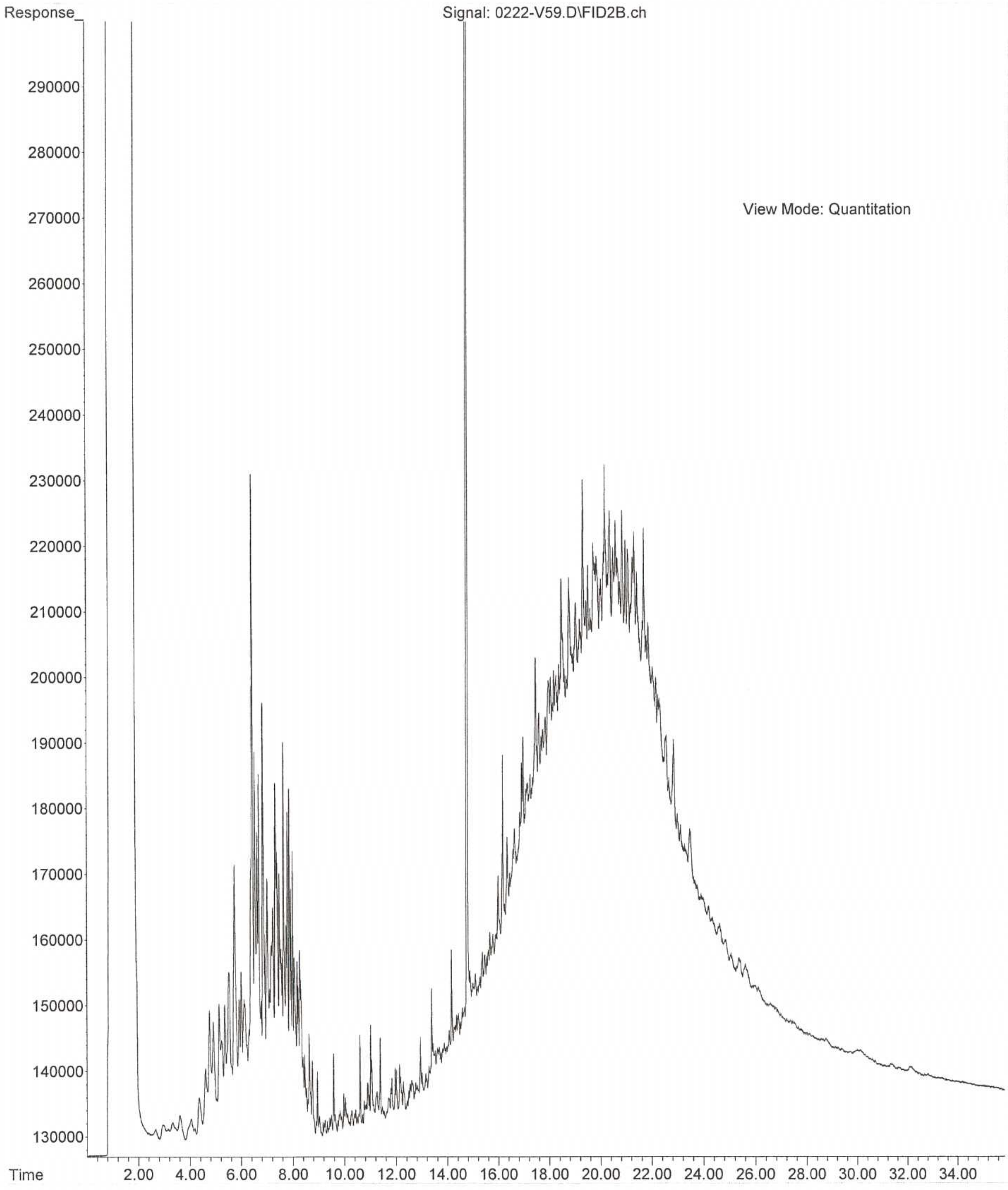
File        :C:\msdchem\2\DATA\V120222.SEC\0222-V59.D
Operator    :
Acquired    : 22 Feb 2012  13:05      using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 02-163-08
Misc Info   :
Vial Number: 59
```



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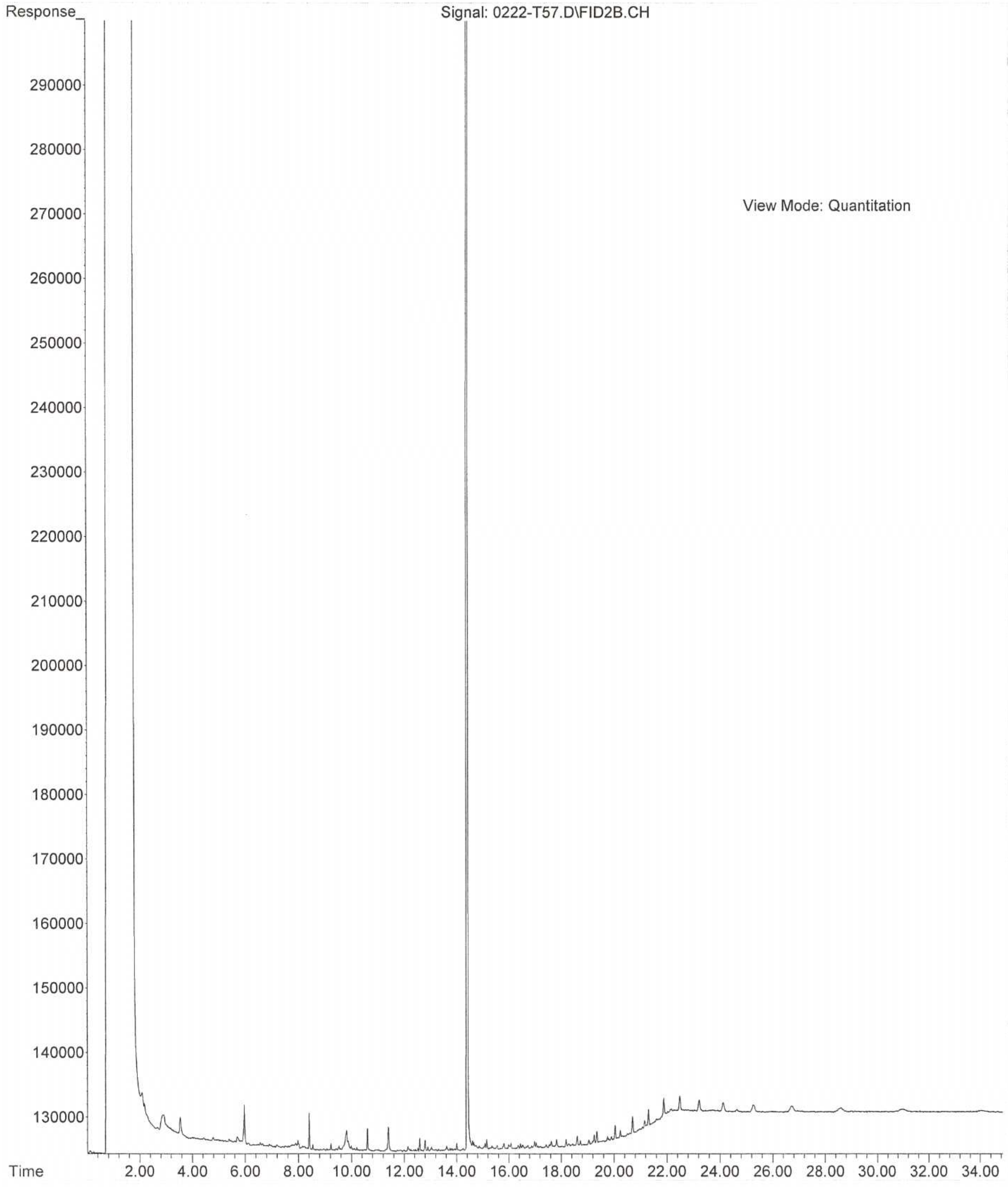
Operator : ZT
Acquired : 22 Feb 2012 12:11 using AcqMethod T120124F.M
Instrument : Teri
Sample Name: 02-163-09
Misc Info :
Vial Number: 57



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File         :C:\msdchem\1\DATA\T120222.SEC\0222-T58.D
Operator     : ZT
Acquired     : 22 Feb 2012  12:53      using AcqMethod T120124F.M
Instrument :    Teri
Sample Name: 02-163-10
Misc Info  :
Vial Number: 58
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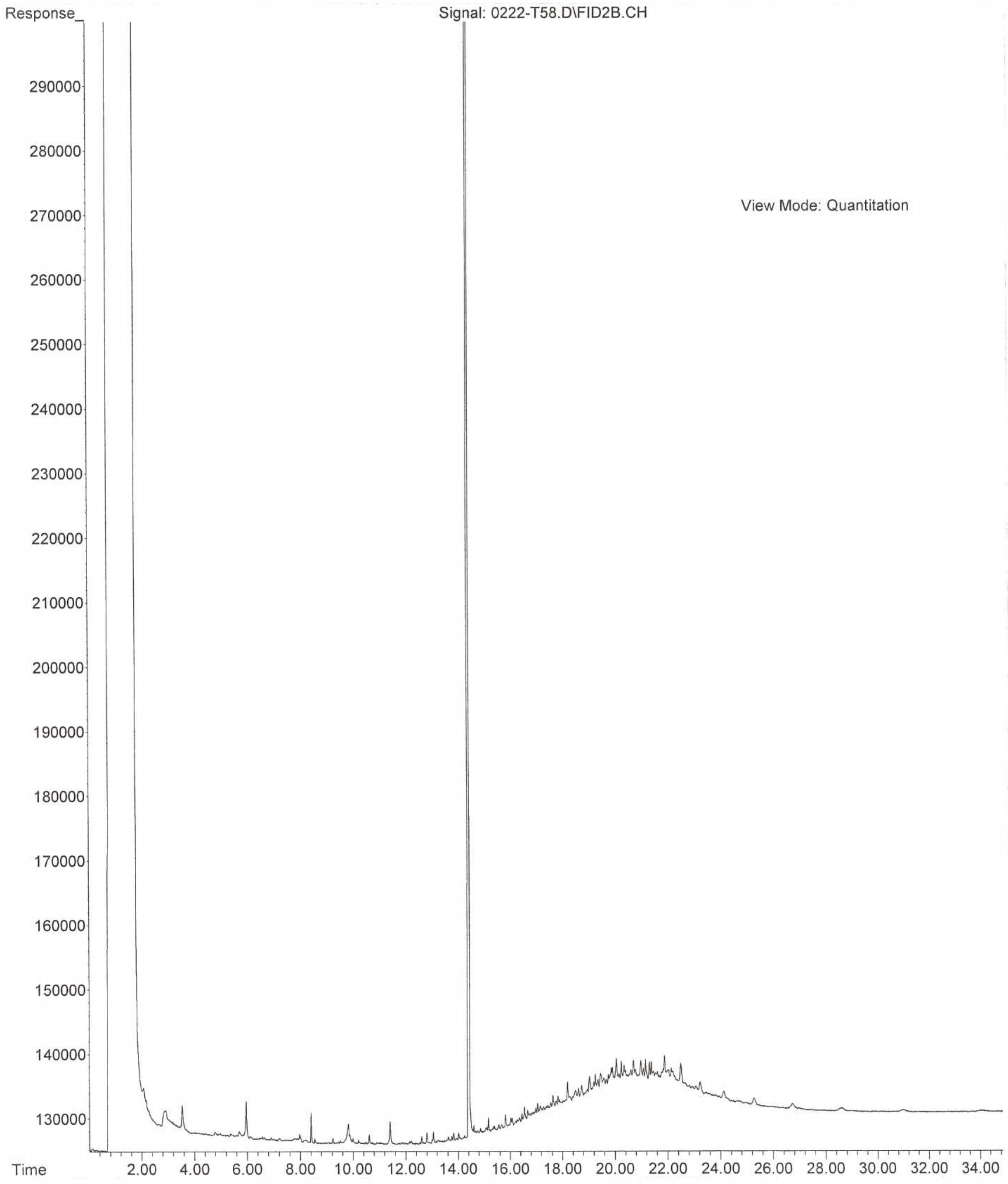

OnSite
Environmental Inc.

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

March 13, 2012

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project Bothell Stormwater
Laboratory Reference No. 1203-054

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on March 7, 2012.

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: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

Case Narrative

Samples were collected on March 6 and 7, 2012 and received by the laboratory on March 7, 2012. They were maintained at the laboratory at a temperature of $2^{o}C$ to $6^{o}C$.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between $-7^{o}C$ and $-20^{o}C$ until extraction or analysis.

The chromatogram for sample Trench-3-10 is similar to mineral spirits with diesel range organics.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trench-1-15**					
Laboratory ID:	03-054-01					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.062	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.062	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.062	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.062	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	6.2	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*68-124*				
Client ID:	**Trench-2-10**					
Laboratory ID:	03-054-02					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.066	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.066	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.066	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.066	EPA 8021	3-8-12	3-8-12	
Gasoline	**7.6**	6.6	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*68-124*				
Client ID:	**Trench-3-10**					
Laboratory ID:	03-054-03					
Benzene	**ND**	0.022	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.11	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**0.13**	0.11	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**0.58**	0.11	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.11	EPA 8021	3-8-12	3-8-12	
Gasoline	**360**	27	NWTPH-Gx	3-8-12	3-9-12	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*68-124*				

Date of Report: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0308S2					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	5.0	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*68-124*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-056-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*101*	*104*	*68-124*			
SPIKE BLANKS											
Laboratory ID:	SB0308S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.11**	**1.11**	1.00	1.00		**111**	**111**	77-114	0	9	
Toluene	**1.12**	**1.13**	1.00	1.00		**112**	**113**	80-115	1	9	
Ethyl Benzene	**1.09**	**1.10**	1.00	1.00		**109**	**110**	80-118	1	9	
m,p-Xylene	**1.08**	**1.11**	1.00	1.00		**108**	**111**	82-118	3	9	
o-Xylene	**1.05**	**1.08**	1.00	1.00		**105**	**108**	82-116	3	9	
Surrogate:											
Fluorobenzene						*95*	*96*	*68-124*			

Date of Report: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trench-1-15**					
Laboratory ID:	03-054-01					
Diesel Range Organics	**ND**	30	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*80*	*50-150*				
Client ID:	**Trench-2-10**					
Laboratory ID:	03-054-02					
Diesel Range Organics	**ND**	31	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil	**69**	62	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				
Client ID:	**Trench-3-10**					
Laboratory ID:	03-054-03					
Diesel Range Organics	**130**	29	NWTPH-Dx	3-8-12	3-8-12	M
Lube Oil	**520**	58	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*88*	*50-150*				

Date of Report: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0308S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	03-056-03							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*118*	*111*	*50-150*			

Date of Report: March 13, 2012
Samples Submitted: March 7, 2012
Laboratory Reference: 1203-054
Project: Bothell Stormwater

% MOISTURE

Date Analyzed: 3-8-12

Client ID	Lab ID	% Moisture
Trench-1-15	03-054-01	17
Trench-2-10	03-054-02	19
Trench-3-10	03-054-03	13

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits with diesel range organics.

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

Page ______ of ______

Laboratory Number: 03-054

Company: HWA

Project Number:

Project Name: Bothell Storm Water

Project Manager: Atkins

Sampled by: Atkins

Turnaround Request (in working days)

(Check One)

- [ ] Same Day
- [ ] 1 Day
- [ ] 2 Days
- [ ] 3 Days
- [x] Standard (7 Days) (TPH analysis 5 Days)
- [ ] ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	% Moisture
1	TRENCH-1-15	3/6/12	1150	S	2		X		X													X
2	TRENCH-2-10	3/7/12	1130	″	″		X		X													″
3	TRENCH-3-10		1140	″	″		X		X													″

	Signature	Company	Date	Time
Relinquished	[signature]	HWA	3/7/12	1450
Received	[signature]	OnSite Env	3/7/12	1450
Relinquished				
Received				
Relinquished				
Received				

Comments/Special Instructions:

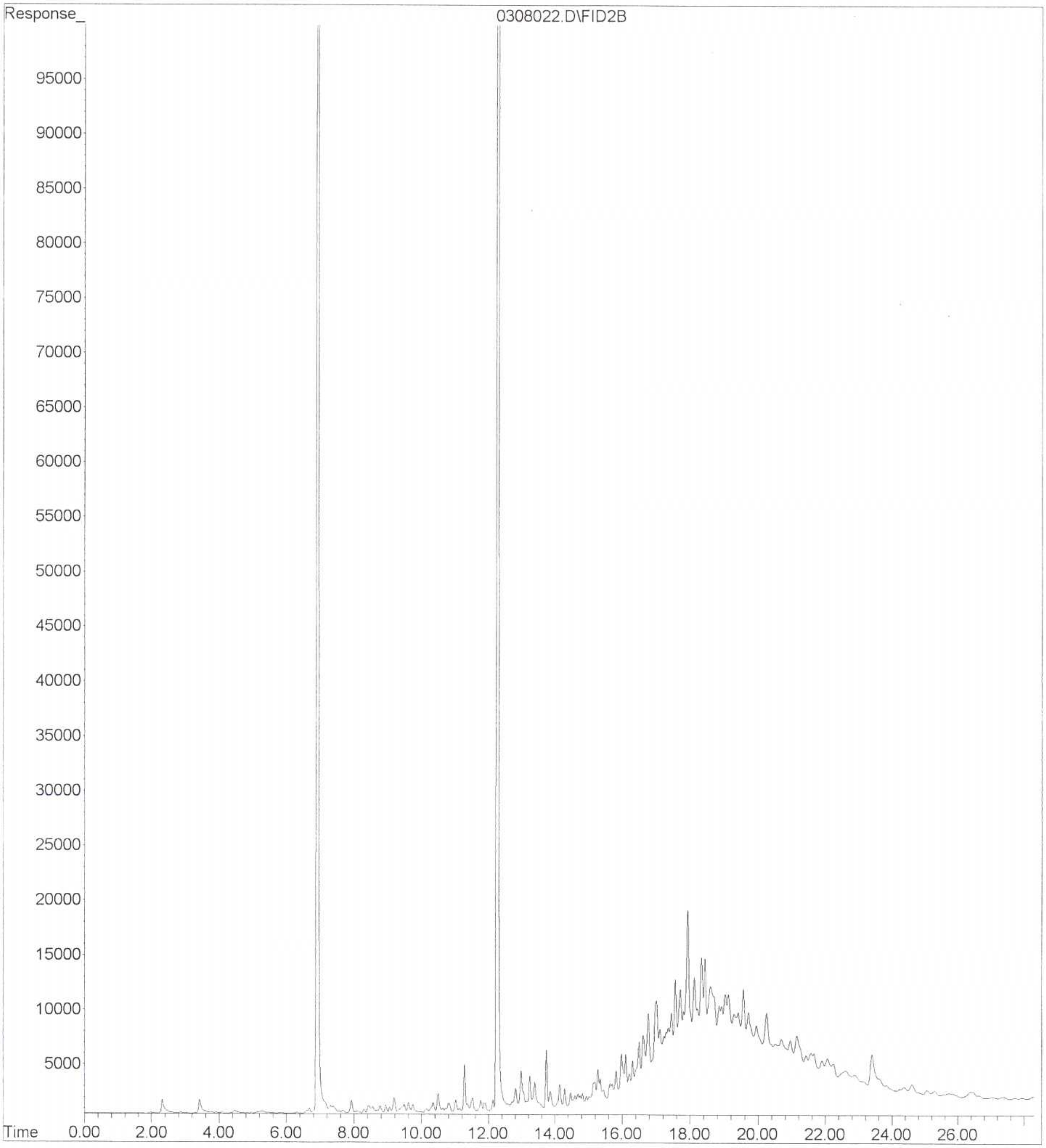
Reviewed/Date

Reviewed/Date

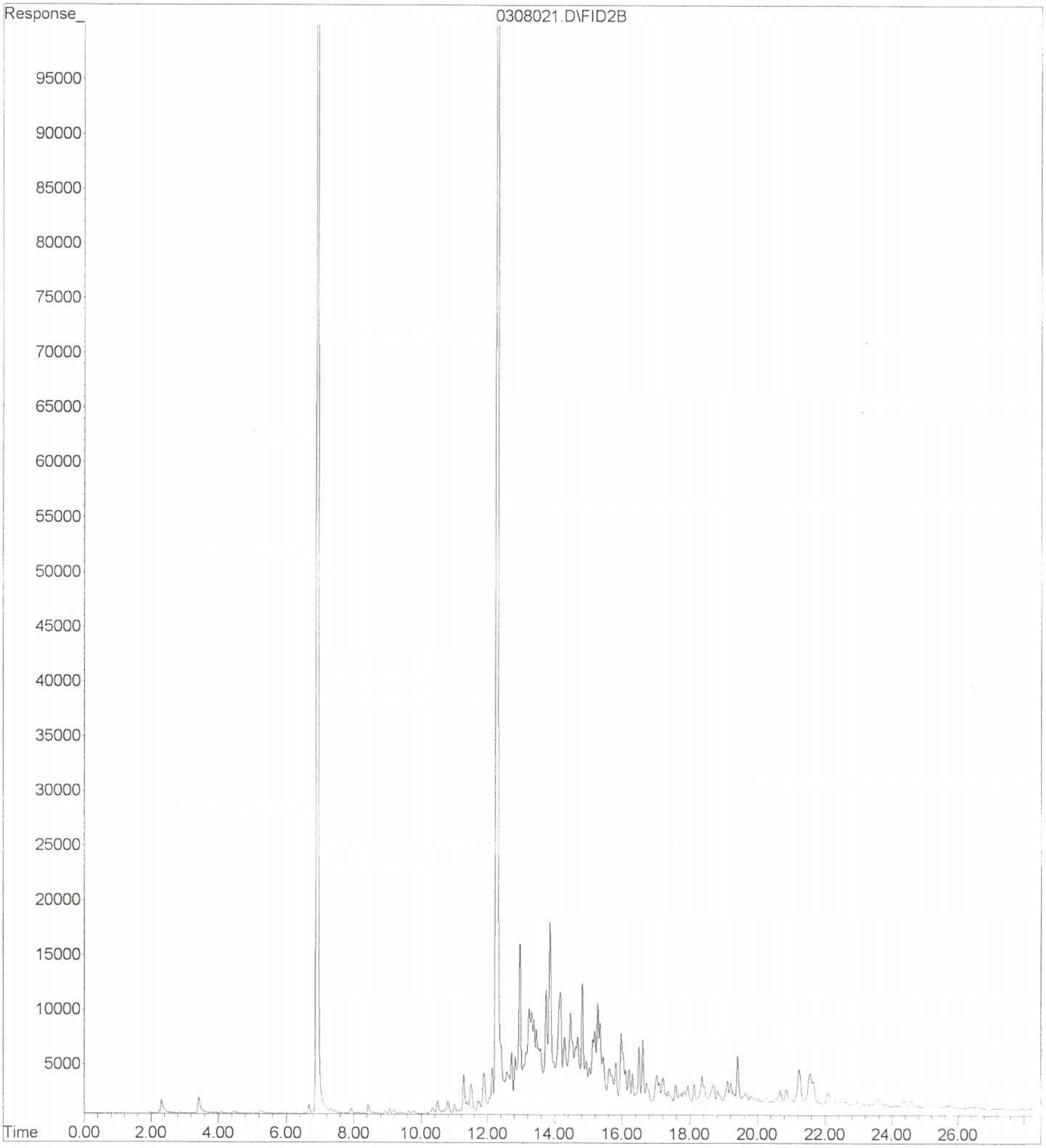
Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

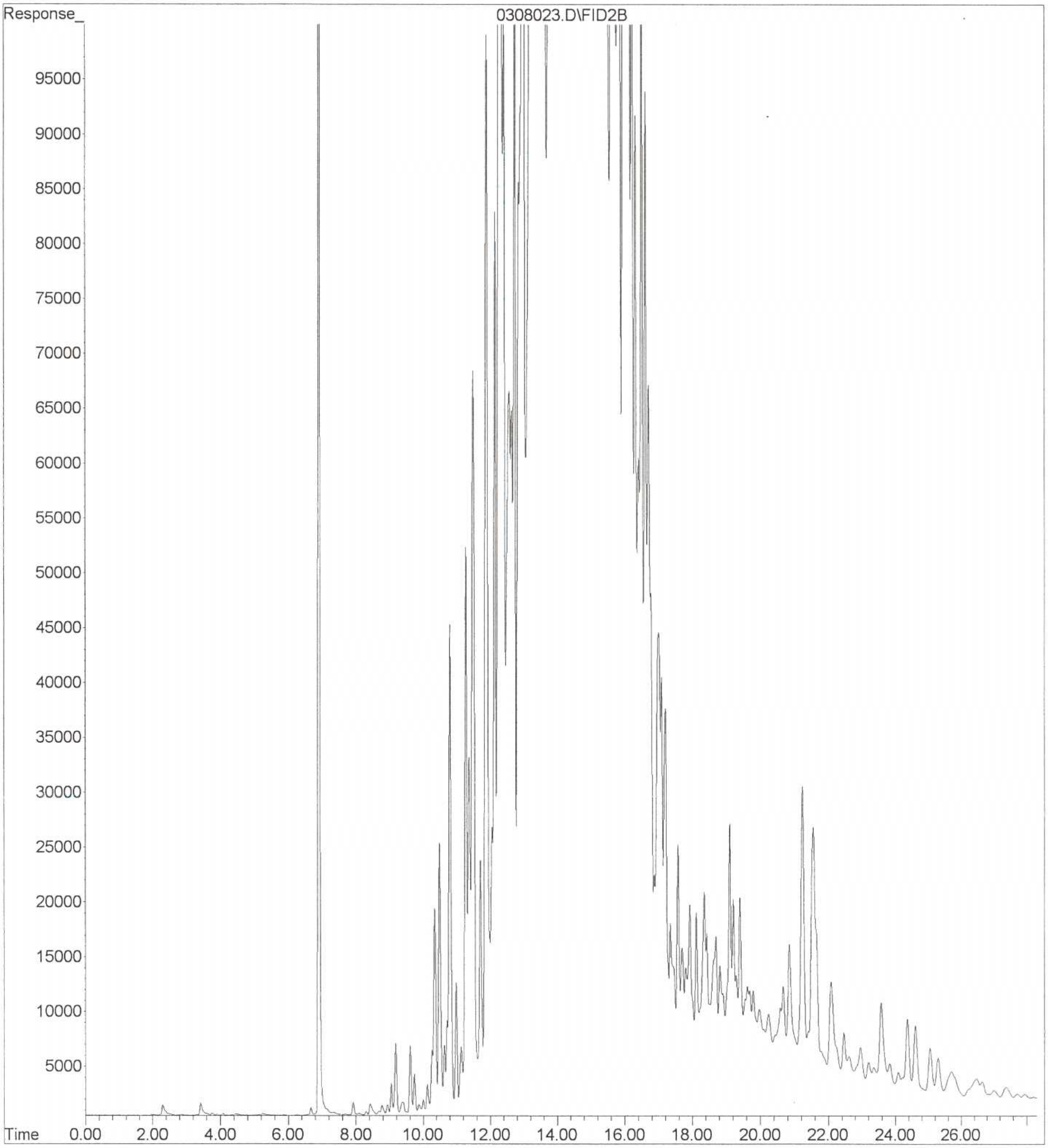
File : X:\BTEX\DARYL\DATA\D120308\0308022.D
Operator :
Acquired : 9 Mar 2012 1:52 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 03-054-01s
Misc Info : V2-27-25
Vial Number: 22



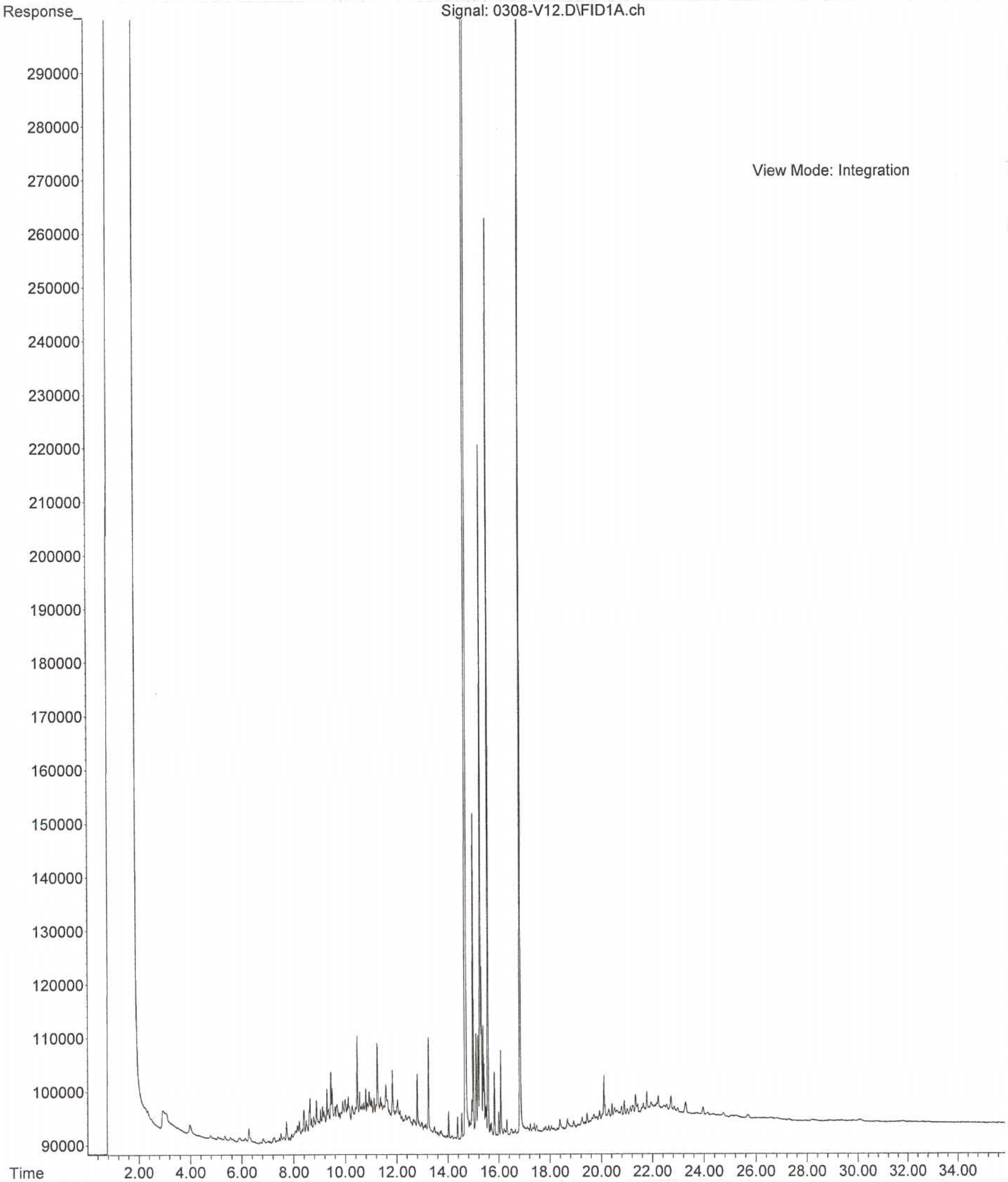
File   : X:\BTEX\DARYL\DATA\D120308\0308021.D
Operator   :
Acquired   : 9 Mar 2012   1:18   using AcqMethod 120110B.M
Instrument :   Daryl
Sample Name: 03-054-02s
Misc Info   : V2-27-25
Vial Number: 21



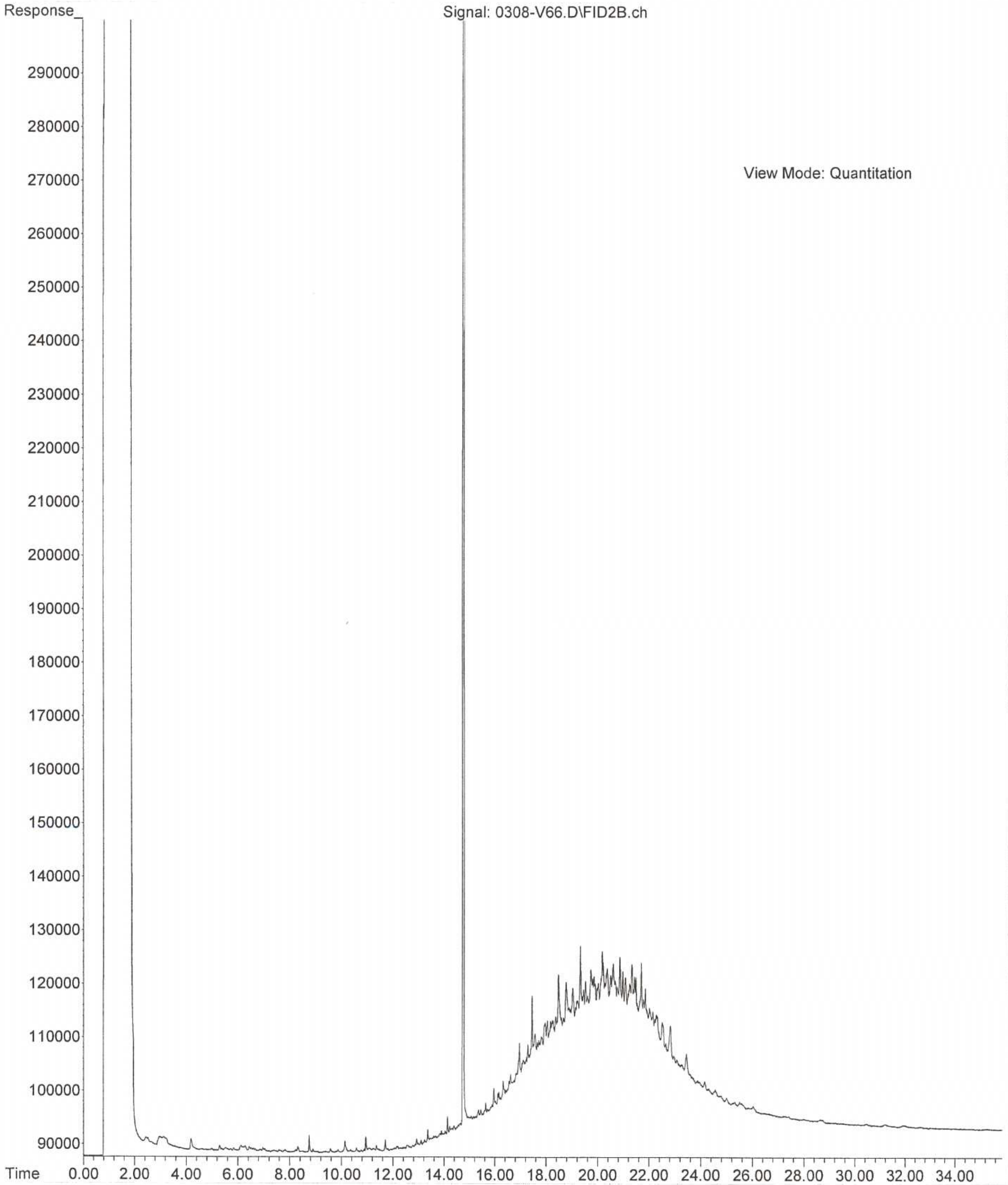
File : X:\BTEX\DARYL\DATA\D120308\0308023.D
Operator :
Acquired : 9 Mar 2012 2:25 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 03-054-03s 1:100
Misc Info : V2-27-25
Vial Number: 23



File   :C:\msdchem\2\DATA\V120308\0308-V12.D
Operator   :
Acquired   : 8 Mar 2012 17:43   using AcqMethod V120125F.M
Instrument :   VIGO
Sample Name: 03-054-01
Misc Info   :
Vial Number: 12



File   :C:\msdchem\2\DATA\V120308.SEC\0308-V66.D
Operator   :
Acquired   : 8 Mar 2012 20:23   using AcqMethod V120125F.M
Instrument :   VIGO
Sample Name: 03-054-02
Misc Info   :
Vial Number: 66



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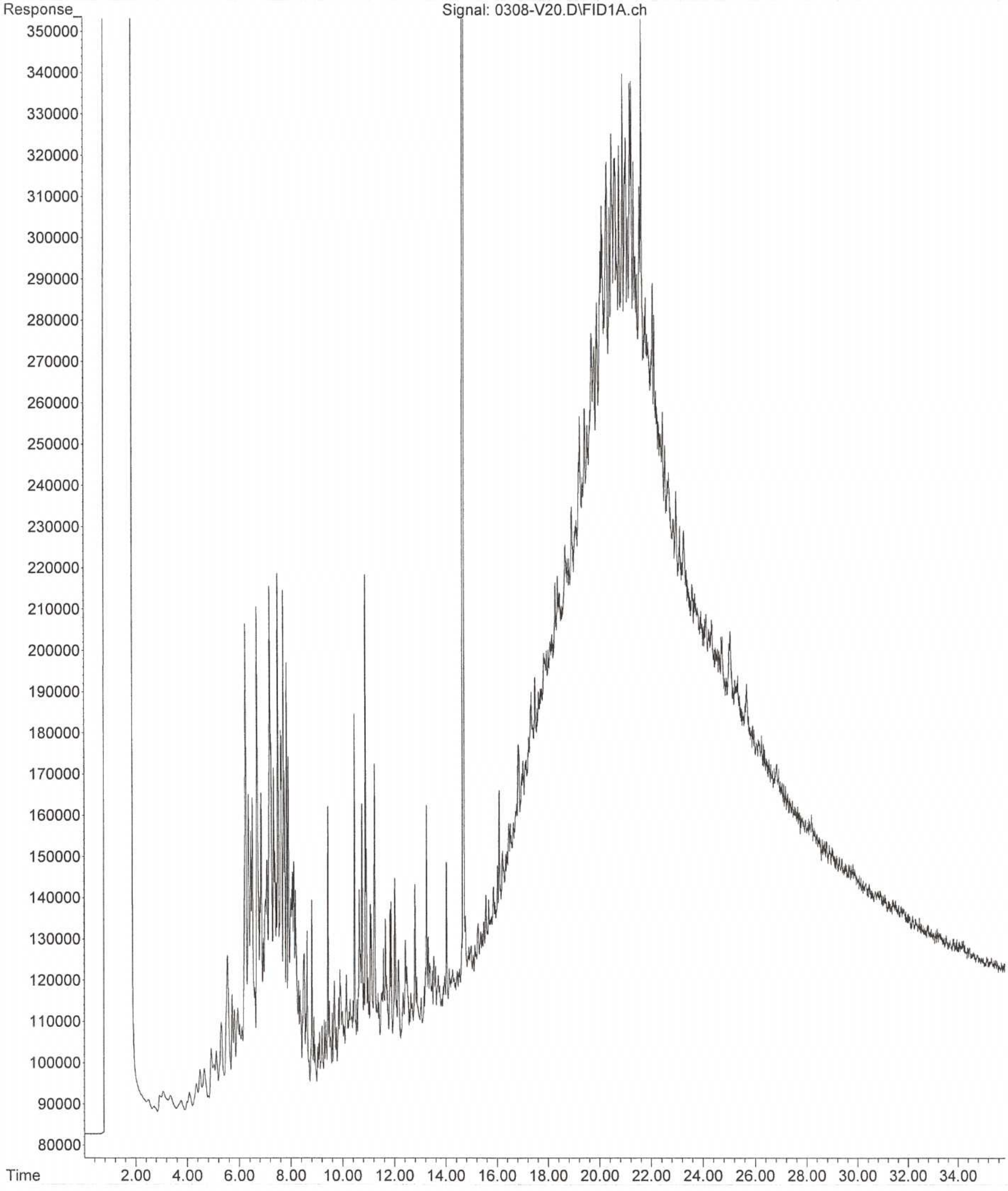
File          :C:\msdchem\2\DATA\V120308\0308-V20.D
Operator      :
Acquired      :  8 Mar 2012  23:01     using AcqMethod V120125F.M
Instrument :    VIGO
Sample Name: 03-054-03
Misc Info     :
Vial Number: 20
```



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March 13, 2012

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project Bothell Stormwater
Laboratory Reference No. 1203-063

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on March 8, 2012.

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: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

Case Narrative

Samples were collected on March 8, 2012 and received by the laboratory on March 8, 2012. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trench-4-14**					
Laboratory ID:	03-063-01					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.071	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.071	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.071	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.071	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	7.1	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*68-124*				
Client ID:	**Trench-5-10**					
Laboratory ID:	03-063-02					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.059	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.059	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.059	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.059	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	5.9	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*68-124*				
Client ID:	**Trench-6-10**					
Laboratory ID:	03-063-03					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.054	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.054	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.054	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.054	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	5.4	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*68-124*				

Date of Report: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0308S2					
Benzene	**ND**	0.020	EPA 8021	3-8-12	3-8-12	
Toluene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
Ethyl Benzene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
m,p-Xylene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
o-Xylene	**ND**	0.050	EPA 8021	3-8-12	3-8-12	
Gasoline	**ND**	5.0	NWTPH-Gx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*68-124*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-056-03										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*101*	*104*	*68-124*			
SPIKE BLANKS											
Laboratory ID:	SB0308S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.11**	**1.11**	1.00	1.00		**111**	**111**	77-114	0	9	
Toluene	**1.12**	**1.13**	1.00	1.00		**112**	**113**	80-115	1	9	
Ethyl Benzene	**1.09**	**1.10**	1.00	1.00		**109**	**110**	80-118	1	9	
m,p-Xylene	**1.08**	**1.11**	1.00	1.00		**108**	**111**	82-118	3	9	
o-Xylene	**1.05**	**1.08**	1.00	1.00		**105**	**108**	82-116	3	9	
Surrogate:											
Fluorobenzene						*95*	*96*	*68-124*			

Date of Report: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trench-4-14**					
Laboratory ID:	03-063-01					
Diesel Range Organics	**ND**	32	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil Range Organics	**ND**	64	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*90*	*50-150*				
Client ID:	**Trench-5-10**					
Laboratory ID:	03-063-02					
Diesel Range Organics	**ND**	49	NWTPH-Dx	3-8-12	3-8-12	U1
Lube Oil	**530**	56	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**Trench-6-10**					
Laboratory ID:	03-063-03					
Diesel Range Organics	**ND**	29	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil Range Organics	**ND**	57	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*94*	*50-150*				

Date of Report: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0308S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	3-8-12	3-8-12	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	3-8-12	3-8-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*109*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	03-063-02							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	U1
Lube Oil	**470**	**402**				16	NA	
Surrogate:								
o-Terphenyl			*97*	*88*	*50-150*			

Date of Report: March 13, 2012
Samples Submitted: March 8, 2012
Laboratory Reference: 1203-063
Project: Bothell Stormwater

% MOISTURE

Date Analyzed: 3-8-12

Client ID	Lab ID	% Moisture
Trench-4-14	03-063-01	22
Trench-5-10	03-063-02	11
Trench-6-10	03-063-03	13

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

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: 03-063

Company: HWA
Project Number: ~~Zoo~~
Project Name: Bothell Stormwater
Project Manager: Atkins
Sampled by: Atkins

Turnaround Request (in working days) (Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Days ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664					% Moisture
1	Trench-4-14	3/8/12	800	S	2		\		\																	\
2	Trench-5-10		805				\		\																	\
3	Trench-6-10		810				\		\																	\

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	Gillie	HWA GeoSciences	3/8/12	0:47	
Received	Dixt Pay	Speedy messenger	3-8-12	10:47	
Relinquished	Dixt Pay	Speedy messenger	3-8-12	12:26	
Received		OSE	3/8/12	1226	
Relinquished					
Received					
Reviewed/Date		Reviewed/Date			Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

```
File        : X:\BTEX\DARYL\DATA\D120308\0308018.D
Operator    :
Acquired    :  8 Mar 2012  23:36     using AcqMethod 120110B.M
Instrument  :   Daryl
Sample Name: 03-063-01s
Misc Info   : V2-27-25
Vial Number: 18
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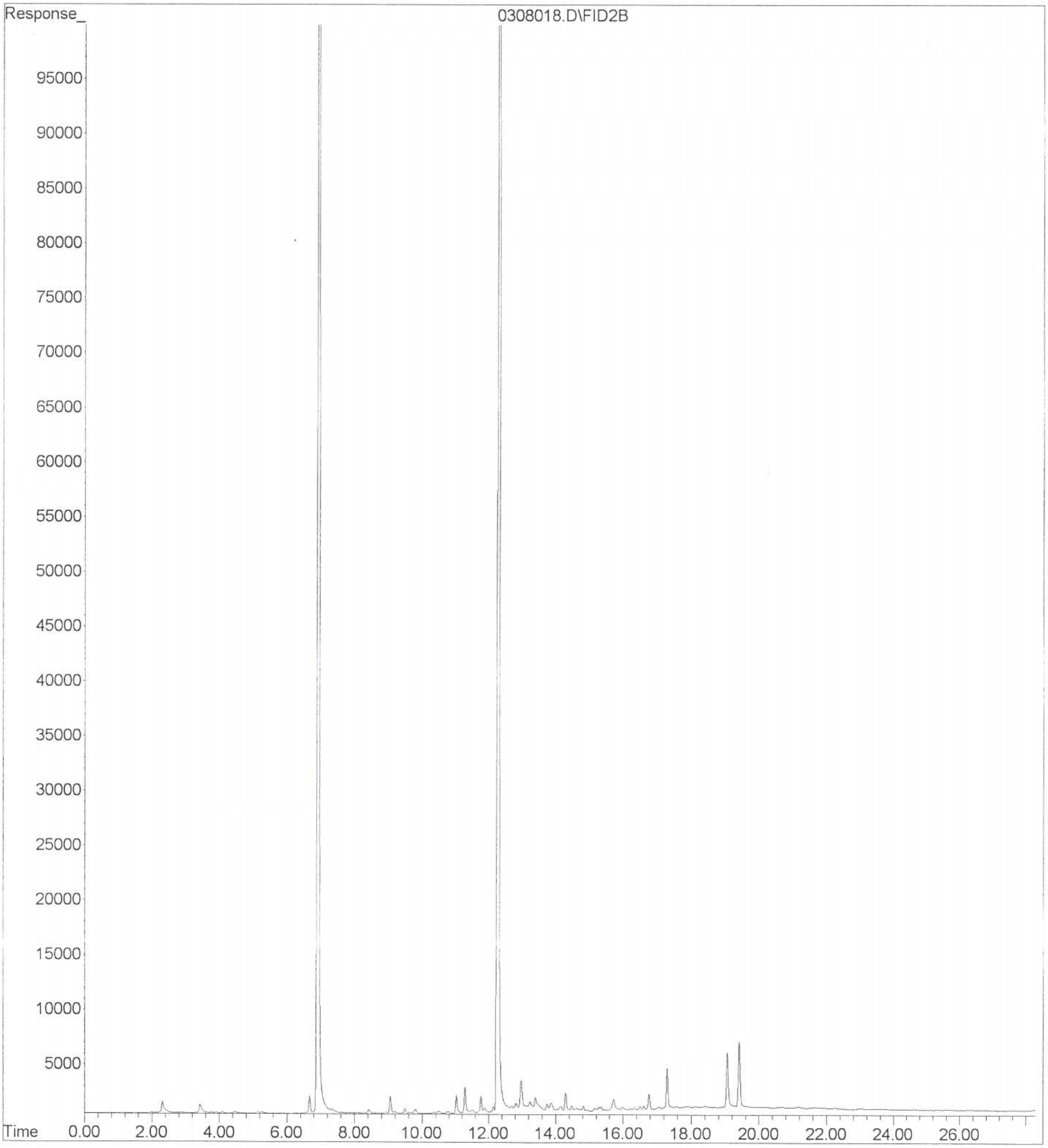
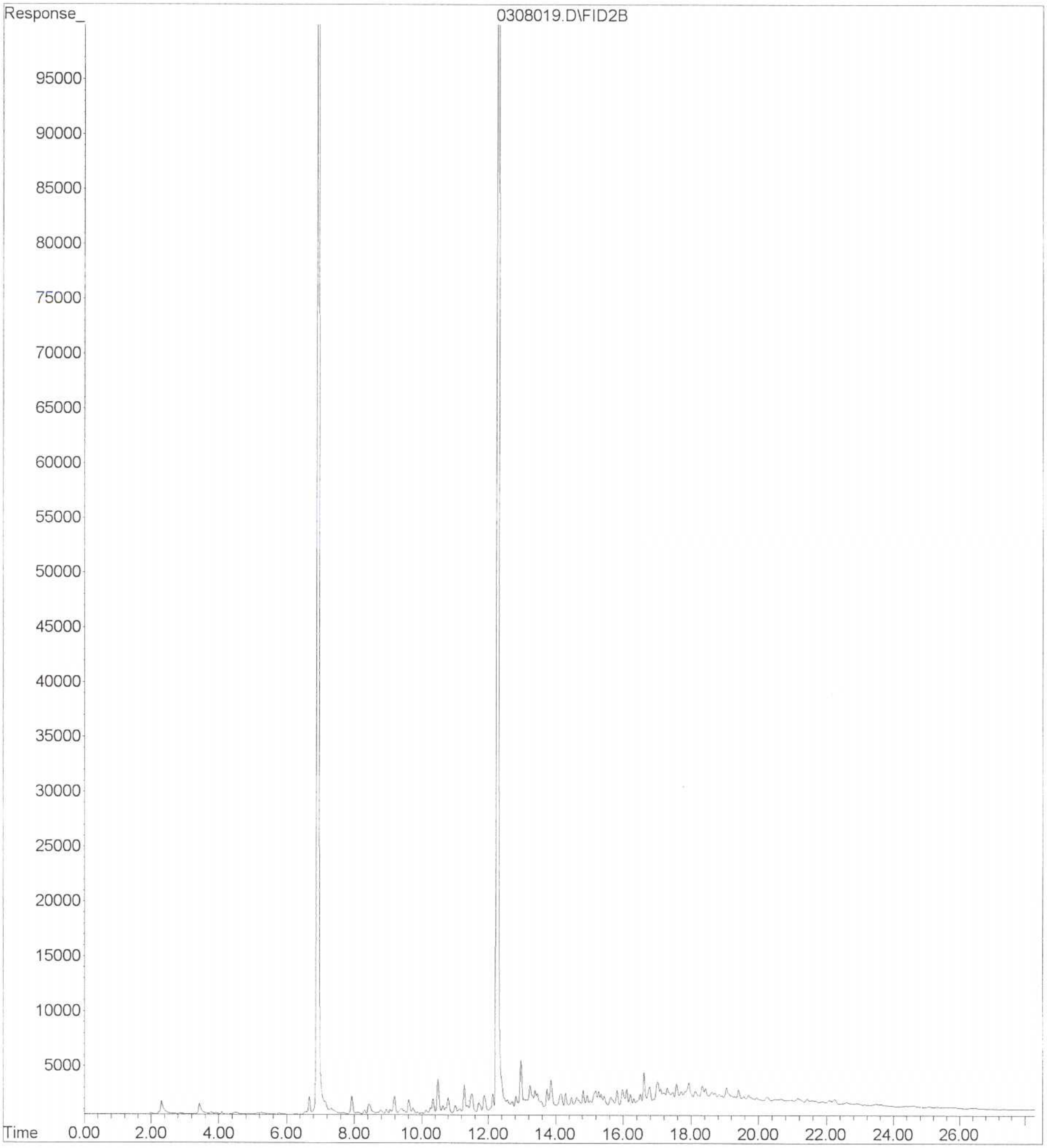


File : X:\BTEX\DARYL\DATA\D120308\0308019.D
Operator :
Acquired : 9 Mar 2012 00:10 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 03-063-02s
Misc Info : V2-27-25
Vial Number: 19



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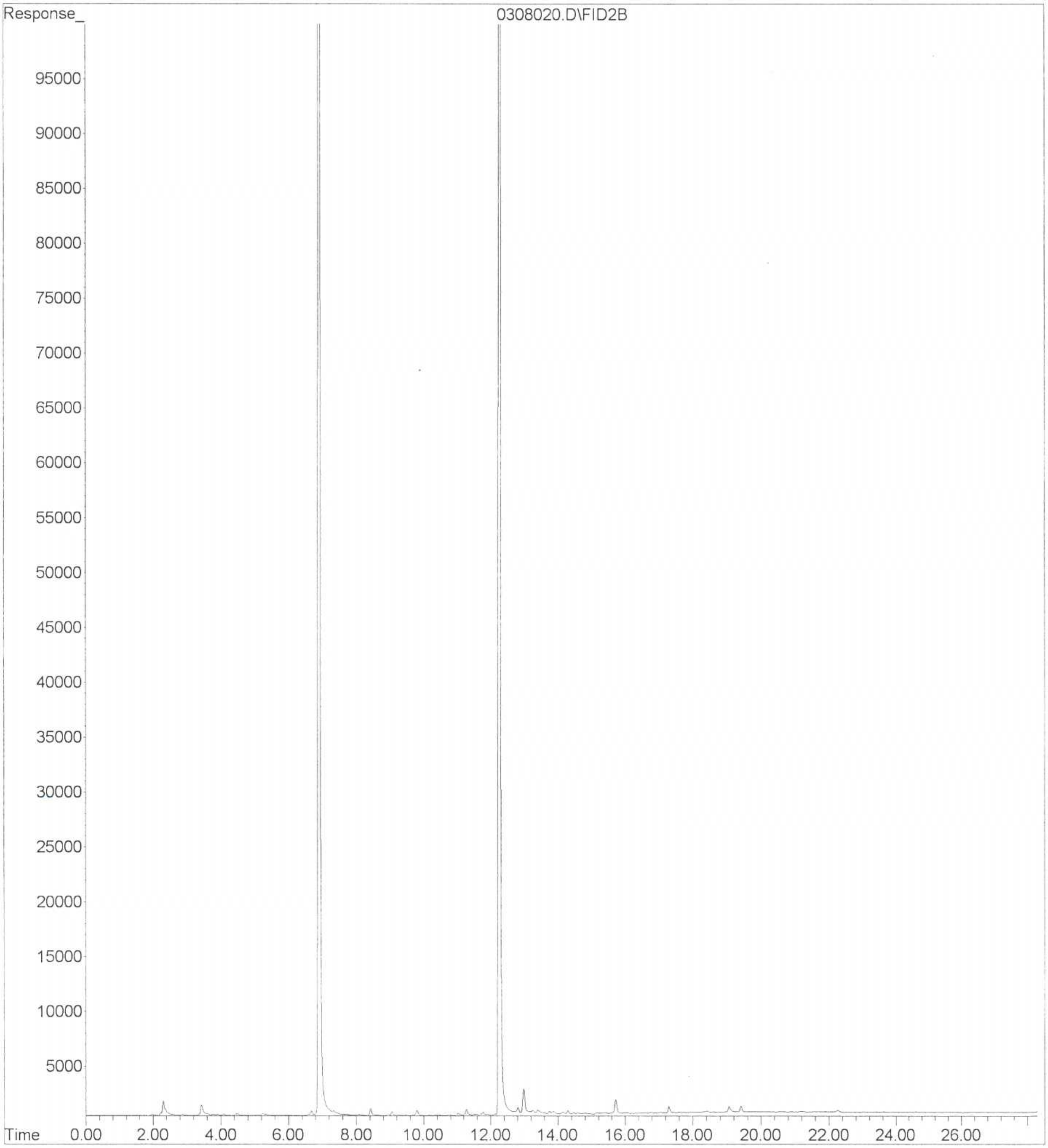
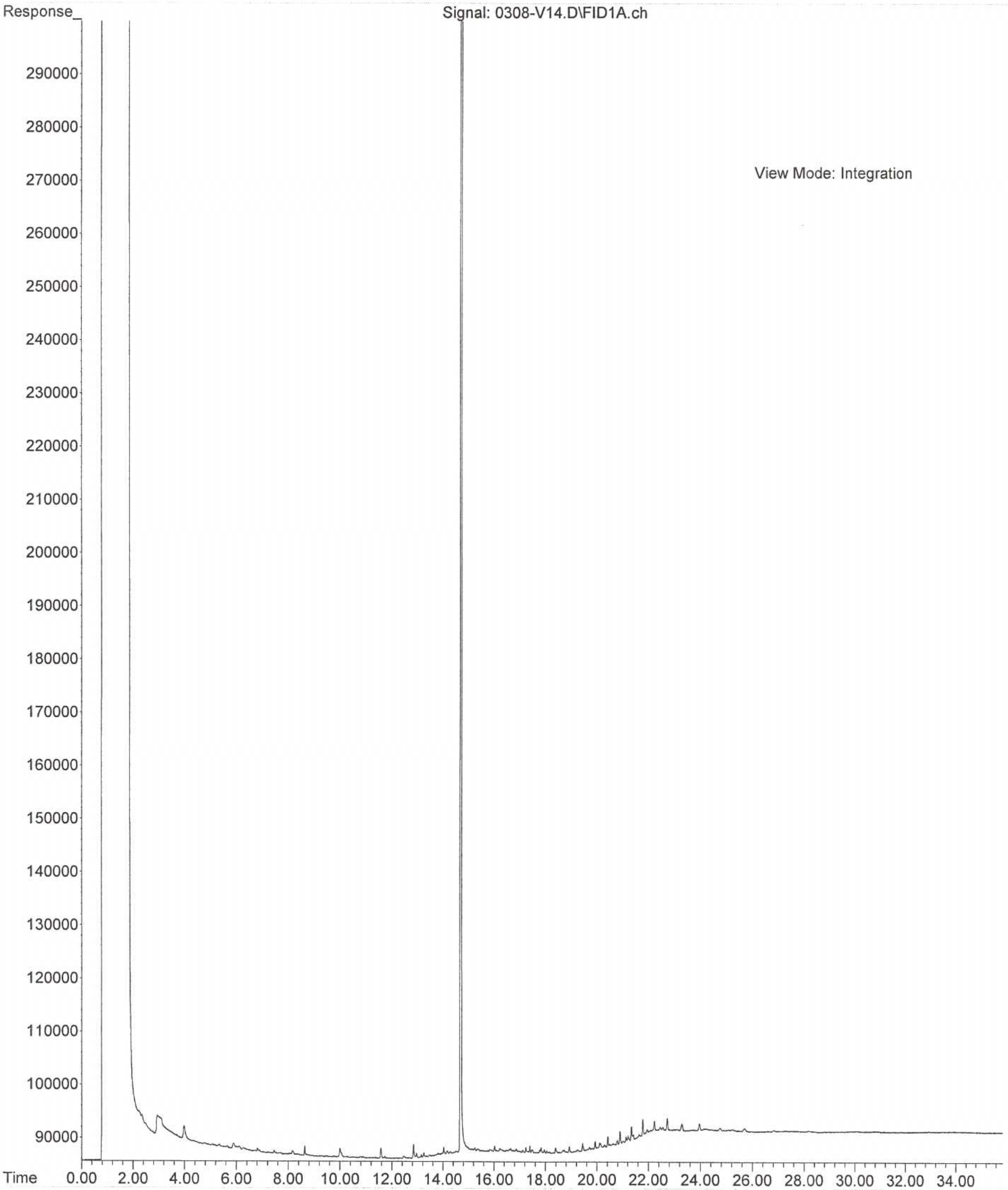
Operator :
Acquired : 9 Mar 2012 00:44 using AcqMethod 120110B.M
Instrument : Daryl
Sample Name: 03-063-03s
Misc Info : V2-27-25
Vial Number: 20



File   :C:\msdchem\2\DATA\V120308\0308-V14.D
Operator   :
Acquired   : 8 Mar 2012 19:03   using AcqMethod V120125F.M
Instrument :   VIGO
Sample Name: 03-063-01
Misc Info   :
Vial Number: 14



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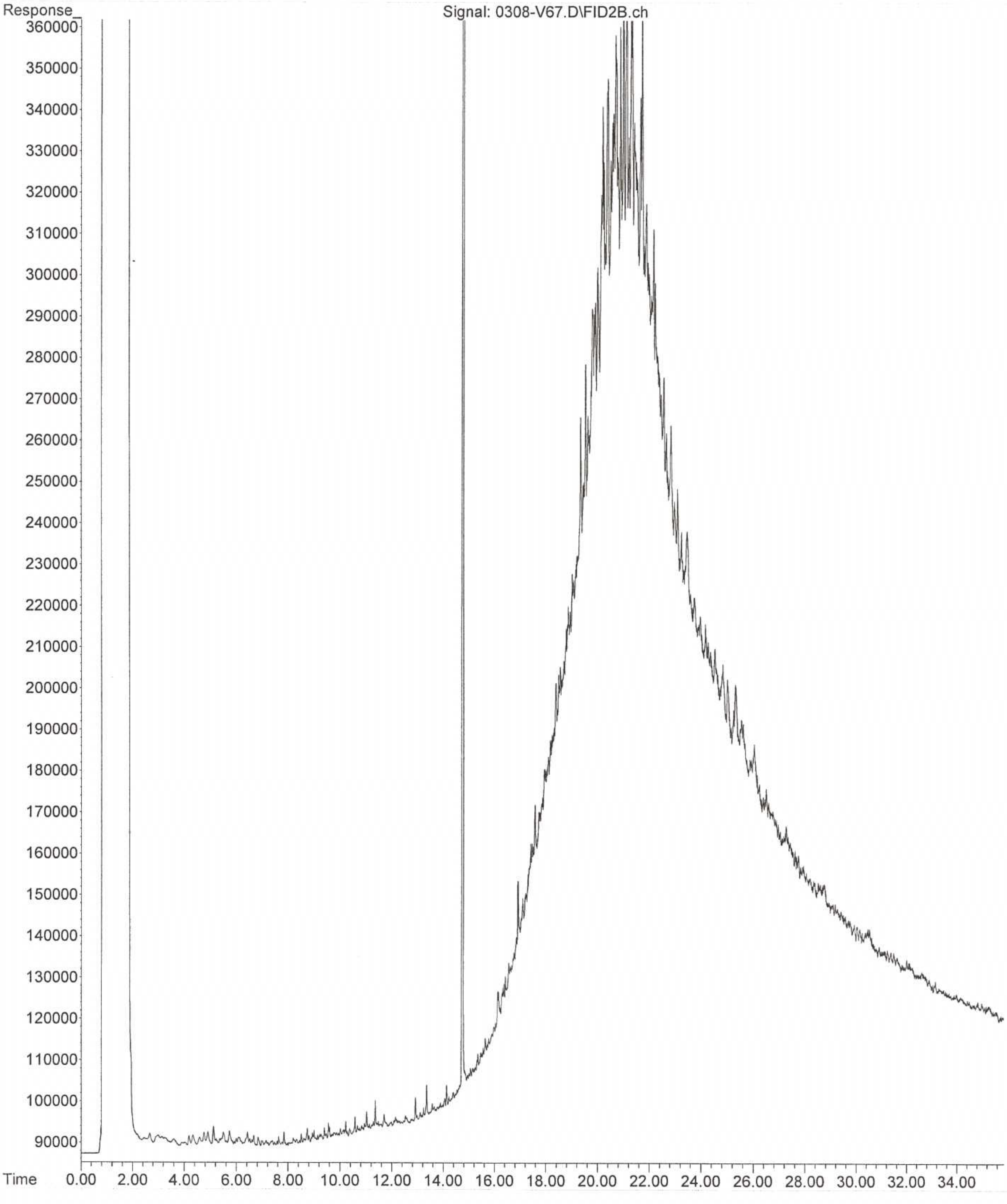
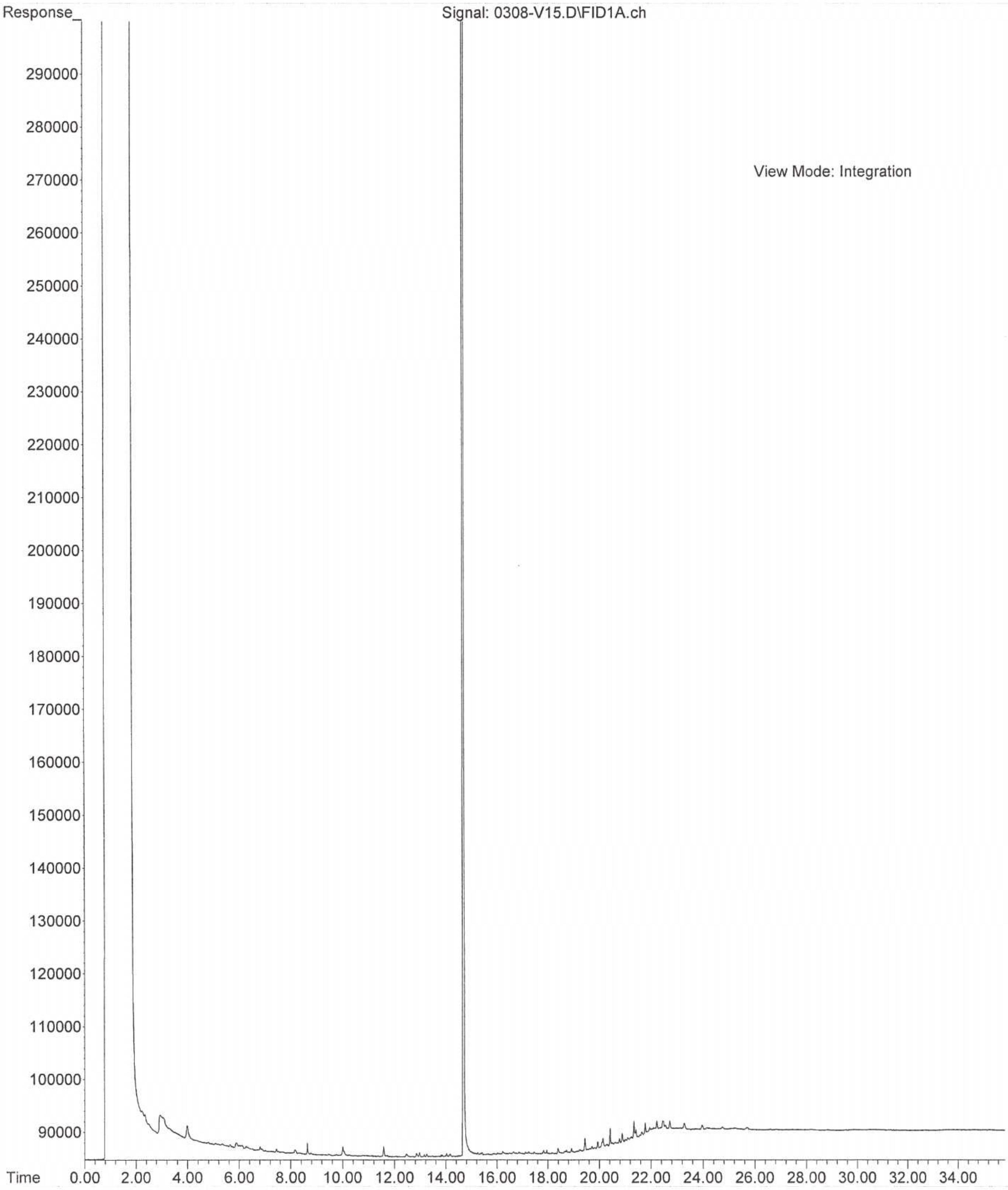
Operator :
Acquired : 8 Mar 2012 21:02 using AcqMethod V120125F.M
Instrument : VIGO
Sample Name: 03-063-02
Misc Info :
Vial Number: 67



File   :C:\msdchem\2\DATA\V120308\0308-V15.D
Operator   :
Acquired   : 8 Mar 2012 19:43   using AcqMethod V120125F.M
Instrument :   VIGO
Sample Name: 03-063-03
Misc Info   :
Vial Number: 15



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July 11, 2012

Vance Atkins
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1207-014

Dear Vance:

Enclosed are the analytical results and associated quality control data for samples submitted on July 3, 2012.

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: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

Case Narrative

Samples were collected on July 2, 2012 and received by the laboratory on July 3, 2012. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7^oC and -20^oC until extraction or analysis.

The chromatogram for sample HTP-8-10 is similar to mineral spirits.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-6-3**					
Laboratory ID:	07-014-01					
Diesel Range Organics	**ND**	28	NWTPH-Dx	7-9-12	7-9-12	
Lube Oil	**470**	56	NWTPH-Dx	7-9-12	7-9-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*128*	*50-150*				
Client ID:	**HTP-6-7**					
Laboratory ID:	07-014-02					
Diesel Range Organics	**ND**	32	NWTPH-Dx	7-9-12	7-9-12	
Lube Oil	**130**	63	NWTPH-Dx	7-9-12	7-9-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*104*	*50-150*				
Client ID:	**HTP-7-4**					
Laboratory ID:	07-014-03					
Diesel Range Organics	**ND**	28	NWTPH-Dx	7-9-12	7-9-12	
Lube Oil Range Organics	**ND**	55	NWTPH-Dx	7-9-12	7-9-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*112*	*50-150*				
Client ID:	**HTP-8-7**					
Laboratory ID:	07-014-04					
Diesel Range Organics	**ND**	28	NWTPH-Dx	7-9-12	7-9-12	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	7-9-12	7-9-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*95*	*50-150*				
Client ID:	**HTP-8-10**					
Laboratory ID:	07-014-05					
Diesel Range Organics	**ND**	31	NWTPH-Dx	7-9-12	7-10-12	
Lube Oil	**86**	63	NWTPH-Dx	7-9-12	7-10-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**HTP-9-10**					
Laboratory ID:	07-014-06					
Diesel Range Organics	**ND**	30	NWTPH-Dx	7-9-12	7-10-12	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	7-9-12	7-10-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*91*	*50-150*				

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-10-7**					
Laboratory ID:	07-014-07					
Diesel Range Organics	**ND**	29	NWTPH-Dx	7-9-12	7-10-12	
Lube Oil	**250**	58	NWTPH-Dx	7-9-12	7-10-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-10-11**					
Laboratory ID:	07-014-08					
Diesel Range Organics	**360**	150	NWTPH-Dx	7-9-12	7-10-12	N
Lube Oil	**3400**	290	NWTPH-Dx	7-9-12	7-10-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*114*	*50-150*				

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0709S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	7-9-12	7-10-12	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	7-9-12	7-10-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*120*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	07-014-01							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil	**417**	**70.9**				142	NA	
Surrogate:								
o-Terphenyl			*128*	*88*	*50-150*			

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-6-3**					
Laboratory ID:	07-014-01					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.060	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.060	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.060	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.060	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	6.0	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*70-132*				
Client ID:	**HTP-6-7**					
Laboratory ID:	07-014-02					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.064	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.064	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.064	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.064	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	6.4	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*70-132*				
Client ID:	**HTP-7-4**					
Laboratory ID:	07-014-03					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.7	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*89*	*70-132*				

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-8-7**					
Laboratory ID:	07-014-04					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.059	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.059	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.059	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.059	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.9	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*70-132*				
Client ID:	**HTP-8-10**					
Laboratory ID:	07-014-05					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.063	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.063	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.063	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.063	EPA 8021	7-6-12	7-6-12	
Gasoline	**11**	6.3	NWTPH-Gx	7-6-12	7-6-12	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*70-132*				
Client ID:	**HTP-9-10**					
Laboratory ID:	07-014-06					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.057	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.7	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*70-132*				

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HTP-10-7**					
Laboratory ID:	07-014-07					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.055	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.055	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.055	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.055	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.5	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*70-132*				
Client ID:	**HTP-10-11**					
Laboratory ID:	07-014-08					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.054	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.054	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.054	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.054	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.4	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*70-132*				

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0706S1					
Benzene	**ND**	0.020	EPA 8021	7-6-12	7-6-12	
Toluene	**ND**	0.050	EPA 8021	7-6-12	7-6-12	
Ethyl Benzene	**ND**	0.050	EPA 8021	7-6-12	7-6-12	
m,p-Xylene	**ND**	0.050	EPA 8021	7-6-12	7-6-12	
o-Xylene	**ND**	0.050	EPA 8021	7-6-12	7-6-12	
Gasoline	**ND**	5.0	NWTPH-Gx	7-6-12	7-6-12	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*89*	*70-132*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	07-014-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*93*	*97*	*70-132*			
SPIKE BLANKS											
Laboratory ID:	SB0706S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.906**	**0.873**	1.00	1.00		**91**	**87**	71-125	4	11	
Toluene	**0.931**	**0.897**	1.00	1.00		**93**	**90**	77-125	4	11	
Ethyl Benzene	**0.948**	**0.910**	1.00	1.00		**95**	**91**	76-125	4	10	
m,p-Xylene	**0.955**	**0.914**	1.00	1.00		**96**	**91**	78-124	4	9	
o-Xylene	**0.940**	**0.903**	1.00	1.00		**94**	**90**	77-123	4	9	
Surrogate:											
Fluorobenzene						*88*	*85*	*70-132*			

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	07-014-01					
Client ID:	**HTP-6-3**					
Arsenic	**ND**	11	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.56	6010B	7-10-12	7-10-12	
Chromium	**44**	0.56	6010B	7-10-12	7-10-12	
Lead	**20**	5.6	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.28	7471A	7-10-12	7-10-12	
Lab ID:	07-014-02					
Client ID:	**HTP-6-7**					
Arsenic	**ND**	13	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.63	6010B	7-10-12	7-10-12	
Chromium	**42**	0.63	6010B	7-10-12	7-10-12	
Lead	**14**	6.3	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.31	7471A	7-10-12	7-10-12	
Lab ID:	07-014-03					
Client ID:	**HTP-7-4**					
Arsenic	**ND**	11	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.55	6010B	7-10-12	7-10-12	
Chromium	**48**	0.55	6010B	7-10-12	7-10-12	
Lead	**12**	5.5	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.28	7471A	7-10-12	7-10-12	

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	07-014-04					
Client ID:	**HTP-8-7**					
Arsenic	**ND**	11	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.56	6010B	7-10-12	7-10-12	
Chromium	**38**	0.56	6010B	7-10-12	7-10-12	
Lead	**ND**	5.6	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.28	7471A	7-10-12	7-10-12	
Lab ID:	07-014-05					
Client ID:	**HTP-8-10**					
Arsenic	**ND**	13	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.63	6010B	7-10-12	7-10-12	
Chromium	**38**	0.63	6010B	7-10-12	7-10-12	
Lead	**13**	6.3	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.31	7471A	7-10-12	7-10-12	
Lab ID:	07-014-06					
Client ID:	**HTP-9-10**					
Arsenic	**ND**	12	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.59	6010B	7-10-12	7-10-12	
Chromium	**57**	0.59	6010B	7-10-12	7-10-12	
Lead	**13**	5.9	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.29	7471A	7-10-12	7-10-12	

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	07-014-07					
Client ID:	**HTP-10-7**					
Arsenic	**ND**	12	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.58	6010B	7-10-12	7-10-12	
Chromium	**53**	0.58	6010B	7-10-12	7-10-12	
Lead	**ND**	5.8	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.29	7471A	7-10-12	7-10-12	

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	07-014-08					
Client ID:	**HTP-10-11**					
Arsenic	**ND**	12	6010B	7-10-12	7-10-12	
Cadmium	**ND**	0.59	6010B	7-10-12	7-10-12	
Chromium	**39**	0.59	6010B	7-10-12	7-10-12	
Lead	**25**	5.9	6010B	7-10-12	7-10-12	
Mercury	**ND**	0.29	7471A	7-10-12	7-10-12	

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 7-10-12
Date Analyzed: 7-10-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0710SM1&MB0710S4

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 7-10-12
Date Analyzed: 7-10-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 07-012-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**25.0**	**24.5**	2	0.50	
Lead	**ND**	**ND**	NA	5.0	
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 7-10-12
Date Analyzed: 7-10-12

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 07-012-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**93.7**	94	**94.5**	94	1	
Cadmium	50.0	**48.4**	97	**48.3**	97	0	
Chromium	100	**124**	99	**124**	99	0	
Lead	250	**240**	96	**243**	97	1	
Mercury	0.500	**0.469**	94	**0.465**	93	1	

Date of Report: July 11, 2012
Samples Submitted: July 3, 2012
Laboratory Reference: 1207-014
Project: 2007-098

% MOISTURE

Date Analyzed: 7-6-12

Client ID	Lab ID	% Moisture
HTP-6-3	07-014-01	11
HTP-6-7	07-014-02	21
HTP-7-4	07-014-03	9
HTP-8-7	07-014-04	10
HTP-8-10	07-014-05	20
HTP-9-10	07-014-06	15
HTP-10-7	07-014-07	14
HTP-10-11	07-014-08	15

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-napthalene) 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.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z - The sample chromatogram is similar to mineral spirits.

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

HWA GEOSCIENCES INC.

21312 30th Drive SE, Suite 110, Bothell, Washington 98021-7010
Tel 425.774.0106 Fax 425.774.2714 www.hwageo.com

Chain of Custody and Laboratory Anaylsis Request

DATE: 7/2/12
PAGE: ___ of ___

PROJECT NAME: Bothell ~~Ramp~~ Hertz #: 2007 098
SAMPLERS NAME: Atkins PHONE:
SAMPLERS SIGNATURE: DATE:
HWA CONTACT: PHONE:

07-014

TURNAROUND TIME
☐ DAYS
☒ STANDARD

HWA SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# OF BOTTLE	NWTPH-Dx	NWTPH-Gx/BTEX	MTCA METALS	% MOISTURE	EDD	REMARKS
HTP-6-3	7/2/12	1020	S	1	2	X	X	X	6	X	
HTP-6-7		1030		2							
HTP-~~7~~-4		1050		3	1						
HTP-8-7		1120		4							
HTP-9-10		1130		5							
HTP-9-10		1150		6							
HTP-10-7		1205		7							
HTP-10-~~11~~		1210		8							

EDDs

PRINT NAME	SIGNATURE	COMPANY	DATE	TIME	REMARKS
Relinquished by: Chrissi Fisk	CFisk	HWA GeoSciences	7/3/12	1:05 pm	
Received by: Van	Spdy	—	7/3/12	1:05	
Relinquished by: Van	Spdy	—	7/3	130	
Received by: M. Voun	[illegible]	OSE	7/3/12	1330	

DISTRIBUTION: WHITE - Return to HWA GeoSciences; YELLOW - Retain by Lab; PINK - Retain by Sampler

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

February 28, 2013

Arnie Sugar
HWA GeoSciences, Inc.
21312 30th Drive SE, Suite 110
Bothell, WA 98021

Re: Analytical Data for Project 2007-098
Laboratory Reference No. 1302-216

Dear Arnie:

Enclosed are the analytical results and associated quality control data for samples submitted on February 27, 2013.

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 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

Case Narrative

Samples were collected on February 27, 2013 and received by the laboratory on February 27, 2013. They were maintained at the laboratory at a temperature of $2^{o}C$ to $6^{o}C$.

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.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between $-7^{o}C$ and $-20^{o}C$ until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HR-1-12**					
Laboratory ID:	02-216-01					
Benzene	**ND**	0.020	EPA 8021B	2-27-13	2-27-13	
Toluene	**ND**	0.065	EPA 8021B	2-27-13	2-27-13	
Ethyl Benzene	**ND**	0.065	EPA 8021B	2-27-13	2-27-13	
m,p-Xylene	**ND**	0.065	EPA 8021B	2-27-13	2-27-13	
o-Xylene	**ND**	0.065	EPA 8021B	2-27-13	2-27-13	
Gasoline	**ND**	6.5	NWTPH-Gx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*107*	*70-132*				
Client ID:	**HR-2-12**					
Laboratory ID:	02-216-02					
Benzene	**ND**	0.020	EPA 8021B	2-27-13	2-27-13	
Toluene	**ND**	0.054	EPA 8021B	2-27-13	2-27-13	
Ethyl Benzene	**ND**	0.054	EPA 8021B	2-27-13	2-27-13	
m,p-Xylene	**ND**	0.054	EPA 8021B	2-27-13	2-27-13	
o-Xylene	**ND**	0.054	EPA 8021B	2-27-13	2-27-13	
Gasoline	**ND**	5.4	NWTPH-Gx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*105*	*70-132*				
Client ID:	**HR-3-10**					
Laboratory ID:	02-216-03					
Benzene	**ND**	0.020	EPA 8021B	2-27-13	2-27-13	
Toluene	**ND**	0.073	EPA 8021B	2-27-13	2-27-13	
Ethyl Benzene	**ND**	0.073	EPA 8021B	2-27-13	2-27-13	
m,p-Xylene	**ND**	0.073	EPA 8021B	2-27-13	2-27-13	
o-Xylene	**ND**	0.073	EPA 8021B	2-27-13	2-27-13	
Gasoline	**ND**	7.3	NWTPH-Gx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*70-132*				

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

NWTPH-Gx/BTEX

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HR-4-10**					
Laboratory ID:	02-216-04					
Benzene	**ND**	0.020	EPA 8021B	2-27-13	2-27-13	
Toluene	**ND**	0.060	EPA 8021B	2-27-13	2-27-13	
Ethyl Benzene	**ND**	0.060	EPA 8021B	2-27-13	2-27-13	
m,p-Xylene	**ND**	0.060	EPA 8021B	2-27-13	2-27-13	
o-Xylene	**ND**	0.060	EPA 8021B	2-27-13	2-27-13	
Gasoline	**ND**	6.0	NWTPH-Gx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*103*	*70-132*				
Client ID:	**HR-5-10**					
Laboratory ID:	02-216-05					
Benzene	**ND**	0.020	EPA 8021B	2-27-13	2-27-13	
Toluene	**ND**	0.057	EPA 8021B	2-27-13	2-27-13	
Ethyl Benzene	**ND**	0.057	EPA 8021B	2-27-13	2-27-13	
m,p-Xylene	**ND**	0.057	EPA 8021B	2-27-13	2-27-13	
o-Xylene	**ND**	0.057	EPA 8021B	2-27-13	2-27-13	
Gasoline	**ND**	5.7	NWTPH-Gx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*109*	*70-132*				

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0227S1					
Benzene	**ND**	0.020	EPA 8021B	2-27-13	2-27-13	
Toluene	**ND**	0.050	EPA 8021B	2-27-13	2-27-13	
Ethyl Benzene	**ND**	0.050	EPA 8021B	2-27-13	2-27-13	
m,p-Xylene	**ND**	0.050	EPA 8021B	2-27-13	2-27-13	
o-Xylene	**ND**	0.050	EPA 8021B	2-27-13	2-27-13	
Gasoline	**ND**	5.0	NWTPH-Gx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*70-132*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	02-216-01										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*107*	*110*	*70-132*			
SPIKE BLANKS											
Laboratory ID:	SB0227S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**1.02**	**1.07**	1.00	1.00		**102**	**107**	71-125	5	11	
Toluene	**1.03**	**1.08**	1.00	1.00		**103**	**108**	77-125	5	11	
Ethyl Benzene	**1.02**	**1.07**	1.00	1.00		**102**	**107**	76-125	5	10	
m,p-Xylene	**1.03**	**1.08**	1.00	1.00		**103**	**108**	78-124	5	9	
o-Xylene	**1.03**	**1.07**	1.00	1.00		**103**	**107**	77-123	4	9	
Surrogate:											
Fluorobenzene						*101*	*105*	*70-132*			

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HR-1-12**					
Laboratory ID:	02-216-01					
Diesel Range Organics	**ND**	31	NWTPH-Dx	2-27-13	2-27-13	
Lube Oil Range Organics	**ND**	63	NWTPH-Dx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*88*	*50-150*				
Client ID:	**HR-2-12**					
Laboratory ID:	02-216-02					
Diesel Range Organics	**ND**	29	NWTPH-Dx	2-27-13	2-27-13	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				
Client ID:	**HR-3-10**					
Laboratory ID:	02-216-03					
Diesel Range Organics	**ND**	31	NWTPH-Dx	2-27-13	2-27-13	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*76*	*50-150*				
Client ID:	**HR-4-10**					
Laboratory ID:	02-216-04					
Diesel Range Organics	**ND**	30	NWTPH-Dx	2-27-13	2-27-13	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*95*	*50-150*				
Client ID:	**HR-5-10**					
Laboratory ID:	02-216-05					
Diesel Range Organics	**ND**	30	NWTPH-Dx	2-27-13	2-27-13	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*81*	*50-150*				

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0227S2					
Diesel Range Organics	**ND**	25	NWTPH-Dx	2-27-13	2-27-13	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	2-27-13	2-27-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*106*	*50-150*				

Analyte	Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	02-216-05							
	ORIG	DUP						
Diesel Range Organics	**ND**	**ND**				NA	NA	
Lube Oil Range Organics	**ND**	**ND**				NA	NA	
Surrogate:								
o-Terphenyl			*81*	*87*	*50-150*			

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

TOTAL METALS
EPA 6010C/7471B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-216-01					
Client ID:	**HR-1-12**					
Arsenic	**ND**	13	6010C	2-27-13	2-27-13	
Barium	**100**	3.1	6010C	2-27-13	2-27-13	
Cadmium	**ND**	0.63	6010C	2-27-13	2-27-13	
Chromium	**59**	0.63	6010C	2-27-13	2-27-13	
Lead	**ND**	6.3	6010C	2-27-13	2-27-13	
Mercury	**ND**	0.31	7471B	2-27-13	2-27-13	
Selenium	**ND**	13	6010C	2-27-13	2-27-13	
Silver	**ND**	1.3	6010C	2-27-13	2-27-13	
Lab ID:	02-216-02					
Client ID:	**HR-2-12**					
Arsenic	**ND**	12	6010C	2-27-13	2-27-13	
Barium	**78**	2.9	6010C	2-27-13	2-27-13	
Cadmium	**ND**	0.59	6010C	2-27-13	2-27-13	
Chromium	**66**	0.59	6010C	2-27-13	2-27-13	
Lead	**ND**	5.9	6010C	2-27-13	2-27-13	
Mercury	**ND**	0.29	7471B	2-27-13	2-27-13	
Selenium	**ND**	12	6010C	2-27-13	2-27-13	
Silver	**ND**	1.2	6010C	2-27-13	2-27-13	

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

TOTAL METALS
EPA 6010C/7471B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-216-03					
Client ID:	**HR-3-10**					
Arsenic	**ND**	12	6010C	2-27-13	2-27-13	
Barium	**110**	3.1	6010C	2-27-13	2-27-13	
Cadmium	**ND**	0.62	6010C	2-27-13	2-27-13	
Chromium	**60**	0.62	6010C	2-27-13	2-27-13	
Lead	**ND**	6.2	6010C	2-27-13	2-27-13	
Mercury	**ND**	0.31	7471B	2-27-13	2-27-13	
Selenium	**ND**	12	6010C	2-27-13	2-27-13	
Silver	**ND**	1.2	6010C	2-27-13	2-27-13	
Lab ID:	02-216-04					
Client ID:	**HR-4-10**					
Arsenic	**ND**	12	6010C	2-27-13	2-27-13	
Barium	**76**	3.0	6010C	2-27-13	2-27-13	
Cadmium	**ND**	0.60	6010C	2-27-13	2-27-13	
Chromium	**61**	0.60	6010C	2-27-13	2-27-13	
Lead	**ND**	6.0	6010C	2-27-13	2-27-13	
Mercury	**ND**	0.30	7471B	2-27-13	2-27-13	
Selenium	**ND**	12	6010C	2-27-13	2-27-13	
Silver	**ND**	1.2	6010C	2-27-13	2-27-13	

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

TOTAL METALS
EPA 6010C/7471B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-216-05					
Client ID:	**HR-5-10**					
Arsenic	**ND**	12	6010C	2-27-13	2-27-13	
Barium	**87**	3.0	6010C	2-27-13	2-27-13	
Cadmium	**ND**	0.59	6010C	2-27-13	2-27-13	
Chromium	**63**	0.59	6010C	2-27-13	2-27-13	
Lead	**ND**	5.9	6010C	2-27-13	2-27-13	
Mercury	**ND**	0.30	7471B	2-27-13	2-27-13	
Selenium	**ND**	12	6010C	2-27-13	2-27-13	
Silver	**ND**	1.2	6010C	2-27-13	2-27-13	

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

TOTAL METALS
EPA 6010C/7471B
METHOD BLANK QUALITY CONTROL

Date Extracted: 2-27-13
Date Analyzed: 2-27-13

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0227SM1&MB0227S1

Analyte	Method	Result	PQL
Arsenic	6010C	**ND**	10
Barium	6010C	**ND**	2.5
Cadmium	6010C	**ND**	0.50
Chromium	6010C	**ND**	0.50
Lead	6010C	**ND**	5.0
Mercury	7471B	**ND**	0.25
Selenium	6010C	**ND**	10
Silver	6010C	**ND**	0.50

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

TOTAL METALS
EPA 6010C/7471B
DUPLICATE QUALITY CONTROL

Date Extracted: 2-27-13
Date Analyzed: 2-27-13

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-114-04

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**104**	**103**	1	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**25.4**	**26.9**	6	0.50	
Lead	**13.8**	**13.4**	3	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

TOTAL METALS
EPA 6010C/7471B
MS/MSD QUALITY CONTROL

Date Extracted: 2-27-13
Date Analyzed: 2-27-13

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 02-114-04

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**93.8**	94	**96.6**	97	3	
Barium	100	**195**	91	**204**	101	5	
Cadmium	50.0	**47.9**	96	**49.2**	98	3	
Chromium	100	**123**	97	**124**	99	1	
Lead	250	**236**	89	**241**	91	2	
Mercury	0.500	**0.433**	87	**0.463**	93	7	
Selenium	100	**90.9**	91	**92.8**	93	2	
Silver	25.0	**20.4**	81	**20.9**	84	3	

Date of Report: February 28, 2013
Samples Submitted: February 27, 2013
Laboratory Reference: 1302-216
Project: 2007-098

% MOISTURE

Date Analyzed: 2-27-13

Client ID	Lab ID	% Moisture
HR-1-12	02-216-01	20
HR-2-12	02-216-02	15
HR-3-10	02-216-03	19
HR-4-10	02-216-04	17
HR-5-10	02-216-05	16

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-napthalene) 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.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, 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

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Chain of Custody

Page 1 of 1

Company: HWA
Project Number: 2007-098
Project Name: Hortz - LTD Remediation
Project Manager: A. Sugar
Sampled by: V.A.

Turnaround Request (in working days)
(Check One)
- [ ] Same Day
- [x] 1 Day
- [ ] 2 Days
- [ ] 3 Days
- [ ] Standard (7 Days) (TPH analysis 5 Days)
- [ ] ________ (other)

Laboratory Number: 02-216

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664					% Moisture
1	HR-1-12	2/22/13	1115	S	2		/		/									/								X
2	HR-2-12		1130	S	2		/		/									/								X
3	HR-3-10		1310	S	2		/		/									/								X
4	HR-4-10		1320	S	2		/		/									/								X
5	HR-5-10		1330	S	2		/		/									/								X

	Signature	Company	Date	Time
Relinquished	[signature]	HWA	2/22/13	1430
Received	[signature]	OnSite	2/22/13	1430
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ________

APPENDIX C

DATA QUALITY ASSESSMENT

INTRODUCTION

This appendix presents a data quality assessment for the Bothell Former Hertz Facility site independent action soil cleanup. Quality is the degree to which a set of inherent characteristics fulfills project requirements. Quality assurance (QA) is the processes of auditing the project's quality requirements and the results from quality control measurements to ensure appropriate quality standards are used. Quality control (QC) is the process of monitoring and recording results of executing the project quality activities to assess performance and to recommend necessary changes (PMI, 2008).

The principal ingredients that make up suitable data quality or “good data" are (Flory, 2000):

1. **Clearly stated measurement purposes:** Must include the chemical compounds to be analyzed; the sample matrices to be submitted; the intended use of the data, and the associated detection limits, accuracy, and precision required.
2. **Data management:** Refers to sample tracking (chain-of-custody) and associated activities that guarantee the laboratory results are associated with the correct sample.
3. **Sampling:** Includes a technically valid sampling plan that is correctly implemented to properly collect, identify, preserve, store and prepare samples for analysis.
4. **Analytical method:** Must have sufficient selectivity, detection limits, accuracy and precision to be technically valid.
5. **Quality control samples:** Must include sufficient quality control samples to support the necessary statements of accuracy, precision, and detection limits. These include blanks (field, trip, laboratory, reagent), duplicate measurements, matrix spikes, laboratory control samples, and performance evaluation samples.
6. **Quality control limits:** Includes clearly stated acceptable limits for quality control samples such as allowable blank contamination; precision of duplicate samples; and accuracy of matrix spikes, performance evaluation samples and laboratory control samples. Calibration frequency and linearity may also be included.
7. **Documentation:** Must be comprehensive enough to allow a third party evaluator to independently verify the suitability of the sample data.

The process of verifying the suitability of the data is termed data quality assessment. Data quality assessment is a determination of the suitability of the data for the intended use. It includes the four major tasks of (a) data management, (b) data validation, (c) data qualification/review (flagging), and (d) the determination of suitability. Data management includes determining the completeness of the data documentation. Environmental data validation primarily entails checking to see if the quality control requirements of the method have been met. Data qualification is the application of flags to the data that reflect the failures found during validation. The final determination of suitability must consider the technical validity of the data as well as the data qualifiers and be consistent with the intended use of the analytical data (Flory, 2000).

There were two components to the data quality program for the Bothell Former Hertz Facility site cleanup: field and laboratory. Both components followed Washington Department of Ecology guidance (Ecology, 2004). Also, the *Interim Action Work Plan* (HWA, 2010) specified the sample collection procedures and analysis, and defined the data quality objectives (DQOs) and criteria for the independent action cleanup.

FIELD QC METHODS

Assessment of field QC methods and data revealed no deviations from the *Interim Action Work Plan* (HWA, 2010). Field QC included proper documentation of field activities in a field log book and daily field reports that provided a daily record of significant events, observations, deviations from the sampling plan and measurements collected during the field activities. Field personnel followed standard QC procedures to collect and transport samples including collection of duplicate samples, decontamination of reusable sampling equipment between samples, labeling samples, and following chain of custody procedures to transport samples to the laboratory. Field personnel photographically documented significant events and observations during the independent action cleanup.

LABORATORY QC METHODS

OnSite Environmental Inc. of Redmond, Washington performed nearly all sample analyses. OnSite Environmental is accredited by the Washington Department of Ecology (Accreditation #C591-10) for all analyses performed for the independent action cleanup except for NWEPH analysis. Therefore, OnSite Environmental subcontracted NWEPH and some NWVPH analyses to ALS Environmental in Everett, Washington. ALS Environmental is accredited by the Department of Ecology for NWEPH and NWVPH analyses (Ecology Accreditation # C1336).

Specific laboratory QC consisted of the following (OnSite Environmental, 2008; Ecology, 2004):

- **Sample Batching.** A batch consisted of up to twenty samples in addition to any quality control samples that were required. Samples in a batch may have been collected at different sites by different clients of OnSite Environmental. The samples were extracted, digested, and prepared for analysis within a twelve-hour window. If more than twenty samples were to be extracted, a second batch of quality control samples was generated.

- **Method Blanks.** Method blanks were used to ensure that the extraction and analysis procedures did not contribute contamination to the analysis. Method blanks were prepared and analyzed in the laboratory to document the response of the measurement system to a sample containing effectively none of the analyte of interest. A positive blank response can be due to a variety of factors related to the procedure, equipment, or reagents. Unusually high blank responses indicate laboratory contamination. The method blank response becomes very important when the analyte concentration is near the detection limit.
- **Spike Blanks.** A spike blank is a laboratory QC sample prepared by adding a known amount of the target analyte(s) to a laboratory blank sample. This is a measure of the accuracy of the test procedure. If an analyte for any spike blank was outside of quality control criteria, then that particular analyte was evaluated and actions were taken to bring the analysis into control.
- **Duplicate Samples.** Duplicate samples were used to ensure that sample results could be reproduced in a precise manner.
- **Surrogates.** Surrogate compounds are compounds similar to the analytes of interest that were added to the sample at a known concentration in order to track the accuracy of the sample extraction and analysis. Some methods for organics analyses specify that all samples, including QC samples, be spiked with surrogate compounds at the start of the procedure. Because surrogate compounds are not expected to be present in the samples, they give analytical responses that can be distinguished from those of the analytes of interest. Surrogate percent recoveries (defined below) provided an estimate of accuracy for the entire analytical procedure. The standard deviations of surrogate results provided an estimate of analytical precision, while the mean percent recoveries indicated whether or not the sample results were biased.
- **Spiked Blank Duplicates.** These were a second laboratory spiked blank laboratory QC sample. The difference in the laboratory's recovery of the spiked blank and spiked blank duplicate was a measure of analytical precision, and was reported as relative percent difference (RPD) as defined below.
- **Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples.** Matrix spike samples were used to ensure the analytes of interest could be accurately recovered from the sample matrix. The matrix spike duplicate was also used to ensure the analytes could be repeatedly recovered in an accurate and precise manner.

Analytical Accuracy and Precision

Routine laboratory QC analyses provided information about accuracy and precision. The types of quality control samples differed depending on the method specifications. Analytical accuracy was assessed through the surrogate, spike blank, and matrix spike analysis as specified by the analytical method. Accuracy was expressed as percent recovery:

Percent Recovery (%R) $= 100*(X_s/C_t)$

Where X_s was the observed concentration of the analyte, and C_t was the true concentration of the analyte. The acceptable range for accuracy was determined by the method or by control charting of actual laboratory samples. A control chart is a graphical representation of the precision of QC results showing whether the measurement system is in statistical control. The laboratory analyst was responsible for verifying that the surrogate, spike blank and MS/MSD percent recoveries meet the quality control limits.

Analytical precision was assessed through analysis of the sample duplicates or matrix spike duplicates as specified by the analytical method. Precision was expressed as relative percent difference:

Relative Percent Difference (RPD) $= 100*(X_1-X_2)/((X_1+X_2)/2)$

Where: X_1 was the concentration in the first duplicate sample and X_2 was the concentration in the second duplicate sample. The acceptable range for precision was determined by the method or by control charting of actual laboratory samples. The analyst was responsible for verifying that the duplicate or MS/MSD recoveries meet the quality control limits.

Practical Quantitation Limits and Method Detection Limits

OnSite Environmental reported all analytical results for the independent action cleanup as practical quantitation limits (PQLs). PQLs are the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. OnSite Environmental's routine PQLs for all independent action analyses were lower than regulatory cleanup levels thus ensuring confirmation of successful cleanup. OnSite Environmental conducts studies annually for all accredited test methods to determine its PQLs.

Method detection limits (MDLs) are the lowest concentration that can be detected by an instrument with correction for the effects of sample matrix and method-specific parameters such as sample preparation. OnSite Environmental conducts studies annually for all accredited test methods to determine its method detection limits. MDLs are defined at 40 CFR Part 136 as three times the standard deviation of replicate spiked analyses. An analytical PQL is generally 5-10 times the MDL. MDLs are only a measure of the ability of the test procedure to generate a positive response and have nothing to do with the accuracy of that response (Quality Assurance Associates, 2010).

DATA VERIFICATION

Ninety four soil samples were analyzed for this independent action cleanup. The analyses performed included:

- NWTPH-Gx - Gasoline range petroleum hydrocarbons using Ecology Method NWTPH-Gx
- NWTPH-Dx - Diesel and oil range petroleum hydrocarbons using Ecology Method NWTPH-Dx
- BTEX - Benzene, toluene, ethylbenzene, and xylenes using EPA Method 8021
- RCRA 8 Metals - Arsenic, barium, cadmium, chromium, lead, selenium, silver using EPA Method 6010B and 6020; and mercury using EPA Method 7471A
- PAHs - Polynuclear aromatic hydrocarbons by EPA Method 8270D/SIM
- VPH/EPH - Ecology methods VPH and EPH for volatile and extractable petroleum hydrocarbon fractions
- PCBs - Polychlorinated biphenyls by EPA Method 8082

Analytical data are summarized in Table 2 of the cleanup report. Verification of the data included checking holding times, checking that the laboratory performed the analyses requested on the chain of custody form, and that the laboratory's QC results were within established control limits. Table C-1 below summarizes the data verification results. Holding times, surrogate percent recoveries, method blank analytical results, lab duplicate RPDs, matrix spike/matrix spike duplicate percent recoveries and RPDs, and spiked blank/spiked blank duplicate percent recoveries and RPDs were all within control limits with the following exceptions:

- Twenty nine soil sample analyses had elevated PQLs due to interferences present in the sample matrix, high moisture content, or necessary dilution of the sample. Of these 29 soil samples, 17 soil samples had PQLs that were less than their respective Method A soil cleanup levels. Twelve samples had a PQL for benzene greater than the MTCA Method A soil cleanup level of 0.03 mg/kg. The PQLs for compounds other than benzene in these 12 samples were less than their respective Method A cleanup level. Nine of the 12 samples with a benzene PQL greater than 0.03 mg/kg represented soils that were subsequently excavated and removed from the site during the cleanup. Three of the 12 samples with an elevated benzene PQL were independent action cleanup confirmation samples in which a high moisture content in the sample caused the elevated PQL:

H-PEX-5-8	benzene <0.31 mg/kg
H-PEX-14-4	benzene <0.32 mg/kg
H-PEX-16-14	benzene <0.053 mg/kg

It is HWA's opinion that the slightly elevated benzene PQLs for these three confirmation samples does not compromise the conclusion that the site was successfully cleaned up because benzene was not detected at concentrations greater than 0.03 mg/kg in any soil samples collected during the pre-cleanup site investigations or in any of the other 36 confirmation soil samples collected during the independent action cleanup; i.e., benzene is not a chemical of potential concern at the site.

- **Samples H-PEX-1-6, H-PEX-2-6, and H-PEX-3-4.** For the Method 6010B analysis (metals) the lab's duplicate QC sample RPD for lead was outside control limits (a 'C' Flag) due to high result variability when the analyte concentrations were less than five times the PQL. The duplicate QC sample for this batch had a very low lead concentration. Poor duplicate RPDs for any analytes at low concentrations (i.e., near the PQL) are not uncommon, and are not considered a major QC issue. The areas represented by these 3 samples were subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Sample H-PEX-11-6.** The spiked compound recovery was outside of the control limits for several PAHs in the 8270D MS/MSD QC analysis (an 'I' Flag). This QC issue arose because the QC sample for the batch had elevated concentrations of these PAHs; the QC sample was from the site of another client of OnSite Environmental. For all other PAHs the MS/MSD percent recoveries were within control limits for these samples, as were the method blank and spike blank/spike blank duplicate QC checks. The area represented by this sample was subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Sample H-PEX-11-6.** The lab's duplicate QC sample RPD for chromium was outside control limits due to sample inhomogeneity (a 'K' Flag); the sample was re-extracted and re-analyzed with similar results. The duplicate QC sample for this batch was from the site of another client of OnSite Environmental and had a fairly low chromium concentration. Poor duplicate RPDs for any analytes at low concentrations (i.e., near the PQL) are not uncommon, and are not considered a major QC issue. The area represented by this sample was subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Samples H-PEX-1-6, H-PEX-2-6, H-PEX-3-4, and H-PEX-11-6.** The RPD for the 8270D MS/MSD QC analysis was outside of the control limits for several PAHs (an 'L' Flag). This QC issue arose because the QC sample for the batch had elevated concentrations of these PAHs; the QC sample was from the site of another client of OnSite Environmental. For all other PAHs the MS/MSD percent recoveries were within control limits for these samples, as were the method blank and spike blank/spike blank duplicate QC checks. The areas represented by these 4 samples were subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Samples H-PEX-1-6, H-PEX-3-4, TP-4-8.** Hydrocarbons in the gasoline range impacted the diesel range result (an 'M' Flag). This QC issue arose due to gasoline and diesel's overlapping hydrocarbon ranges, and resulted in the reported concentration of the less dominant product (diesel) being slightly higher than may actually be the case. The areas represented by these 2 samples were subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Samples H-TP-6-3, H-TP-6-6, H-TP-6-7, H-PEX-1-6, H-PEX-3-4, TP-4-8.** Hydrocarbons in the lube oil range impacted the diesel range result (an 'N' Flag). This QC issue arose due to diesel and lube oil's overlapping hydrocarbon ranges, and resulted in the reported concentration of the less dominant product (diesel) being slightly higher than may actually be the case. The areas represented by these 5 samples were subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Sample H-TP-23-7.** Hydrocarbons in the diesel range impacted the lube oil range result (an 'N1' Flag). This QC issue arose due to diesel and lube oil's overlapping hydrocarbon ranges, and resulted in the reported concentration of the less dominant product (lube oil) being slightly higher than may actually be the case. The area represented by sample H-TP-23-7 was subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Samples H-TP-6-3, H-TP-6-6, H-TP-13-8, H-TP-20-6, H-TP-21-2, H-PEX-1-6, H-PEX-2-6, H-PEX-3-4, and H-PEX-23-9.** Hydrocarbons indicative of heavier fuels were present in the sample and impacted the gasoline result (an 'O' Flag). This QC issue arose due to gasoline and diesel's overlapping hydrocarbon ranges, and resulted in the reported concentration of the less dominant product (gasoline) being slightly higher than may actually be the case. The areas represented by these 9 samples were subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Sample H-TP-1-8**. Surrogate recovery data for the QC check of the analysis was not available due to the necessary dilution of the sample (an 'S' Flag). The area represented by this sample was subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

- **Sample H-TP-22-8.** The sample chromatogram for the NWTPH-Gx analysis was not similar to a typical gas (a 'T' Flag). The flag for this confirmation sample was advisory and not an indication of a QC issue that may have compromised the conclusion that the site was successfully cleaned up.

- **Samples H-TP-6-3, H-TP-6-6, H-TP-13-3, H-TP-13-8, H-TP-14-8, H-TP-15-3, H-TP-15-8, H-TP-16-3, H-TP-16-7, H-TP-18-7, H-TP-21-2, and H-PEX-2-6, TP-2-4. TP-3-6, TP-4-8.** The chromatogram for the NWTPH-Gx analysis was similar to mineral spirits (a 'Z' Flag). The flag for these samples was advisory and not an indication of a QC issue that may have compromised the conclusion that the site was successfully cleaned up.

- **Sample TP-4-8.** Surrogate 4-Bromofluorobenzene for the HVOC analyses is outside control limits for sample due to co-eluting non-target analytes (a 'Q' flag). HVOCs were not detected in this sample, and the area represented by this sample was subsequently excavated. Consequently, this QC issue did not compromise the conclusion that the site was successfully cleaned up.

EVALUATION OF FIELD DUPLICATE SAMPLE RESULTS

Field duplicate samples were collected at an approximate frequency of one duplicate per 17.8 soil samples – a frequency slightly more than the ratio of one duplicate per 20 samples specified in the *Interim Action Work Plan* (HWA, 2010). The *Interim Action Work Plan* did not specify quality criteria for field duplicate samples; HWA thus used the following U.S. Army Corps of Engineers criteria (Grant, Jenkins, and Mudambi, 1996) to evaluate the field duplicate analytical results:

Analytical Result	Criteria	Conclusion
Both results less than PQL	PQLs differ by more than ±25%	Disagreement
One result greater than PQL and one result less than PQL	>5x difference >10x difference	Disagreement Major disagreement
Both results greater than PQL	RPD >30% RPD >65%	Disagreement Major disagreement

Table C-2 summarizes the analytical results of the field duplicate samples. As can be seen, field duplicate sample analytical results were all within the quality criteria listed above.

PROJECT DOCUMENTATION AND DATA MANAGEMENT

Field personnel used bound waterproof field notebooks to record significant events and observations during the independent action cleanup. Entries were made in waterproof ink or pencil, signed, and dated. Field personnel also completed daily field reports and forwarded copies of the field report to City of Bothell representatives. All field logs, figures, and records are retained in project files at HWA's office.

Digital photographs taken of field activities and significant events are stored on HWA's computer system with the following information noted:

- Date, time, and location of photograph taken
- Description of photograph taken
- Reasons photograph was taken
- Viewing direction

Original laboratory certificates containing analytical results and laboratory QC data are documented in Appendix B of this report. An electronic copy of each laboratory certificate is stored on HWA's computer network server as PDF files in the project folder. In addition, OnSite Environmental's Electronic Data Deliverables (EDD) packages for all analytical results are stored on HWA's computer network server as Microsoft Excel spreadsheets in the project folder. HWA routinely backs up its network servers.

SUMMARY

- Field QC procedures were followed.
- The voluminous field and laboratory data generated during the independent action cleanup are technically complete, accessible, and efficiently handled.
- All samples collected during the independent action cleanup were analyzed within holding times. Appropriate standard analytical methods were used. The few quality control issues noted above did not compromise the analytical accuracy or precision of the data.
- All reported data should be considered valid as qualified and acceptable for further use.

REFERENCES

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OnSite Environmental, 2008, *Quality Assurance Manual, Revision No. 9.2*, November 19, 2008 (www.onsite-env.com/pdf/QA.pdf)

HWA GeoSciences, 2010, *Interim Action Work Plan, Former Hertz Rentals Property, Bothell, Washington*. Prepared for City of Bothell, May 7, 2010.

PMI, 2008, *A Guide to the Project Management Body of Knowledge – Fourth Edition* (ANSI/PMI 99-001-2008), Project Management Institute (www.pmi.org).

Quality Assurance Associates, 2010, *Understanding Laboratory Reporting Limits*. (www.qaallc.com/replimit.html)

Washington Department of Ecology, 2004, *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies*, Publication No. 04-03-030.

APPENDIX D

PHOTOGRAPHS OF SOIL CLEANUP ACTION

Photo 1 – Removing building foundations on September 2, 2010 (looking to west).

Photo 2 – Peat layer and water table exposed in southern extent of excavation (looking to south) on September 17, 2010.

Photo 3 – Peat layer and water table exposed in northern extent of excavation (looking to north) on September 17, 2010.

Photo 4 – Old hydraulic lift exposed on September 7, 2010.

Photo 5 – Removing the hydraulic lift on September 7, 2010 (looking north).

Photo 6 – Old wooden catch basin exposed on September 13, 2010 (looking west).

Photo 7 – Pumping water and oil out of old wooden catch basin on September 14, 2010.

APPENDIX E

SOIL DISPOSAL DOCUMENTATION

Release of Liability/Certificate of Disposal

Hos Bros Construction Inc. and their client ; are released from liability for all petroleum contaminated soil originating from:

Bothell Crossroads Phase II
Hertz Parcel
Bothell WA. 98011

and transported to:

CEMEX Soil Remediation Facility
6300 Glenwood Ave.
Everett WA 98203

From 09/092010 through 10/11/2010

A total of 11182.41 tons of petroleum-contaminated soil were transported to the above facility. The material was disposed of in the following manner:

Thermal Desorption/Landfill for Reclamation

Disposal of the contaminated soil was performed in accordance with all applicable federal, state, and local laws and regulations.

Signed: Date: November 29th, 2010

Larry W. Baker

Larry W. Baker
CEMEX USA.
Operations Manager
Soil Remediation Division

Activity By Job ID

Report period March 2012
REGIONAL DISPOSAL INTERMODAL

"CONTAMINATED" TO 4/2

Job ID: TB-10740 12,976 KLB Construction Inc

Date	Ticket #	truck	Container	Material Code/Desc	Gross	Tare	Net	Tons	Origin
3/8/12 11:42 am	500,361	SOIL		74 SW-CONT SOIL W/F	99,900	41,540	58,360	29.18	BOTHELL/KING
3/8/12 12:15 pm	500,380	SOIL		74 SW-CONT SOIL W/F	108,680	40,540	68,140	34.07	BOTHELL/KING
3/8/12 12:17 pm	500,390	SOIL		74 SW-CONT SOIL W/F	93,860	40,400	53,460	26.73	BOTHELL/KING
3/9/12 8:32 am	500,660	SOIL		74 SW-CONT SOIL W/F	94,220	40,760	53,460	26.73	BOTHELL/KING
3/9/12 9:57 am	500,692	SOIL		74 SW-CONT SOIL W/F	97,740	40,480	57,260	28.63	BOTHELL/KING
3/9/12 11:20 am	500,755	SOIL		74 SW-CONT SOIL W/F	91,760	40,400	51,360	25.68	BOTHELL/KING
3/9/12 1:00 pm	500,830	SOIL		74 SW-CONT SOIL W/F	101,240	40,480	60,760	30.38	BOTHELL/KING
3/12/12 8:17 am	501,159	SOIL		74 SW-CONT SOIL W/F	106,200	41,700	64,500	32.25	BOTHELL/KING
3/12/12 9:52 am	501,189	SOIL		74 SW-CONT SOIL W/F	105,880	41,460	64,420	32.21	BOTHELL/KING
3/12/12 11:28 an	501,265	SOIL		74 SW-CONT SOIL W/F	105,660	41,200	64,460	32.23	BOTHELL/KING
3/12/12 1:01 pm	501,324	SOIL		74 SW-CONT SOIL W/F	106,700	41,960	64,740	32.37	BOTHELL/KING
3/13/12 8:06 am	501,512	SOIL		74 SW-CONT SOIL W/F	102,160	43,900	58,260	29.13	BOTHELL/KING
3/13/12 9:53 am	501,552	SOIL		74 SW-CONT SOIL W/F	100,520	43,140	57,380	28.69	BOTHELL/KING
3/13/12 11:21 an	501,611	SOIL		74 SW-CONT SOIL W/F	110,240	43,700	66,540	33.27	BOTHELL/KING
3/13/12 12:46 pn	501,675	SOIL		74 SW-CONT SOIL W/F	100,020	42,060	57,960	28.98	BOTHELL/KING
3/14/12 7:53 am	501,850	SOIL		74 SW-CONT SOIL W/F	103,380	40,260	63,120	31.56	BOTHELL/KING
3/14/12 9:33 am	501,888	SOIL		74 SW-CONT SOIL W/F	96,680	40,080	56,600	28.30	BOTHELL/KING
3/14/12 11:07 an	501,951	SOIL		74 SW-CONT SOIL W/F	98,400	40,560	57,840	28.92	BOTHELL/KING
3/14/12 12:33 pn	502,007	SOIL		74 SW-CONT SOIL W/F	108,920	41,560	67,360	33.68	BOTHELL/KING
3/15/12 8:07 am	502,206	SOIL		74 SW-CONT SOIL W/F	107,740	41,140	66,600	33.30	BOTHELL/KING
3/15/12 9:57 am	502,249	SOIL		74 SW-CONT SOIL W/F	97,800	41,280	56,520	28.26	BOTHELL/KING
3/15/12 11:30 an	502,313	SOIL		74 SW-CONT SOIL W/F	99,240	40,400	58,840	29.42	BOTHELL/KING
3/15/12 1:02 pm	502,366	SOIL		74 SW-CONT SOIL W/F	99,540	40,280	59,260	29.63	BOTHELL/KING
3/16/12 8:31 am	502,547	SOIL		74 SW-CONT SOIL W/F	97,040	40,620	56,420	28.21	BOTHELL/KING
3/16/12 10:08 an	502,590	SOIL		74 SW-CONT SOIL W/F	97,560	41,360	56,200	28.10	BOTHELL/KING
3/16/12 11:42 an	502,654	SOIL		74 SW-CONT SOIL W/F	104,380	41,400	62,980	31.49	BOTHELL/KING

Activity By Job ID

Report period March 2012

REGIONAL DISPOSAL INTERMODAL

Total For Job **TB-10740**	**26** Loads	**781.40**	TN

CEMEX 1876062256

Weighed At: Soil Remediation
6300 Glenwood Ave
Everett, WA 98213

Location: 1876

Order: 40904558 Dispatch: 0 Date: 02/27/2013
Ship To: 3034360 - KLB CONSTRUCTION
76:BOTHELL CROSSROADS
76:18305 101ST AVE NE - SEATTLE
EVERETT, WA 98203
Instruct: TO EVERETT SOIL REMEDIATION - PLANT CL3
HERTZ LANDING

Job #: BTHL. CRSRDS. PH PO: 212895
Product: 1192508 - CLASS 3 SOIL DUMPED BY TON
Carrier: -
Vehicle: 2030858 - KL102T,KLB/8
Tractor / Trailer1 / Trailer 2 -/- -/-

Qty: 33.20 ton
Weighmaster:
CEMEX
Deputy Weighmaster:
Malia J. Leake
Scale: 1
In:
Out: 10:29 am

--- DRIVER ON AT TARE & GROSS ---

	lb	ton	tne
Gross:	104,660	52.33	47.47
Tare:	38,260	19.13	17.35
Net:	66,400	33.20	30.12

* Manual Predetermined Tare

Today Loads: 2
Today Qty: 64.81 ton
0.00

CEMEX'S STANDARD TERMS AND CONDITIONS INCORPORATED HEREIN.

0.00

Signature of Receiving Agent Driver:

METRIC CONVERSION FORMULA: POUNDS DIVIDED BY 2204.623, ROUNDED TO 2 DECIMALS
SEE REVERSE SIDE FOR PRODUCT LABEL INFORMATION

CEMEX 1876062255

Weighed At: Soil Remediation
6300 Glenwood Ave
Everett, WA 98213

Location: 18

Order: 40904558 Dispatch: 0 Date: 02/27/20
Ship To: 3034360 - KLB CONSTRUCTION
76:BOTHELL CROSSROADS
76:18305 101ST AVE NE - SEATTLE
EVERETT, WA 98203
Instruct: TO EVERETT SOIL REMEDIATION - PLANT CL3
HERTZ LANDING

Job #: BTHL. CRSRDS. PH PO: 212895
Product: 1192508 - CLASS 3 SOIL DUMPED BY TON
Carrier: -
Vehicle: 2030781 - KL86T,KLB
Tractor / Trailer1 / Trailer 2 -/- -/-

Qty: 31.61 ton
Weighmaster:
CEMEX
Deputy Weighmaster:
Malia J. Leake
Scale: 1
In:
Out: 10:24 am

--- DRIVER ON AT TARE & GROSS -

	lb	ton	tne
Gross:	101,320	50.66	45.[illegible]
Tare:	38,100	19.05	17.[illegible]
Net:	63,220	31.61	28.[illegible]

* Predetermined Tare

Today Loads:
Today Qty: 31.61 t
0.(

CEMEX'S STANDARD TERMS AND CONDITIONS INCORPORATED HEREIN.

0.(

Signature of Receiving Agent Drive

METRIC CONVERSION FORMULA: POUNDS DIVIDED BY 2204.623, ROUNDED TO 2 DECIMALS
SEE REVERSE SIDE FOR PRODUCT LABEL INFORMATION

CEMEX 1876062258

Weighed At: Soil Remediation
6300 Glenwood Ave
Everett, WA 98213

Location: 187

Order: 40904558 Dispatch: 0 Date: 02/27/201
Ship To: 3034360 - KLB CONSTRUCTION
76:BOTHELL CROSSROADS
76:18305 101ST AVE NE - SEATTLE
EVERETT, WA 98203
Instruct: TO EVERETT SOIL REMEDIATION - PLANT CL3
HERTZ LANDING

Job #: BTHL. CRSRDS. PH PO: 212895
Product: 1192508 - CLASS 3 SOIL DUMPED BY TON
Carrier: -
Vehicle: 2030781 - KL86T,KLB
Tractor / Trailer1 / Trailer 2 -/- -/-

Qty: 30.42 ton
Weighmaster:
CEMEX
Deputy Weighmaster:
Malia J. Leake
Scale: 1
In:
Out: 11:45 am

--- DRIVER ON AT TARE & GROSS ---

	lb	ton	tne
Gross:	98,940	49.47	44.88
Tare:	38,100	19.05	17.28
Net:	60,840	30.42	27.60

* Predetermined Tare

Today Loads: 4
Today Qty: 56.23 ton
0.00

CEMEX'S STANDARD TERMS AND CONDITIONS INCORPORATED HEREIN.

3 of 6

0.00

CEMEX 1876062257

Weighed At: Soil Remediation
6300 Glenwood Ave
Everett, WA 98213

Location: 18

Order: 40904558 Dispatch: 0 Date: 02/27/20
Ship To: 3034360 - KLB CONSTRUCTION
76:BOTHELL CROSSROADS
76:18305 101ST AVE NE - SEATTLE
EVERETT, WA 98203
Instruct: TO EVERETT SOIL REMEDIATION - PLANT CL3
KLB 122

Job #: BTHL. CRSRDS. PH PO: 212895
Product: 1192508 - CLASS 3 SOIL DUMPED BY TON
Carrier: -
Vehicle: 2034265 - 1876-3,EVERETT SOIL GENERIC
Tractor / Trailer1 / Trailer 2 -/- 3 -/-

Qty: 39.00 ton
Weighmaster:
CEMEX
Deputy Weighmaster:
Malia J. Leake
Scale: 1
In: 11:00 am
Out: 11:17 am

--- DRIVER ON AT TARE & GROSS -

	lb	ton	tne
Gross:	118,440	59.22	53.[illegible]
Tare:	40,440	20.22	18.[illegible]
Net:	78,000	39.00	35.[illegible]

Today Loads:
Today Qty: 25.81 t
0.(

CEMEX'S STANDARD TERMS AND CONDITIONS INCORPORATED HEREIN.

0.(

CEMEX 1876062260

Weighed At: Soil Remediation
6300 Glenwood Ave
Everett, WA 98213

Location: 1876

Order: 40904558 Dispatch: 0Date: 02/27/2013
Ship To: 3034360 - KLB CONSTRUCTION
76:BOTHELL CROSSROADS
76:18305 101ST AVE NE - SEATTLE
EVERETT, WA 98203
Instruct: TO EVERETT SOIL REMEDIATION - PLANT CL3
KLB 122
HERTZ LANDING
Job #: BTHL. CRSRDS. PH PO: 212895
Product: 1192508 - CLASS 3 SOIL DUMPED BY TON
Carrier: -
Vehicle: 2034265 - 1876-3,EVERETT SOIL GENERIC
Tractor / Trailer1 / Trailer 2 -/- 3 -/-

Qty: 32.42 ton

--- DRIVER ON AT TARE & GROSS ---

	lb	ton	tne
Gross:	105,280	52.64	47.75
Tare:	40,440	20.22	18.34
Net:	64,840	32.42	29.41

* Predetermined Tare

Weighmaster:
CEMEX
Deputy Weighmaster:
Malia J. Leake
Scale: 1
In:
Out: 12:19 pm

Today Loads: 6
Today Qty: 120.11 ton
0.00

CEMEX'S STANDARD TERMS AND CONDITIONS INCORPORATED HEREIN.

0.00

Signature of Receiving Agent Driver:

METRIC CONVERSION FORMULA: POUNDS DIVIDED BY 2204.623, ROUNDED TO 2 DECIMALS
SEE REVERSE SIDE FOR PRODUCT LABEL INFORMATION

CEMEX 1876062259

Weighed At: Soil Remediation
6300 Glenwood Ave
Everett, WA 98213

Location: 18

Order: 40904558 Dispatch: 0Date: 02/27/20
Ship To: 3034360 - KLB CONSTRUCTION
76:BOTHELL CROSSROADS
76:18305 101ST AVE NE - SEATTLE
EVERETT, WA 98203
Instruct: TO EVERETT SOIL REMEDIATION - PLANT CL3
HERTZ LANDING
Job #: BTHL. CRSRDS. PH PO: 212895
Product: 1192508 - CLASS 3 SOIL DUMPED BY TON
Carrier: -
Vehicle: 2030858 - KL102T,KLB/8
Tractor / Trailer1 / Trailer 2 -/- -/-

Qty: 31.46 ton

--- DRIVER ON AT TARE & GROSS -

	lb	ton	tne
Gross:	101,180	50.59	45.8
Tare:	38,260	19.13	17.3
Net:	62,920	31.46	28.5

* Manual Predetermined Tare

Weighmaster:
CEMEX
Deputy Weighmaster:
Malia J. Leake
Scale: 1
In:
Out: 11:47 am

Today Loads:
Today Qty: 87.69 to
0.0

CEMEX'S STANDARD TERMS AND CONDITIONS INCORPORATED HEREIN.

0.0

Signature of Receiving Agent Driver:

METRIC CONVERSION FORMULA: POUNDS DIVIDED BY 2204.623, ROUNDED TO 2 DECIMALS
SEE REVERSE SIDE FOR PRODUCT LABEL INFORMATION

CEMEX 1876062262

Weighed At: Soil Remediation
6300 Glenwood Ave
Everett, WA 98213

Location: 1876

Order: 40904558 Dispatch: 0Date: 02/27/2013
Ship To: 3034360 - KLB CONSTRUCTION
76:BOTHELL CROSSROADS
76:18305 101ST AVE NE - SEATTLE
EVERETT, WA 98203
Instruct: TO EVERETT SOIL REMEDIATION - PLANT CL3
HERTZ LANDING
Job #: BTHL. CRSRDS. PH PO: 212895
Product: 1192508 - CLASS 3 SOIL DUMPED BY TON
Carrier: -
Vehicle: 2030858 - KL102T,KLB/8
Tractor / Trailer1 / Trailer 2 -/- -/-

Qty: 30.46 ton

--- DRIVER ON AT TARE & GROSS ---

	lb	ton	tne
Gross:	99,180	49.59	44.99
Tare:	38,260	19.13	17.35
Net:	60,920	30.46	27.63

* Manual Predetermined Tare

Weighmaster:
CEMEX
Deputy Weighmaster:
Malia J. Leake
Scale: 1
In:
Out: 1:07 pm

Today Loads: 8
Today Qty: 132.36 ton
0.00

4 of 6

CEMEX'S STANDARD TERMS AND CONDITIONS INCORPORATED HEREIN.

0.00

CEMEX 1876062261

Weighed At: Soil Remediation
6300 Glenwood Ave
Everett, WA 98213

Location: 18

Order: 40904558 Dispatch: 0Date: 02/27/20
Ship To: 3034360 - KLB CONSTRUCTION
76:BOTHELL CROSSROADS
76:18305 101ST AVE NE - SEATTLE
EVERETT, WA 98203
Instruct: TO EVERETT SOIL REMEDIATION - PLANT CL3
KLB 106
HERTZ LANDING
Job #: BTHL. CRSRDS. PH PO: 212895
Product: 1192508 - CLASS 3 SOIL DUMPED BY TON
Carrier: -
Vehicle: 2030804 - 1876-4,EVERETT SOIL GENERIC
Tractor / Trailer1 / Trailer 2 -/- -/-

Qty: 18.21 ton

--- DRIVER ON AT TARE & GROSS -

	lb	ton	tne
Gross:	62,460	31.23	28.
Tare:	26,040	13.02	11.
Net:	36,420	18.21	16.

Weighmaster:
CEMEX
Deputy Weighmaster:
Malia J. Leake
Scale: 1
In: 12:24 pm
Out: 12:33 pm

Today Loads:
Today Qty: 101.90 t
0.

CEMEX'S STANDARD TERMS AND CONDITIONS INCORPORATED HEREIN.

0.

CEMEX

1876062263

Weighed At: Soil Remediation
6300 Glenwood Ave
Everett, WA 98213

Location: 1876

Order: 40904558 **Dispatch:** 0**Date:** 02/27/2013

Ship To: 3034360 - KLB CONSTRUCTION
76:BOTHELL CROSSROADS
76:18305 101ST AVE NE - SEATTLE
EVERETT, WA 98203

Instruct: TO EVERETT SOIL REMEDIATION - PLANT CL3
HERTZ LANDING

Job #: BTHL. CRSRDS. PH **PO:** 212895
Product: 1192508 - CLASS 3 SOIL DUMPED BY TON
Carrier: -
Vehicle: 2030781 - KL86T,KLB
Tractor / Trailer1 / Trailer 2 -/- -/-

Qty: 27.78 ton

Weighmaster:
CEMEX

Deputy Weighmaster:
Malia J. Leake

Scale: 1
In:
Out: 1:14 pm

--- DRIVER ON AT TARE & GROSS ---

	lb	ton	tne
Gross:	93,660	46.83	42.48
Tare:	38,100	19.05	17.28
Net:	55,560	27.78	25.20

* Predetermined Tare

Today Loads: 9
Today Qty: 160.14 ton
0.00

CEMEX'S STANDARD TERMS AND
CONDITIONS INCORPORATED HEREIN.

0.00

Signature of Receiving Agent

Driver:

METRIC CONVERSION FORMULA: POUNDS DIVIDED BY 2204.623, ROUNDED TO 2 DECIMALS
SEE REVERSE SIDE FOR PRODUCT LABEL INFORMATION

CEMEX 1876062264

Weighed At: Soil Remediation
6300 Glenwood Ave
Everett, WA 98213

Location: 1876

Order: 40904558 **Dispatch:** 0**Date:** 02/27/2013
Ship To: 3034360 - KLB CONSTRUCTION
76:BOTHELL CROSSROADS
76:18305 101ST AVE NE - SEATTLE
EVERETT, WA 98203
Instruct: TO EVERETT SOIL REMEDIATION - PLANT CL3
KLB 122
HERTZ LANDING
Job #: BTHL. CRSRDS. PH **PO:** 212895
Product: 1192508 - CLASS 3 SOIL DUMPED BY TON
Carrier: -
Vehicle: 2034265 - 1876-3,EVERETT SOIL GENERIC
Tractor / Trailer1 / Trailer 2 -/- 3 -/-

Qty: 31.76 ton

--- DRIVER ON AT TARE & GROSS ---

	lb	ton	tne
Gross:	103,960	51.98	47.16
Tare:	40,440	20.22	18.34
Net:	63,520	31.76	28.81

* Predetermined Tare

Weighmaster:
CEMEX
Deputy Weighmaster:
Malia J. Leake
Scale: 1
In:
Out: 1:35 pm

Today Loads: 10
Today Qty: 191.90 ton
0.00

CEMEX'S STANDARD TERMS AND CONDITIONS INCORPORATED HEREIN.

0.00

Signature of Receiving Agent Driver:

METRIC CONVERSION FORMULA: POUNDS DIVIDED BY 2204 623, ROUNDED TO 2 DECIMALS

6 of 6

APPENDIX K

COST ESTIMATES

Hertz FS
Opinion of Probable Construction Cost
In Situ bioremediation

Item No.	Description		Unit	Plan Quantity	Unit Cost	Total Amount
1	Mobilization, H&S, etc.		LS	1	$2,500	$2,500
2	Utilities, prep, etc.		LS	1	$2,500	$2,500
3	In situ injections		EA	25	$1,500	$37,500
4	Confirmation monitoring		LS	1	$20,000	$20,000
5						$0
6						$0
7						$0
	Sub-Total					**$62,500**
8	Engineering, PS&E, permitting, construction monitoring	10%	EST	1	$6,250	$6,250
9	WSST	9.6%	EST	1	$6,000	$6,000
10	Contingency	10%	EST	1	$6,250	$6,250
	Total					**$81,000**

Bothell Service Center FS
Opinion of Probable Construction Cost
Monitored Natural Attenuation

Item No.	Description		Unit	Plan Quantity	Unit Cost	Total Amount
1	Monitoring, reporting		YR	2	$16,000	$32,000
2						$0
3						$0
4						$0
5						$0
6						$0
7						$0
	Sub-Total					**$32,000**
8	Engineering, PS&E, permitting, construction monitoring	0%	EST	1	$0	$0
9	WSST	0.0%	EST	1	$0	$0
10	Contingency	10%	EST	1	$3,200	$3,200
	Total					**$35,200**

Hertz FS
Opinion of Probable Construction Cost
Institutional Controls

Item No.	Description		Unit	Plan Quantity	Unit Cost	Total Amount
1	Environmental covenant / legal		LS	1	$5,000	$5,000
2	Monitoring, reporting		YR	2	$16,000	$32,000
3			EA	10		$0
4			LS	1		$0
5						$0
6						$0
7						$0
	Sub-Total					**$37,000**
8	Engineering, PS&E, permitting, construction monitoring	0%	EST	1	$0	$0
9	WSST	0.0%	EST	1	$0	$0
10	Contingency	10%	EST	1	$3,700	$3,700
	Total					**$40,700**