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REMEDIAL INVESTIGATION AND CHARACTERIZATION REPORT

Sportland Mini-Mart
4400 Bullfrog Road
Cle Elum, Washington
Facility Site ID: 77133953

Project Number: 12698

January 23, 2013

Prepared for:

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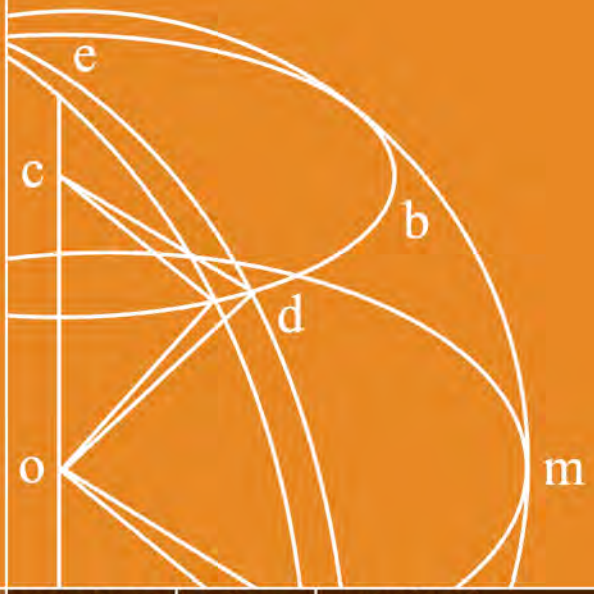

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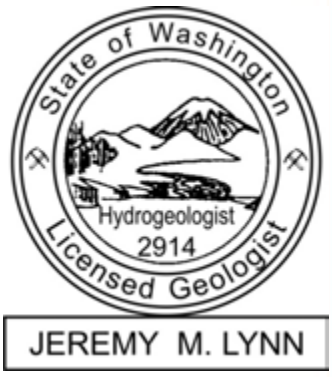

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Report Integrity:

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1.0 INTRODUCTION

Fulcrum Environmental Consulting, Inc. (Fulcrum) was retained by Sportland Project, LLC to conduct a subsurface investigation of the Sportland Mini Mart and Fueling Station facility. The facility is located at 4400 Bullfrog Road in Cle Elum, Washington. See Appendix A, Figure 1 for the site location. Fulcrum understands that previous investigations and limited remedial activities have been completed at the site following discovery of gasoline product release in 1998 from a former onsite fuel dispenser system.

In-progress investigation activities have been designed to provide current site characterization data associated with residual impact to site soils and groundwater, collected in conformance with Washington State Department of Ecology (Ecology) criteria, to satisfy regulatory requirements and to facilitate remedial design and site closure.

Site services were provided by Jeremy Lynn, a Washington State Licensed Hydrogeologist; Kendra Williams, a Geologist-in-Training; and Ryan Mathews, a Certified Hazardous Materials Manager, all with Fulcrum.

2.0 SITE DESCRIPTION AND BACKGROUND

The site is identified by the Kittitas County Assessor's Office as the following tax parcels:

- 673034
- 953132

The Sportland Mini Mart and Fueling Station facility is located southeast of the intersection of Bullfrog Road and Washington State Route 903, northwest of the city of Cle Elum, Washington. The site is currently operated as a retail fueling station and off-road vehicle dealership and repair facility. The facility is bordered to the north by Washington State Route 903 and to the west by Bullfrog Road. Mixed residential and commercial land use is present north and east of the facility. See Appendix A, Figure 2 for general site features.

Onsite structures include the mini-mart building located in the north-central portion of the facility with the current fueling islands located south and adjacent to the mini-mart building. The onsite dealership and repair shop building is located east of the mini-mart building and within the northeast portion of the facility. A separate storage building is located immediately south of the dealership building and associated secured outdoor storage.

Fulcrum understands that in September 1998, the underground storage tanks and associated system components were replaced as a portion of gasoline retail fueling system upgrades. During system removal, a leak was observed beneath the former eastern fuel dispenser and gasoline impacted soils were identified. Prior to investigation activities presented herein, sampling and site characterization has been primarily completed by GN Northern, Inc. in 1998 to 1999.

Additional detail associated with previously completed investigation activities is presented in the site-specific Sampling and Analysis Plan (SAP)/Quality Assurance Project Plan (QAPP). See

Appendix B for the site-specific SAP/QAPP. Additional detail associated with the site location and potential worker safety hazards is presented in the site-specific Health and Safety Plan (HSP). See Appendix C for the HSP.

3.0 SCOPE OF SERVICES

Fulcrum was retained by Sportland Project, LLC to complete a site subsurface investigation. The primary goal of this project is to provide characterization for the presence and extents of impact associated with petroleum hydrocarbon and gasoline additives, collectively product, to site soils and groundwater; and to determine the absence or presence of free product in soils or product on the surface of site groundwater. Contaminants of concern include gasoline range organics (GRO), diesel range organics (DRO), select volatile organic compounds (VOC), and lead. Collected data is intended to establish the extents of contaminant impact to the site and to facilitate future assessment of remedial strategies and associated remediation costs. Tasks associated with this phase of investigation include the following:

- Prepare a site-specific SAP/QAPP and HSP associated with investigation activities.
- Complete a subsurface soil sampling event to characterize the current site conditions associated with the former product release.
- Complete project reporting inclusive of data evaluation and interpretation of extents of residual soil impact.
- Complete initial, and as necessary, subsequent quarterly groundwater monitoring events for contaminants identified in site soils and previously completed investigation activities.
- Prepare final site characterization report for the project, including:
  - Maps of the study area showing sample collection locations, water levels in monitoring wells, groundwater flow direction, and contaminant concentrations and distribution.
  - Discussion of soil and water quality results.
  - Comparison of results to the cleanup standards for the contaminants of concern, to use in evaluating the potential remedial options.
  - Significant or potentially significant findings.

All proposed investigation activities are designed to meet the criteria set forth in the Washington Administrative Code (WAC) 173-340 for independent remedial investigation to facilitate remedial action planning, design, and implementation. All investigation activities have been completed under the site-specific SAP/QAPP and HSP.

The intent of this Remedial Investigation and Characterization Report is to present the findings of the soil sampling event, monitoring well installation, and initial monitoring well sampling event (November 2012). Additional groundwater sampling events will be presented under separate cover as supplementary reports.

To facilitate site investigation activities, Sportland Project, LLC contracted the following companies:

- Cruse & Associates, Inc. of Ellensburg, Washington was retained to complete land survey services.
- Utilities Plus, LLC of Yakima, Washington was retained to complete private, third-party utility locate services.
- Environmental West Exploration, Inc. of Spokane, Washington was retained to complete environmental drilling and monitoring well installation.
- Fremont Analytical, Inc. of Seattle, Washington was retained to complete laboratory analysis.

Fulcrum's investigation within the project contract scope of services was limited to investigation of site soils and groundwater within the property boundaries.

4.0 GEOLOGIC SETTING

Migration of contaminants within the subsurface is primarily a function of the chemical and physical interaction between constituents and subsurface conditions such as soil type, geologic features, and groundwater gradient and flow direction. Additionally, subsurface geologic conditions play a large role in the appropriateness and potential success of a given remedial alternative.

4.1 Regional Geologic Setting

Regional geologic setting is most efficiently reviewed in United States Geological Survey *Hydrogeologic Framework of Sedimentary Deposits in Six Structural Basins, Yakima River Basin, Washington* (USGS, 2006). As described, the Yakima Basin is located within the Yakima Folds Geomorphic Province (YFGP), the youngest of three geologic formations comprising the Columbia River Plateau. The YFGP is located on the western margin of the Columbia River Plateau and is comprised of both consolidated and unconsolidated materials. The central, eastern, and southwestern portions of the YFGP are comprised of Miocene Age basalts with intercalated sedimentary deposits. The lowlands within the YFGP consist of erosional sedimentary deposits including: alluvium, lacustrine, glacial, and glacial-fluvial materials with localized areas of wind-blown loess. Anticlinal ridge and synclinal valley structures dominate the topography of the YFGP.

The Yakima River Basin (YRB) located within the boundaries of the YFGP, extends from the northeastern slopes of the Cascade Mountain Range in Kittitas County to the confluence of the Yakima and Columbia Rivers in Klickitat County. The YRB additionally incorporates portions of Benton County and the majority of Yakima County. The YRB comprises an area of approximately 6,200-square miles and a total of six structural aquifer basins (USGS, 2006). The network of Yakima Basin aquifers is supplied by the headwaters of the eastern slopes of Cascade Mountain Range. The Yakima River, eight tributary rivers, and numerous streams are supplied by annual snow-melt runoff from the Cascade Mountains.

The six identified aquifer basins include the Roslyn, Kittitas, Selah, Yakima, Toppenish, and Benton Basins. The site is located within the southern portion of the Roslyn Basin.

The Roslyn Basin encompasses an area of about 80-square miles southeast of the Kachess and Cle Elum Lakes. Two northwest trending faults cut through the south-central part of the basin and several synclines and anticlines are present in the northeast part of the basin. The basin fill deposit stratigraphy is divided into three hydrogeologic subunits. The upper unit, limited to the Yakima River floodplain, consists of the alluvial, lacustrine, and glacial deposits and ranges in thickness from 0 to 360-feet. The second unit consists predominantly of fine-grained, lacustrine deposits of clay and silt and ranges in thickness from 0 to 530-feet. The third unit, limited to the deeper parts of the alluvial valley, consists of coarser deposits, mostly sand and gravels and ranges in thickness from 0 to 240 feet. The total basin thickness ranges from 0 to 700 feet.

4.2 Local Geologic Setting

The site is located at an approximate elevation above sea level of 2,120-feet with a topographic elevation change of approximately 10-feet across the site, and sloping downward from north to south (USGS, 2011).

Site soils are identified by the United States Department of Agriculture (USDA) National Resource Conservation Service (NRCS) Web Soil Survey as being predominately composed of Roslyn Ashy Sandy Loam (USDA, 2012).

4.2.1 Roslyn Ashy Sandy Loam

Roslyn Ashy Sandy Loam is described as being composed of moderately decomposed plant material from the surface to a depth of 1-inch below ground surface (bgs). Soils at depths of 1 to 15-inches bgs are described as ashy sandy loam. Soils at depths of 15 to 37-inches are described as loam with underlying gravelly loam to a depth of 60-inches bgs. Roslyn Ashy Sandy Loam is additionally described as being well drained with a moderately high to high capacity to transmit water and a depth to groundwater of more than 80-inches bgs.

4.2.2 Soils Identified During Onsite Activities

Onsite investigation activities generally identified surface soils consisting of sandy gravel from the surface to depths of approximately 5 to 10-feet bgs. Underlying soils were composed of clayey sandy gravel to sandy gravel extending to the maximum depths of borings of approximately 17.5 to 22.5-feet bgs. Soils were consistent with glacial deposits. No indications of hydrogeologic confining layers were identified during investigation activities.

4.2.3 Hydrology and Hydrogeologic Site Conditions

Site-specific hydrology and hydrogeologic influences include the presence Crystal Creek, located approximately ¼-mile northeast of the site, and the Yakima River. Crystal Creek flows southwesterly and joins the Yakima River about 2-miles southeast of the site. The Yakima River flows east and is found approximately 1.5-miles south of the site. The Yakima River is approximately 200-feet lower in elevation than the site.

Groundwater was evident within the sandy gravel soil horizons at depths of approximately 15 to 20-feet bgs with high water marks extending to depths of approximately 12.5-feet. Depths to surface water varied with topographical elevations changes across the site. Based on groundwater conditions encountered during sampling, soils during the autumn season are poorly saturated both horizontally and vertically across the site. See Section 8.0 for additional discussion of encountered subsurface hydrogeologic conditions identified during monitoring well installation and subsequent groundwater sampling activities.

Based on previously collected site data by GN Northern, Inc. and site characterization data collected to date, groundwater, at times, may flow northeast toward Crystal Creek or southeast toward the confluence of Crystal Creek and the Yakima River.

5.0 APPLICABLE REGULATORY GUIDANCE

Environmental regulatory authority for the site location is governed under Ecology for site contamination concerns.

5.1 MTCA Regulations

In March 1989, the Model Toxics Control Act (MTCA) was enacted in Washington State (Ecology, 2007a). The MTCA regulations set standards to ensure quality of cleanup and protection of human health and the environment. A major portion of the MTCA regulation, completed in 1991, was the development of numerical cleanup standards and requirements for cleanup actions. Three options were established under MTCA for site-specific cleanup levels: Method A, B, and C. Method A defines cleanup levels for 25 of the most common hazardous substances found at sites. Method B levels are set using a site risk assessment, which enables consideration of site-specific characteristics. Method C is similar to Method B, however the individual substance's cancer risk portion of the assessment is set at 1 in 100,000 rather than 1 in 1,000,000. Method C cleanup levels are applicable at industrial sites. Method B standard values are found in Ecology's Cleanup Levels and Risk Calculations database (Ecology, 2012).

Rule amendments to MTCA, which became effective August 15, 2001, changed the cleanup levels of petroleum hydrocarbon contamination. Whereas diesel and heavy oil concentrations were increased, the MTCA Method A cleanup levels for gasoline and gasoline components (Benzene, Toluene, Ethylbenzene, and Xylene) were lowered significantly. Changes to MTCA since 2001 have been primarily administrative in nature, although review and adjustment of specific contaminants is ongoing.

5.2 Cleanup Standards Selected

Ecology's MTCA Method A cleanup tables were developed to provide conservative cleanup levels for sites undergoing routine cleanup actions or those sites with relatively few hazardous substances. Method A cleanup levels are specifically designated as appropriate for residential facilities and are appropriate for a conservative approach at school and public sites.

However, based on site-specific conditions, such as the number of different contaminants, petroleum composition, and site-specific geologic conditions, MTCA Method B levels usually provide results in higher cleanup levels for soil and often provide lower and more conservative cleanup level for groundwater when compared with MTCA Method A levels. As such, where appropriate, Fulcrum has evaluated site conditions against both Method A and Method B cleanup levels. Where Method A cleanup levels have not been established, Fulcrum has defaulted to using Method B cleanup levels established for site-specific conditions.

Application of the MTCA Method A or Method B cleanup levels during this portion of the project does not exclude the potential for reevaluation of site contaminants by other methods or other applicable standards at any time.

5.3 Remedial Action Planning Requirements

While Fulcrum's investigation activities included collection and evaluation of site soils and groundwater with applicable regulatory cleanup levels, the intent of the investigation is primarily to evaluate extents of impact to facilitate site characterization and remediation. As such, Fulcrum's investigation activities were completed with the intent of satisfying investigation and site data requirements for evaluation of remedial options as established in WAC 173-340-360 and WAC 173-340-440 for site remediation planning.

In general, remedial methods must include meeting the following requirements:

- Establishment of appropriate site engineering controls, remedial actions, and monitoring of contamination as appropriate to address releases that may pose a threat to human health or the environment, significantly reduce potential for human contact, and to provide data associated with potential contaminant migration to ensure protection of groundwater resources, WAC-173-340-440 through 450.
- Complete a Terrestrial Ecological Evaluation (TEE) of site conditions to determine whether there will be effects of contaminants or remedial methods on potential sensitive ecological receptors, WAC 173-340-7490 through 7494.

The remedial method must satisfy the following minimum requirement for selection of a cleanup action under WAC 173-340-360(2)(a):

- Protect Human Health and the Environment – through direct contact pathways and protection of soil, groundwater, atmospheric resources, and evaluation of site-specific contaminants' impacts on ecological receptors as evaluated under the Terrestrial Ecological Evaluation (TEE) process.
- Comply with Cleanup Standards – use interim control requirements established under
- WAC 173-340-440 through -450(3) if appropriate and meet final cleanup requirements under WAC 173-340-450(7) and (8). WAC 173-340-360(2)(e)(iii) may apply to institutional controls at the site.
- Comply with Applicable State and Federal Laws
- Provide Compliance Monitoring under WAC 173-340-410

The selected remedy also must meet other requirements for selection under WAC 173-340 through 360(2)(b), which includes the following:

- Use Permanent Solutions to the Maximum Extent Practicable
- Providing for a Reasonable Restoration Time Frame
- Consideration of Public Concerns

Fulcrum's investigation activities were designed to satisfy the data requirements in order to facilitate future evaluation of site conditions and remedial options to meet the above identified requirements.

6.0 ONSITE INVESTIGATION ACTIVITIES

Fulcrum completed site investigation activities under site-specific SAP/QAPP and HSP. The investigation was designed to include a multi-phased approach comprised of an initial soil characterization and sampling event; followed by quarterly monitoring of previously installed, replacement, and additional new groundwater monitoring wells. Based on results of the soil investigation and encountered conditions of previously installed groundwater monitoring wells, additional monitoring wells were installed to meet project objective prior to completion of the initial groundwater monitoring event.

6.1 Soil Investigation

From August 20 through 22, 2012, Fulcrum completed site soil investigation activities. On November 7, 2012, during installation of additional site monitoring wells, Fulcrum completed additional soil sampling of one borehole during installation of Monitoring Well 09. See Appendix D for site photographs associated with the soil investigation. See Appendix B for the SAP/QAPP governing the soil investigation.

Fulcrum's approach consisted of completing boreholes to delineate extents of soil impact and to evaluate the presence of free product on site groundwater. The purpose of the soil investigation was two-fold; first, assess worst case environmental contamination and second, determine approximate extents of contaminant impact. From these borehole locations, samples were collected for analysis for GRO, DRO, gasoline additives, and lead. All samples for VOC analysis were collected as prescribed in Ecology's relevant technical memorandum (Ecology, 2004; Ecology 2011).

Fulcrum completed eleven boreholes within the property boundaries by air rotary drilling methods. Boreholes were completed to a depth generally 2.5 to 5.0 feet below encountered groundwater elevation. Boreholes were located to delineate extents of soil impact and to evaluate the presence of free product on site groundwater and were adjusted as necessary in the field to meet the project objectives. Completed borehole locations included the following:

- Two boreholes northwest of the area of identified release (01 and 11).

- Four boreholes located south and west of the current fueling tanks and pumping islands (02, 03, 04, and 05).
- Two boreholes between the current pumping islands and former fueling islands (06 and 07).
- One borehole southeast of the known area of impact (08).
- Two boreholes northeast of the known area of impact and near the property boundaries (09 and 10).

Refusal was encountered at borehole location 09 at a depth of approximately 16-feet bgs. As such, a second borehole was completed approximately 3-feet west of the initial borehole 09 location in order to continue the sampling intervals to the encountered depth of groundwater. The boreholes were subsequently designated 09A and 09B, respectively. See Appendix A, Figure 2 for borehole locations. See Appendix E for borehole logs and observations.

Soil samples were typically collected at 5-foot intervals from each borehole except where split-spoon core sampler refusal or recovery issues were encountered due to adverse soil conditions. Soil samples at select locations were collected at 2.5-foot intervals due to refusal or recovery failure at 5-foot depth intervals or where groundwater was encountered. As presented in the SAP/QAPP, samples were labeled with the date as a prefix followed by the borehole identifier and the depth (i.e. Date-Borehole.Depth).

Soils were field evaluated for VOCs using a Rae Systems Photo Ionization Detector (PID) meter with VOC sensor. As presented in the SAP/QAPP, all collected soil samples for field evaluation were placed into resealable polyethylene bags and warmed. Concentrations of VOC identified in the soil samples collected ranged from 0 to 1,099 parts per million.

Moderate gasoline odor and sheen were identified within boreholes 06, 07, and 09. Sample collection was attempted at 15, 17.5, and 20 bgs. Samples were successfully collected at 15 and 20-feet bgs; however, due to poor recovery no samples were collected at 17.5-feet bgs. All other elevations identified with gasoline odor within all other boreholes were successfully sampled during the investigation.

Gasoline odor within borehole 09 was limited to elevations between 15 and 20-feet bgs and greatest at approximately 17.5-feet bgs during drill bit advancement. Soil was subsequently collected at depths of 15, 16.5, 17.5, and 18-feet bgs during installation of monitoring well 09 consistent with the borehole 09 location.

Fulcrum utilized a Solinst Petroleum Interface Probe within the completed boreholes prior to closure to evaluate subsurface conditions for measurable free product. While sheen was observed on select core samples, Fulcrum did not identify measurable free product in any of the boreholes.

Fulcrum collected 50 soil samples during the investigation of which 33 were analyzed by Fremont Analytical, Inc. (Fremont). All other samples were collected, shipped to Fremont, and placed on hold pending results of the initial analysis. Results of the soil samples are presented in Section 7.0, 8.0, and Table F.1 in Appendix F.

6.2 Monitoring Well Evaluation

On October 1, 2012, Fulcrum completed evaluation of previously installed monitoring wells. The following conditions were noted at each monitoring well:

- Monitoring Well 01: Silted at a depth of 16-feet bgs. Silt in the well was moist and the estimated elevation of groundwater is approximately 16-feet bgs; however, no measurable was water identified.
- Monitoring Well 02: Damaged pressure cap.
- Monitoring Well 03: Damaged well casing below pressure cap.
- Monitoring Well 04: Damaged well casing; however, appeared sealed by existing polyvinyl chloride (PVC) cap. Less than 6-inches of water column present in well.
- Monitoring Well 05: Heavy iron precipitation present in well casing. Physical barrier encountered preventing installation of dedicated tubing below groundwater elevation.

Due to the encountered conditions, Fulcrum determined that repair to existing wells and installation of additional usable wells was necessary to meet project objectives. Groundwater was not sampled on October 1, 2012.

At each well in which water was present, Fulcrum utilized a Solinst Petroleum Interface Probe to evaluate the potential for free product. No free product was identified within any of the existing monitoring wells. An intermittent, reading of free product was encountered in monitoring well 02; however, the reading was not repeatable through subsequent attempted measurements.

6.3 Groundwater Monitoring Well Installation and Repair

A monitoring well installation plan was completed by Fulcrum titled, *Proposed Monitoring Well Installation Plan – 4400 Bullfrog Road, Cle Elum, Washington*, dated October 15, 2012. The purpose of the monitoring well installation plan was to identify the locations of additional groundwater monitoring wells required at the site to meet investigation objectives. The monitoring well installation plan also identified necessary repairs for existing site monitoring wells to meet regulatory specifications. The monitoring well installation plan was revised and reissued on October 31, 2012 based on comments and discussion provided by Ecology. The monitoring well installation plan is presented in Appendix G.

6.3.1 Monitoring Well Installation

Monitoring well installation and repair was completed November 5 through 7, 2012 by Environmental West under Fulcrum's direction. Additional site groundwater monitoring wells were installed in the following locations:

- Monitoring Well 01B – Northwest Portion of the Site, adjacent former UST basin, approximately 20-feet southwest of MW-01.
- Monitoring Well 06 – Near the West Site Driveway.
- Monitoring Well 07 – South Border of the Site.
- Monitoring Well 08 – South of the Storage Building, West Site Border.

- Monitoring Well 09 – Northeast Site Driveway.
- Monitoring Well 10 – Northeastern Portion of the Site.

Monitoring Well (MW)-01B was installed as a replacement well of MW-01. Monitoring wells 01B, 06, 09, and 10 were installed to a depth of 35-feet bgs with a screened interval extending from 10 to 35-feet bgs. See Appendix E for driller's logs.

Monitoring wells 07 and 08 were installed to a depth of 45-feet bgs due to the absence of encountered groundwater during installation activities. Groundwater was not identified at the maximum depth of drilling at 45-feet bgs. Monitoring wells 07 and 08 were installed with screened intervals extending from 10 to 45-feet bgs.

As presented in Section 6.1, four additional samples were collected during installation of MW-09 from depths of 15, 16.5, 17.5, and 18-feet bgs. The purpose of the samples was to collect soil from the depth of 17.5-feet bgs as previously identified with petroleum odor within drill cuttings. Sample results are presented in Section 7.0, 8.0, and Table F.1 in Appendix F.

6.3.2 Monitoring Well Repair

Subsequent to monitoring well installation, the following alterations were made to previous installed monitoring wells by Environmental West:

- Monitoring Well 01 – Northwest Portion of the Site: Casing filled with bentonite clay.
- Monitoring Well 02 – Within Fenced Area Along East Border: Replace pressure cap and purge well with surge block and submersible pump.
- Monitoring Well 03 – Southwest of the Current Fueling Island: Repair casing; replace pressure cap; and purge well with surge block and submersible pump.
- Monitoring Well 04 – South of the Fueling Island: Repair casing; replace pressure cap; and purge well with surge block and submersible pump.
- Monitoring Well 05 – South of the Fueling Island: Casing filled with bentonite clay and decommissioned.

The surface monument associated with MW-01 was not removed or sealed with concrete by Environmental West due to the location within the City of Cle Elum owned sidewalk.

6.4 Initial Groundwater Sampling Event

On November 20 and 21, 2012, Fulcrum completed sampling of site groundwater wells. Groundwater elevation measurements, corrected groundwater elevations, and laboratory results are presented in Section 7.0, 8.0, and Table F.2 in Appendix F.

Fulcrum utilized a Solinst Petroleum Interface Probe and did not identify measurable free product in any of the onsite wells during sampling activities.

Due to the depth of encountered groundwater in select site wells, disposable polyethylene bailers were utilized for sampling and/or purging of water from MW-06, 08, 09, and 10. Additionally,

MW-02 and 07 were not sampled due to the absence of measurable water within the wells. See Appendix H for well sampling field forms.

6.5 Deviations from SAP/QAPP

During the project, Fulcrum's onsite staff completed field modifications to the Sampling and Analysis Plan (SAP), including number and location of borehole to improve investigation performance.

Fulcrum's investigation strategy consisted of borehole excavations in locations surrounding current and former fueling islands and underground storage tanks as well as adjacent to property boundaries. The initial intent was to complete up to ten boreholes. Based on the presence of both underground and overhead utilities, the two boreholes proposed at the south corner of the mini-mart building and immediately south of Highway 903, were altered to include one borehole east of the mini-mart building. Based on encountered suspect contamination within boreholes 06 and 07, two additional boreholes were completed and included: one borehole south of the dealership building, and one borehole west of the current fueling island. Under the expanded and modified borehole plan, Fulcrum excavated eleven boreholes.

During groundwater sampling activities, monitoring wells 06, 08, 09, and 10 were sampled and/or purged with disposal polyethylene bailers due to the limited volume and depth of water in the well casings. See well sampling field forms in Appendix H for additional information.

For purposes of this investigation, it is Fulcrum's opinion that the deviations from the SAP/QAPP enhanced the performance of the investigation and do not affect the value of the collected date.

7.0 LABORATORY ANALYSIS

Selected laboratory analysis, as well as collection and handling protocol for samples collected from each area of investigation is established in the SAP/QAPP. See Appendix B for the project SAP/QAPP.

Following collection, all samples were shipped via commercial carrier to Fremont for analysis. All samples were reported to be received in intact condition and within appropriate preservation temperatures and chemical preservations where specified by analytical methodologies. See laboratory reports for sample receipt checklists for the soil investigation in Appendix F.

7.1 Laboratory Results

A summation of laboratory results for each sample is presented in Tables F.1 and F.2 in Appendix F. Discussion of laboratory results is presented in Section 8.0.

7.2 Laboratory QA/QC Review – Soil Investigation

Fulcrum collected 50 soil samples during the soil investigation, of which 33 were analyzed. All

samples were delivered to the laboratory within the prescribed holding time and preserved on ice. No delivery errors or damage to collected samples were reported during shipment or upon receipt at the laboratory. No samples were reported by the laboratory to have insufficient sample volume to complete the requested analysis and all analyses were performed consistent with the laboratory quality assurance program.

Few data qualifiers were reported in the laboratory results. Data qualifiers were limited primarily to repeatability comparisons associated with matrix spike samples. Data qualifiers are reviewed in the order of work completed.

Fremont Work Order 1208159 – Temperature within the rigid insulated shipping container, commonly referred to as a cooler, measured by Fremont ranged from 4.1 degrees Celsius (˚C) to 4.8˚C and custody seals were reported to be intact.

Of the 33 soil samples analyzed, four samples had laboratory notes associated with the analysis or sample handling. These samples are listed along with a description of the notes associated with them.

- Sample 082012.02.20 noted that a spike recovery was outside of accepted recovery limits. The method is in control as indicated by the Method Blank (MB) and Laboratory Control.

- Sample 082112.06.15 noted that a spike recovery was outside of accepted recovery limits. A review of the sample note by the laboratory attributed the recovery limit error to TPH interference. The method is in control as indicated by the Method Blank (MB) and Laboratory Control. In addition, dilution of the sample was required.

- Sample 082112.07.15 noted that dilution of the sample was required.

- Sample 082112.07.20 noted that dilution of the sample was required.

Fremont Work Order 1211043 – Temperature within the cooler was measured by Fremont at 8.1˚C and custody seals were reported to be intact.

- Sample 110612-17.15 noted that dilution of the sample was required.

Review of these notes indicates that laboratory QA\QC is satisfactory and identified laboratory QA/QC should not affect project data or objectives.

7.3 Laboratory QA/QC Review – Groundwater Monitoring

Fremont Work Order 1211165 – Temperature within the coolers was measured by Fremont and ranged from 2.8 to 3.2˚C and custody seals were reported to be intact.

- Sample 112012-03 noted that dilution of the sample was required.
- Sample 112012-10 noted that dilution of the sample was required.
- All groundwater samples noted that the holding time for nitrate analysis was exceeded.

Review of these notes indicates that laboratory QA\QC is satisfactory and identified laboratory QA/QC should not affect project data or objectives.

8.0 DISCUSSION OF INVESTIGATION RESULTS

Fulcrum completed collection of soil samples and one groundwater sampling event. The following subsections provide discussion of the soil and groundwater sample results.

8.1 Discussion of Soil Analysis Results

Based on field observations, and where the recoverable sample was collected, Fulcrum selected the following sample intervals for analysis:

- Intervals above and below encountered groundwater elevation within all boreholes and representing the elevations with the greatest potential for impact, 15 to 20-foot elevations.
- Six samples collected at 10-feet bgs, including boreholes 03, 04, 06, 07, 08, and 09.
- Two samples collected at 5-feet bgs, including boreholes 06 and 07.
- Three field duplicate samples; approximately 10-percent of number of samples analyzed.

The following constituents were identified within sampled soils above Method A cleanup levels:

- Gasoline Range Organics ranging from non-detect to 2,150 milligrams per kilogram (mg/Kg)
- Gasoline Range Organics, within C6-C12 only, ranging from non-detect concentrations to 357 mg/Kg
- Gasoline Additives or components:
    - Benzene ranging from non-detect to 0.640 mg/Kg
    - Toluene ranging from non-detect to 30.8 mg/Kg
    - Ethylbenzene ranging from non-detect to 22.6 mg/Kg
    - m, and p-Xylenes ranging from non-detect to 98.7 mg/Kg
    - o-Xylene ranging from non-detect to 30.3 mg/Kg
- Naphthalene ranging from non-detect to 10.4 mg/Kg

See Table F.1 in Appendix F for laboratory results. All constituents identified above MTCA Method A cleanup levels were limited to samples 082112-06.15, 07.15, and 07.20; and 110612-17.5 collected from boreholes 06, 07, and 09B. Additionally, constituents above MTCA Method A cleanup levels were limited to elevations ranging from 15 to 20-feet bgs.

Detectable concentrations of gasoline additives are predominantly comprised of ethylbenzene and the sum of all isomers of xylenes within analyzed samples. Detection of benzene was limited to samples 082112-07.20 and 110612-17.5.

Detectable concentrations of lead were below MTCA Method A cleanup levels and consistent with naturally occurring background concentrations for central Washington (Ecology, 1994) for all samples analyzed. Laboratory analysis did not identify concentrations of Ethanol, Methyl tert-

Butyl Ether (MTBE), 1,2-Dichloroethane (EDC), or 1,2-Dibromoethane (EDB) at or above method reporting limits.

Kerosene range hydrocarbons were identified within borehole 07 at depths of 15 and 20. Concentrations were reported to be at 314 and 70.5 mg/Kg and below the MTCA Method A cleanup level of 2,000 mg/Kg.

8.1.1 Additional Selected Laboratory Analysis

Samples 082112.06.15, 082112.07.15, 082112.07.20, and 110612-09.17.5 were selected for the following additional analysis representing the samples with constituent concentrations above MTCA Method A cleanup levels:

- Northwest Extractable Petroleum Hydrocarbons (NWEPH) analysis for extractable petroleum hydrocarbons
- Northwest Volatile Petroleum Hydrocarbons (NWVPH) analysis for volatile petroleum hydrocarbons
- Environmental Protection Agency (EPA) Method 8260 for n-Hexane and Naphthalene

Additional laboratory results identified concentrations of naphthalene ranging from 0.392 to 10.6 mg/Kg. Results confirmed naphthalene above the MTCA Method A cleanup level of 5 mg/Kg in samples 082112-07.15 and 07.20 collected from borehole 07; and 110612-17.5 collected during installation of monitoring well 09.

Laboratory results identified n-Hexane ranging from concentrations of 2.71 to 12.80 mg/Kg and below the MTCA Method B cleanup level of 4,800 mg/Kg.

8.1.2 Method B Cleanup Level Evaluation

Fulcrum completed evaluation of VPH and EPH results utilizing the Ecology published MTCATPH11.1 program to calculate a site-specific Method B cleanup value (Ecology, 2007b). See Appendix F for individual Method B cleanup level calculations.

Results identified a Method B cleanup level of 2,566 mg/Kg for total petroleum hydrocarbons for protection of human health through direct contact and utilizing data from sample 082112-06.15 as a conservative approach.

The calculated Method B cleanup level is above the documented concentrations of petroleum range hydrocarbons samples 082112-06.15, 07.15, 07.20 and 110612-09.17.5. Use of Method B cleanup levels may provide a critical decision pathway for remedial strategy and quantity of soils requiring remediation. However, as soil analysis has documented the presence of only a few contaminants, Method A cleanup levels can be utilized at the site.

8.2 Discussion of Groundwater Analysis Results

Due to the absence of measurable groundwater within monitoring wells 02 and 07, samples were collected from the following monitoring wells 01B, 03, 04, 06, 08, 09, and 10 only during the initial groundwater sampling event. Measurable free product was not identified within any of the onsite wells.

The following constituents were identified within sampled groundwater above Method A cleanup levels:

- Gasoline Range Organics ranging from non-detect to 18,400 micrograms per Liter (µg/L)
- Diesel Range Organics ranging from 3,590 µg/L
- Gasoline Additives or components:
  - Benzene ranging from non-detect to 81 µg/L
  - m, and p-Xylenes ranging from non-detect to 1,450 µg/L
  - o-Xylene ranging from non-detect to 210 µg/L
- Total and dissolved fractions of Manganese ranging from non-detect to 2,980 µg/L

See Table 2 in Appendix F for laboratory results. Fulcrum contacted Fremont for additional evaluation of sample data associated with samples found to contain GRO. Fremont indicated that the GRO within MW-01B appears as a weathered gasoline product. Additionally, Fremont identified the GRO in monitoring wells 03, 09 and 10 as a newer or well preserved product.

Diesel range organics were identified within groundwater wells, 01B, 03, 09, and 10 at concentrations ranging up to 3,590 µg/L and above the MTCA Method A cleanup level. Fulcrum contacted Fremont for additional evaluation of sample data associated with samples found to contain DRO. Fremont indicated the reported DRO are a portion of the hydrocarbons associated with the gasoline product and is not a separate diesel fuel or diesel range product. Fremont reported that a portion of gasoline range product was required to be designated as diesel range hydrocarbon only due to the laboratory methodology requirements. See Appendix F for associated chromatograms.

Additionally, heavy oil range hydrocarbons were identified within monitoring wells 01B, 04, and 09 and ranging up to 2,070 µg/L and above the MTCA Method A cleanup level. According to Fremont, the heavy oil range product is consistent with a motor oil-type product.

Total dissolved manganese was identified above MTCA Method A cleanup levels in monitoring wells 09 and 10 at concentrations ranging up to 2,980 µg/L and above the applicable default MTCA Method B cleanup level. Manganese was analyzed as a portion of site chemistry for remedial action planning only and is not a constituent of concern associated with a petroleum product release. While background information associated with manganese concentrations in the Kittitas Basin aquifer have not been identified by Fulcrum for public review, manganese is typically present in groundwater at concentrations less than 100 µg/L due to the insoluble characteristics in a natural and typical chemical oxidizing environment. The presence of elevated manganese appears to coincide with a trending increase in methane and decrease in nitrate in

samples identified with petroleum hydrocarbons. The results are indicative of a reducing environment potentially associated with the degradation of petroleum hydrocarbons.

8.3 Discussion of Groundwater Elevation Data

During soil sampling activities, saturated soils were encountered across the property at elevations ranging from approximately 15 to 20-feet bgs, consistent with topographic variation across the property. Measured and corrected groundwater elevations are presented in Table H.1, Appendix H.

Results of the groundwater investigation activities have identified complex hydrogeologic conditions at the property. Following installation of additional groundwater monitoring wells, and completion of the initial groundwater monitoring event, water elevation at the site was measured to range from about 12-feet bgs to more than 45-feet bgs. In addition, MW-02, identified in October with measurable water was found to be dry during the November monitoring event. Groundwater within the northern portion of the site appears to be flowing in a northeasterly direction, with groundwater in the southern portion of the site flowing in a southwesterly direction.

Identified soils are consistent with glacial deposits comprised of cobbles, gravels, and loam. Fulcrum's evaluation of the groundwater elevation data suggests the presence of preferential flow pathways and low water content in near surface soils across the property. The results of the groundwater elevation data, in conjunction with the results of the laboratory analysis suggests that current groundwater flow is unlikely to be consistent during all seasons.

Additional evaluation of site hydrogeology will be completed via additional quarterly groundwater sampling events. Regardless of the groundwater flow direction, groundwater monitoring wells are present to capture the current apparent down-gradient locations at the property boundaries.

9.0 DATA GAPS IN THE INVESTIGATION

A source associated with the presence of kerosene and motor oil range hydrocarbons within site soils and groundwater has not been identified. Similarly, laboratory analysis suggests that GRO at the site includes both weathered products and either new or well preserved products. The presence of the additional constituents of concern suggests the potential for of an offsite source; or former or current onsite source of a separate petroleum release. Additional historic research for the facility parcels and offsite parcels should be completed to facilitate identification of additional suspect sources of environmental impact.

10.0 TERRESTRIAL ECOLOGICAL EVALUATION

The Terrestrial Ecological Evaluation (TEE) process is required to be completed as a portion of cleanup action alternative review under MTCA. The intent of the TEE is to determine if site soil conditions subsequent to development of remedial alternative(s) may pose a threat to the terrestrial environment, including soil biota, plants, and wildlife. The TEE procedures are presented in WAC

173-340-7490 through 7494. While a TEE is not typically required at this stage of investigation, an evaluation is appropriate to document site conditions and ensure that planned future tasks are appropriate.

The TEE procedure prescribes the steps through which a review of site-specific conditions of ecology and contamination are reviewed and the potential for impact to soil biota, plants, and wildlife judged. Initial application of the TEE process enables the user to establish whether an exclusion from the TEE process exists. The four exclusionary criteria are:

- Contamination below the point of compliance (where contamination is only located at depths greater than the standard point of compliance of 15-feet bgs).
- Incomplete exposure pathway (e.g. institutional controls that limit access to contaminated soil).
- Type of contamination and proximity to ecology receptors (the combination of contamination toxicity and available habitat).
- Concentrations below background levels (remaining chemicals are below naturally occurring concentrations).

Soil contamination at the site has not been identified at depths of less than 15-feet bgs during Fulcrum's investigation activities. Additionally, based on investigation results, all soil contamination is located below site buildings and paved areas preventing wildlife exposure.

11.0 CONCLUSIONS

The site-specific project objectives for the remedial investigation and characterization include the following as presented in Section 3.0 associated with the 1998 identified release:

- Determine the extents of residual petroleum contamination in site soils
- Evaluate groundwater for the presence of free product
- Determine the extents of residual contamination in site groundwater

The investigation was designed to address the three objectives and provide sufficient site data to facilitate remedial alternatives review, selection, and design.

11.1 Extents of Residual Petroleum Contaminated Soils

Remedial site activities completed in 1998 included excavation and offsite disposal of approximately 412 cubic yards of petroleum impacted soils from beneath the former fueling island and current UST location. Fulcrum's investigation has identified the presence of residual gasoline range petroleum hydrocarbons within the area of the 1998 identified release.

Results of the soil investigation activities identified residual concentrations of GRO above MTCA Method A cleanup levels at depths ranging from 15 to 20-feet bgs within borehole locations 06, 07, and 09. The borehole locations 06 and 07 are located adjacent to the former fueling island and

established source of petroleum release. Borehole location 09 is located at the northern property boundary.

Soils collected from borehole locations 01 through 05 and 08 through 11, identified concentrations of petroleum range hydrocarbons either below method detection limits or where detected, well below MTCA cleanup levels.

Evaluation of constituent concentrations under calculated site-specific MTCA Method B cleanup values suggests that residual constituent concentrations are below the Method B cleanup level for protection of human health through direct contact pathways. However, due to the site-specific calculated Method B pathway for protection of groundwater, groundwater monitoring is required to meet MTCA regulatory criteria.

Due to the indications of kerosene range organics in site soil, potential exists for additional onsite or offsite sources and release events to be present or to have occurred.

11.2 Absence or Presence of Free Product on Site Groundwater

Results of the soil sampling event and the initial groundwater sampling event did not identify the presence of free product on site groundwater. However, additional evaluation during seasonal fluctuation of groundwater elevation is appropriate to confirm this finding.

11.3 Extents of Residual Petroleum Contaminated Groundwater

Groundwater analysis has identified GRO within monitoring wells 09 and 10 above regulatory cleanup levels near the northern property boundary. As such, contaminated groundwater is likely to be migrating beyond the boundaries of the tax parcel.

Due to the indications of both weathered and well preserved or newer gasoline product; as well as motor oil range hydrocarbons in site groundwater, potential exists for additional onsite or offsite sources and release events to be present or to have occurred.

The property is currently utilized for retail fueling operations and an off-road vehicle dealership and repair facility. The facility is currently comprised of building and structure footprints; asphalt surfaced parking and fueling areas; and gravel, landscaped, and soil surfaced storage areas. Areas immediately surrounding the property consist of undeveloped land as well as residential dwellings. Based on current property use, the presence of subsurface soil impact does not pose an imminent threat for exposure to site occupants. However, groundwater impact has the potential to migrate offsite to adjacent residential properties.

12.0 LIMITATIONS

Fulcrum Environmental Consulting, Inc. has performed professional services in accordance with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. The conclusions and recommendations are based upon our field observations,

field screening, and independent laboratory analysis. The scope of services for this project is limited to the investigation of the identified localized release area.

Oversight services included observation of excavated areas, site investigation, and sample collection. Excavation activities were not included within Fulcrum's scope of services. Fulcrum makes no warranties expressed or implied as to the accuracy or completeness of other's work included or referenced herein, nor the use of segregated portions of this report. This document does not imply that the property is free of other environmental concerns. This report is solely for the use and information of our client. Any reliance on this report by a third party is at that party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing at the time services were performed. Fulcrum Environmental Consulting, Inc. is not responsible for the impact of changes in environmental standards, practices, or regulations subsequent to the performance of services. Fulcrum Environmental Consulting, Inc. assumes no liability for conditions that were not included in our scope of services, or conditions not generally recognized as predictable when services were performed.

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APPENDIX A

Figures

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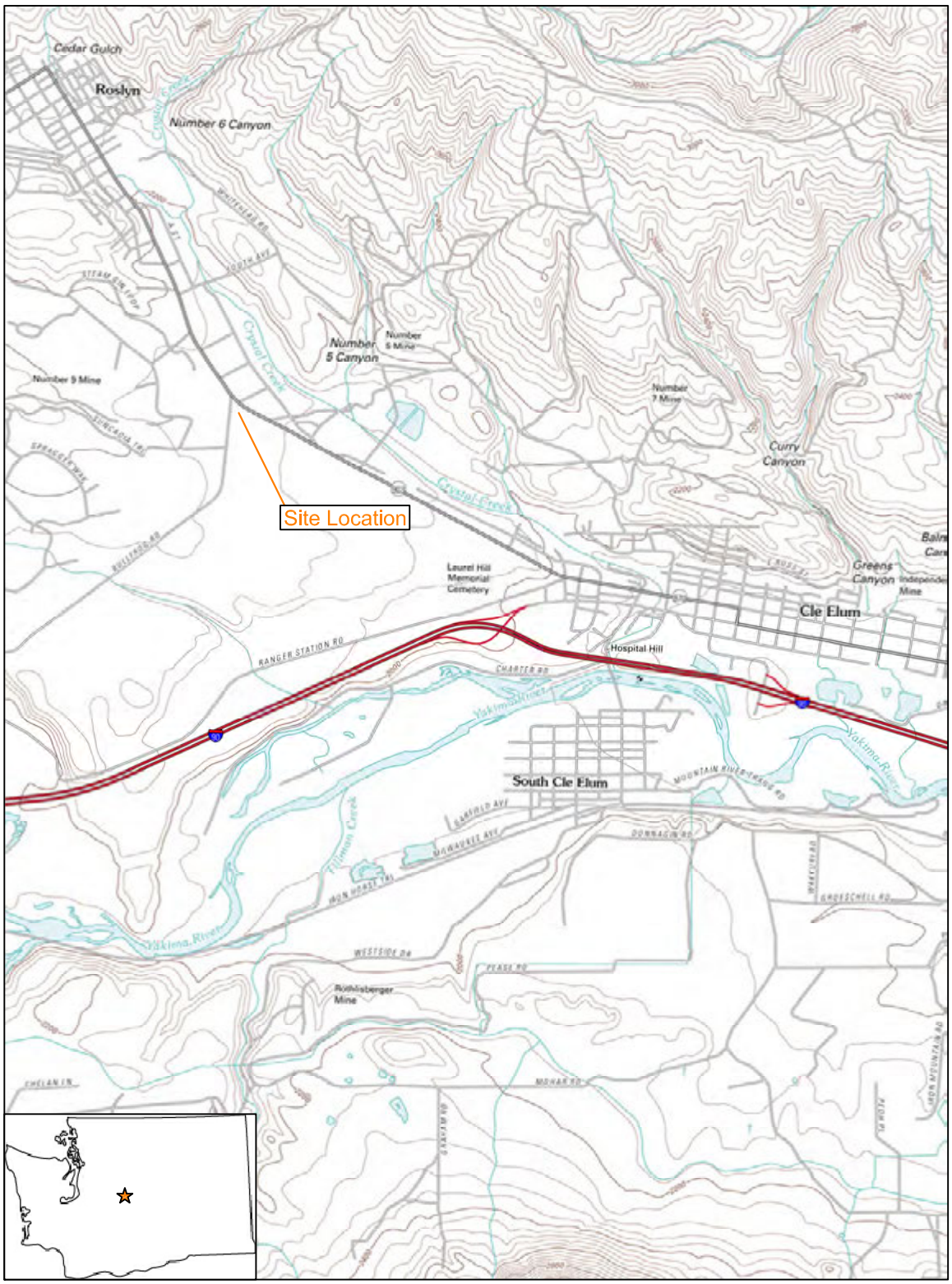
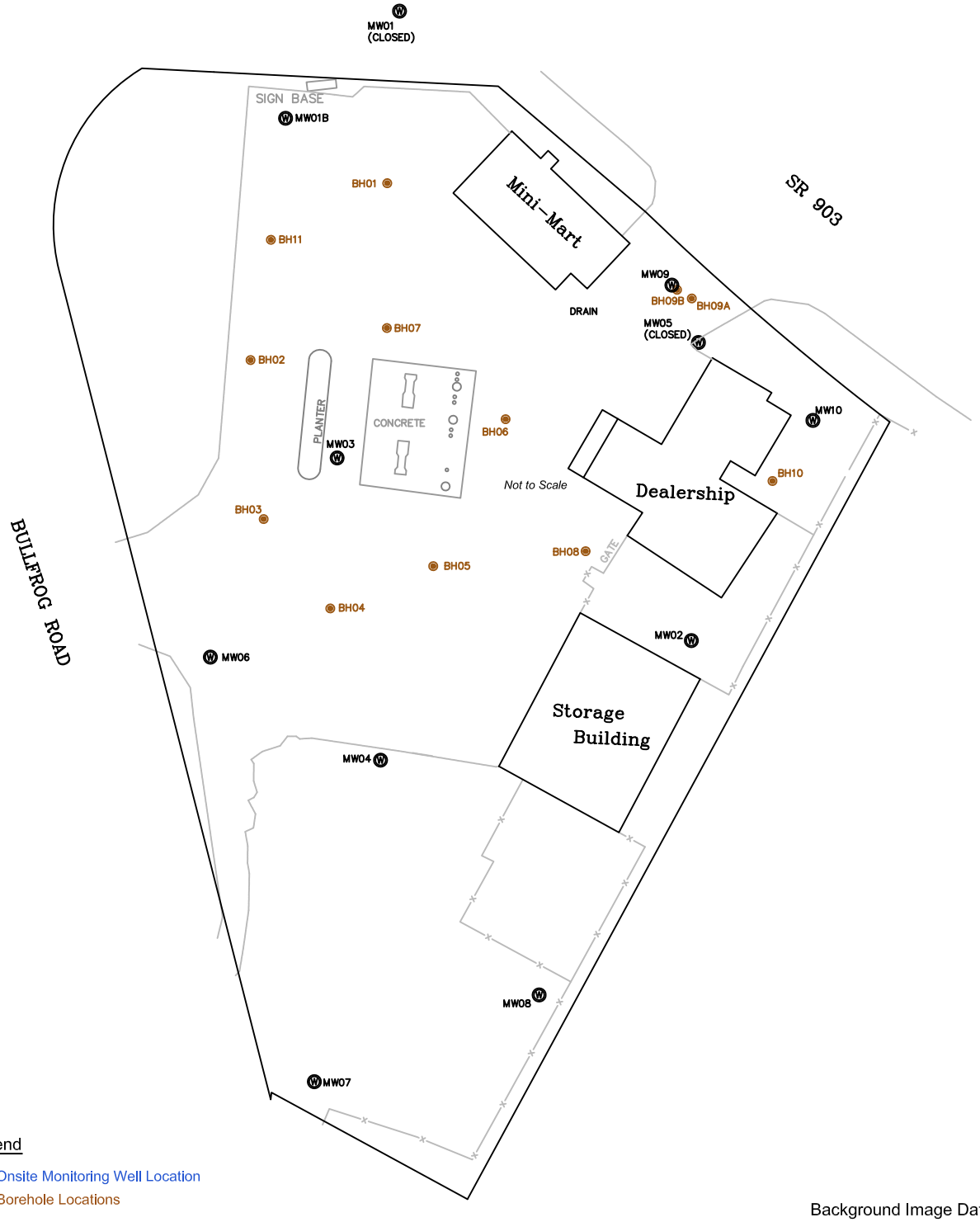


Fulcrum Environmental Consulting, Inc. 406 North Second Street, Yakima, Washington 98901 p: 509.574.0839 f: 509.575.8453 efulcrum.net Sportland Mini Mart Subsurface. 12698. SPB. 062812	Sportland Mini Mart 4400 Bullfrog Road Cle Elum, Washington	Site Location	FIGURE 1

FULCRUM environmental consulting



Legend

- Onsite Monitoring Well Location
- Borehole Locations

Background Image Data Produced by Cruse and Associates

Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
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Sportland Mini Mart Subsurface. 12698. JML. 070912

Sportland Mini Mart
4400 Bullfrog Road
Cle Elum, Washington

Site Layout

FIGURE
2

APPENDIX B

SAP/QAPP

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SAMPLING ANALYSIS PLAN/ QUALITY ASSURANCE PROJECT PLAN

Sportland Mini-Mart
4400 Bullfrog Road
Cle Elum, Washington

Project Number: 12698

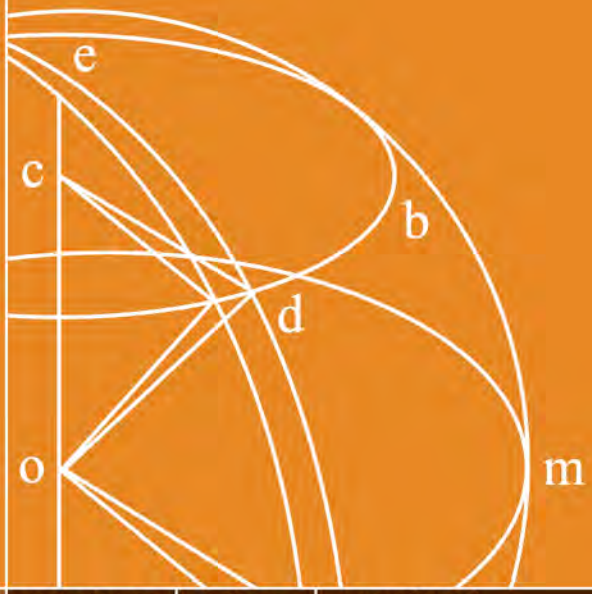
July 31, 2012

Prepared for:

YJ, LLC
Attn: Jack Wadkins
309 South Main Street
Ellensburg, Washington 98926

Prepared by:

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901



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1.0 BACKGROUND

The Sportland Mini Mart and Fueling Station (site) is located at 4400 Bullfrog Road in Cle Elum, Washington. See Figure 1 for general site location. Fulcrum Environmental Consulting, Inc. (Fulcrum) understands that previous investigations and limited remedial activities have been completed at the site following discovery of product release in 1998. The purpose of the proposed investigation activities is to provide current site characterization data, collected in conformance with Washington State Department of Ecology (Ecology) criteria, to facilitate subsequent remedial design and site closure.

This Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP), is intended to provide summary of planned investigation strategies; documentation of adequate investigation techniques; sample collection and handling protocol; and field and laboratory data quality assurance parameters in order to validate collected data and allow for subsequent interpretation of site conditions in conformance with regulatory standards.

1.1 Previously Completed Inspections

Fulcrum understands that in September 1998, onsite storage tanks were replaced as a portion of gasoline retail fueling system upgrades. During tank removal, a leak was observed beneath a fuel dispenser and gasoline impacted soils were identified. To date, sampling and site characterization has been completed during two separate time eras including initial work by GN Northern, Inc, in 1998 to 1999 and more recently by Valley Laboratories, Inc. (Valley Laboratories) in 2012. Initial investigation activities are documented in the following reports:

- GN Northern, Inc., *Underground Storage Tank Site Assessment – Sportland Mini Mart, Texaco Service Station, 4400 Bullfrog Road, Cle Elum, Washington*, dated October 22, 1998.
- GN Northern, Inc., *Report of Soil/Groundwater Characterization Assessment – Sportland Mini Mart, Texaco Service Station, 4400 Bullfrog Road, Cle Elum, Washington,* dated November 9, 1998.
- GN Northern, Inc., *Letter Report of Free Product Recovery – Sportland Mini Mart, Texaco Service Station, Cle Elum, Washington (Site#002200),* dated December 28, 1998.
- GN Northern, Inc., *Quarterly Groundwater Monitoring – Sportland Mini Mart, Cle Elum, Washington,* dated September 8, 1999.

Fulcrum completed limited review of documentation associated with recent sampling completed by Valley Environmental Laboratory, Inc. While the analytical results did not identify any hydrocarbon concentrations above regulatory cleanup values the laboratory data and associated documentation was not completed to necessary method reporting limits, is insufficient to meet current regulatory standards, and is not adequate for incorporation into evaluation of current site conditions.

Initial review of the documentation suggests that the UST Site Assessment activities were completed largely in conformance with industry standards and Ecology guidance criteria applicable to the era of work and are sufficient in their purpose of documenting the absence or

presence of a release from the UST system. Additionally, five groundwater monitoring wells were installed and remain onsite associated with the previously completed investigation activities. The groundwater monitoring wells appear to have been installed in conformance with regulatory criteria; however, at least one well has been installed to a depth insufficient to capture seasonal groundwater fluctuations. Additionally, investigation activities completed for the site have not been completed under a site-specific SAP/QAPP. While the previously completed investigation activities have value in meeting the goal of site closure, in order to meet Ecology review criteria for remedial design and site closure, investigation activities are required to be completed under a site-specific SAP/QAPP.

Additionally, while the previously collected investigation data may be utilized as a portion of site background review, sufficient time has elapsed since completion of the investigation activities to warrant re-evaluation and investigation of site conditions as petroleum contaminants could migrate or biodegrade over time.

2.0 PROJECT DESCRIPTION

The primary goal of this project is to provide characterization for the presence and extents of impact associated with petroleum hydrocarbon and gasoline additives to site soils and groundwater; and to determine the absence or presence of free in soils or product on the surface of site groundwater. Contaminants of concern include total petroleum hydrocarbons, volatile organic compounds, and heavy metals. This data will enable Fulcrum to establishing the extent of contaminant impact to facilitate future assessment of remedial strategies and associated remediation costs.

Tasks to meet this objective are:

- Complete a subsurface soil sampling event to characterize the current site conditions associated with the former product release.
- Complete project reporting inclusive of data evaluation and interpretation of extents of residual soil impact.
- Complete initial, and as necessary, subsequent quarterly groundwater monitoring events for contaminants identified in site soils and previously completed investigation activities.
- Prepare in-progress reporting and a final site characterization report for the project. The final site characterization report will include:
  - Maps of the study area showing sample collection locations, water levels in monitoring wells, groundwater flow direction, and contaminant concentrations and distribution.
  - Discussion of soil and water quality results.
  - Comparison of results to the cleanup standards for the contaminants of concern, to use in evaluating the potential remedial options.
  - Significant or potentially significant findings.

All proposed investigation activities will be designed to meet the criteria set forth in the Washington Administrative Code (WAC) 173-340 for independent remedial investigation to

facilitate remedial action planning, design, and implementation. All investigation activities will be completed under a site-specific Health and Safety Plan (HSP).

3.0 ORGANIZATION & SCHEDULE

3.1 Organization

This project is a coordination of the efforts of the site owner Mr. Jack Wadkins, Ecology, and Fulcrum. Fulcrum will complete the site investigation activity to assist with site characterization. Table 1 lists the people involved in this project, their respective organization, and their role.

Table 1: Organization of Project Staff and Responsibilities

Person/Agency or Firm	Role/Responsibility
Mr. Jack Wadkins Site Owner 509.925.9330	Mr. Wadkins represents the site owner and individual completing site investigation activities through retention of subcontractors and consultants. Mr. Wadkins will be presented the results of this investigation and recommendations for remedial strategy to facilitate site closure.
Valerie Bound, Toxics Cleanup Program - Section Manager, vdre461@ecy.wa.gov, Central Region, Washington State Department of Ecology 509.454.7886	Provides local regulatory review of agreements related to proposed site development, remedial investigation findings, and voluntary cleanup program (VCP) review and approval.
Norm Peck, Site Manager, Central Region, Washington State Department of Ecology nope461@ecy.wa.gov, 509.454.7840	Provides local regulatory review of QAPP, SAP, and other project documents. Provides technical assistance for project objectives, investigation purpose, and selected route of investigation.
Jeremy M. Lynn, PG, Geologist Fulcrum Environmental Consulting, Inc. jlynn@efulcrum.net, 509.574.0839	Reviews the project scope, budget, and tracks progress. Responsible for completion of SAP/QAPP, investigation, including field sampling. Conducts review of data, analyzes and interprets data. Writes the draft report and final report.
Kendra Williams, GIT, Senior Environmental Technician Fulcrum Environmental Consulting, Inc. KWilliams@efulcrum.net 509.574.0839	Assists with the site investigation and completes groundwater monitoring under the direction of Fulcrum's Environmental Geologist.
Ryan Mathews, CIH, CHMM, Principal Fulcrum Environmental Consulting, Inc. rmathews@efulcrum.net, 509.574.0839	Provides principal review of project reports, documentation, and communications.
Travis L. Trent, CIH, PG, LHG, Principal Fulcrum Environmental Consulting, Inc. TTrent@efulcrum.net, 509.459.9220	Provides supervision of onsite investigation activities and review of project geologic and hydrogeologic evaluation and documentation. All project documentation will be stamped by a Washington State Licensed Hydrogeologist.

Person/Agency or Firm	Role/Responsibility
Mike Ridgeway, Project Manager Fremont Analytical, Inc. mridgeway@fremontanalytical.com, 206.352.3790	Project Laboratory: Responsible for completion of work tasks, including laboratory analysis, sample container provision, laboratory QA/QC, and review of project laboratory analysis.
Chris Cruse, P.L.S. Cruse & Associates, Inc. cruseandassoc@kvalley.com, 509.962.8242	Provides survey services for the investigation. Tasks specific to the site investigation include, survey and map preparation of sample locations and groundwater monitoring well locations; assisting with dimensioning of contaminant extent; and elevation survey for use in groundwater flow determination.
Jerry Goodrich, Owner Utilities Plus, LLC utilitiesplus07@yahoo.com 509.945.9840	Provides private locate services of the property, including review of proposed excavation locations and groundwater monitoring well location and identification of private site utilities to be addressed by project and site planning tasks.

3.2 Schedule

Fulcrum anticipates completing proposed investigation activities as follows:

Table 2: Projected Schedule of Events

Projected Completion Date	Tasks
July 9, 2012	Complete and submit a draft of the SAP/QAPP and HSP for soil investigation and initial groundwater sampling to Ecology for Review.
July 13, 2012	Completion of SAP/QAPP and HSP review by Ecology and comments provided to Fulcrum for incorporation.
July 23 to 27, 2012	Complete public and private underground utility locate services and land survey of current site features and topography.
July 30, 2012	Submit final SAP/QAPP to Ecology and install groundwater data loggers in current onsite monitoring wells.
August 6 through 10, 2012	Complete onsite soil investigation activities and one additional groundwater sampling event. If free product is identified during onsite activities within site soils or groundwater, Fulcrum will notify Ecology immediately.
August 20, 2012	Receipt of soil and groundwater sample analysis. Submit action plan to Ecology for review associated with free product removal if identified during onsite activities.
August 25, 2012	Submit draft report documenting results of initial investigation data and plan for installation of additional permanent groundwater monitoring wells based on results of the investigation activities.
September 5, 2012	Implement free product recovery system at the site as soon as feasible following identification of free product. However, a permanent free product recovery system is anticipated to be implemented no later than September 5, 2012 if required. Install additional permanent groundwater monitoring wells.

The proposed time-line is dependent upon subcontractor availability and currently scheduled onsite activities. Approximately 1 week following completion of the soil investigation, and upon receipt and review of laboratory analysis, a draft report of the investigation findings will be issued by Fulcrum. The proposed time-line is additionally based on an anticipated 10-business day turn-around-time for receipt of sample analytical results following completion of onsite activities.

Additional groundwater monitoring events will occur at approximately quarterly intervals as required through the end of the project, but for at least eight consecutive quarters after initial site evaluation.

4.0 QUALITY OBJECTIVES

The primary goal of this project is to define accurately the magnitude and extents of impact of petroleum hydrocarbons and associated additives in site soils and groundwater, and to determine the absence or presence of free product on the surface of site groundwater, to facilitate remedial design and implementation. To do this, samples collected must be representative of site soil and groundwater conditions. Variations in the level of site soil impact and variations in groundwater chemistry can occur due to natural environmental heterogeneity or may be caused by the sampling and analytical procedures, or sample collection and handling methods.

For this project to succeed, the precision (random error) and bias (systematic error) of the sample results must be low to reveal variability in concentrations between samples. Standard procedures will be used when collecting and handling soil and groundwater samples to minimize any bias caused by the sampling process as described in Sections 7.0 and 8.0.

The precision and bias routinely obtained by the project laboratory for the selected analytical methods will meet the measurements quality objectives (MQOs) for this project. Table 2 lists the MQOs for assessing project data quality. Recovery limits (RL) and method reporting limit (MRL) are a function of the analytical methodology, laboratory equipment, and concentration of other analytes in the sample. For instance, a sample with an appropriate methodology, sensitive laboratory equipment, and very low or non-detect concentrations of analytes will typically achieve an exceptionally low MRL, often more than an order of magnitude below the Washington State Model Toxic Control Act (MTCA) cleanup regulations as the selected regulatory cleanup values as presented in Section 5.3. However, the same sample with a mixture of similar analytes may result in interferences among like analytes or sample dilution may result in significantly higher MRLs. As such, MRLs on samples collected during an investigation are likely to vary in RL and MRL. These MQOs are based on adequacy and completeness of field sampling and performance characteristics of measurements done by the project laboratory. Analytical and field quality control samples are discussed in Section 9 *Quality Control Procedures*.

Table 3: Laboratory Analyte MQOs for Soil Analysis

Parameter	LCS% Recovery Limits	Laboratory Replicates (RPD)	Matrix Spikes% Recoveries	Matrix Spikes Duplicates (RPD)	Project Laboratory Reporting Limit
Gasoline by NWTPH-Gx	65-135%	30%	-	-	5.0 mg/Kg
Diesel and Heavy Oil by NWTPH-Dx Ext					
Diesel Range Organics	65-135%	30%	-	-	20 mg/Kg
Heavy Oil Range Organics	-	30%	-	-	50 mg/Kg
Volatile Organic Compounds by Environmental Protection Agency (EPA) Method 8260					
Benzene	76.7-120%	30%	63.5-133%	30%	0.02 mg/Kg
Toluene	77.5-120%	30%	67.8-129%	30%	0.02 mg/Kg
Ethylbenzene	70-130%	30%	54.5-134%	30%	0.03 mg/Kg
m,p-Xylene	70-130%	30%	53.1-132%	30%	0.02 mg/Kg
o-Xylene	70-130%	30%	53.3-139%	30%	0.02 mg/Kg
Methyl tert-Butyl Ether (MTBE)	70-130%	30%	54.4-132%	30%	0.05 mg/Kg
Ethylene Dibromide (EDB)	70-130%	30%	50.4-136%	30%	0.005 mg/Kg
1,2 Dichloroethane (EDC)	69.4-131%	30%	51.3-139%	30%	0.03 mg/Kg
Nonhalogenated Organics by EPA Method 8015					
Ethanol	65-135%	30%	65-135%	30%	1.0 mg/Kg
Metals by EPA Method 6020/200.8					
Lead (Pb)	71.8-128.7%	30%	75-125%	30%	0.20 mg/Kg

LCS Laboratory Control Standard
RPD Relative Percent Difference
1 Unless otherwise specified, the provide Reporting Limit applies to all other analytes

Table 3: Laboratory Analyte MQOs for Groundwater Analysis

Parameter	LCS% Recovery Limits	Laboratory Replicates (RPD)	Matrix Spikes% Recoveries	Matrix Spikes Duplicates (RPD)	Project Laboratory Reporting Limit
Gasoline by NWTPH-Gx	65-135%	30%	-	-	50 µg/L
Diesel and Heavy Oil by NWTPH-Dx Ext					
Diesel Range Organics	65-135%	30%	-	-	50 µg/L
Heavy Oil Range Organics	-	30%	-	-	100 µg/L
Volatile Organic Compounds by Environmental Protection Agency (EPA) Method 8260					
Benzene	75.2-124%	30%	68.7-132%	30%	1.0 µg/L
Toluene	75.2-129%	30%	68.4-133%	30%	1.0 µg/L
Ethylbenzene	78-127%	30%	67.3-135%	30%	1.0 µg/L
m,p-Xylene	77.5-130%	30%	63.3-135%	30%	1.0 µg/L
o-Xylene	77.6-126%	30%	67.8-131%	30%	1.0 µg/L
Methyl tert-Butyl Ether (MTBE)	75.4-123%	30%	70-130%	30%	1.0 µg/L
Ethylene Dibromide (EDB)	71.2-129%	30%	68.9-124%	30%	0.01 µg/L
1,2 Dichloroethane (EDC)	65.8-126%	30%	62.3-130%	30%	1.0 µg/L
n-Hexane[2]	41.6-159%	30%	70-130%	30%	1.0 µg/L
Nonhalogenated Organics by EPA Method 8015					
Ethanol	65-135%	30%	65-135%	30%	1.0 µg/L
Metals by EPA Method 6020					
Lead (Pb)	80-120%	30%	75-125%	30%	1.0 µg/L
Manganese[2]	80-120%	30%	75-125%	30%	2.0 µg/L
Metals by EPA Method 200.8					
Lead (Pb)	85-115%	30%	70-130%	30%	1.0 µg/L
Manganese[2]	85-115%	30%	70-130%	30%	2.0 µg/L
Inorganic Anions by EPA Method 300.0					
Nitrate[2]	90-110%	20%	80-120%	20%	0.1 mg/L
Sulfate[2]	90-110%	20%	80-120%	20%	0.3 mg/L
Method RSK-175					
Methane[2]	80-120%	30%	-	-	0.005 mg/L
Method SM 2320B					
Alkalinity[2]	80-120%	20%	80-120%	20%	5.0 mg/L

LCS Laboratory Control Standard
RPD Relative Percent Difference
1 Unless otherwise specified, the provide Reporting Limit applies to all other analytes
2 Groundwater analysis only

Should additional analysis beyond those specified in Table 3 be required, all additional analysis will be completed within applicable MQOs as appropriate for the selected methodologies to meet both analysis method and regulatory requirements.

5.0 SAMPLING PROCESS DESIGN (Experimental Design)

Site investigation will consist of an initial phase of site soil sampling, concurrent sampling of onsite groundwater monitoring wells, and subsequent quarterly monitoring of site groundwater.

The intent of the proposed experimental design is to provide sufficient site data to evaluate the current scale and magnitude of impact associated with the documented 1998 release sufficient to define the extent of contamination and to facilitate remedial design and implementation.

5.1 Known Potential Environmental Concerns

Fulcrum's initial site activities have consisted of a review of existing site investigation reports, current site operations and layout, and site geologic and hydrogeologic conditions. Previous site investigation reports include those presented in Section 1.1. Records are available in Ecology's site file.

Initial assessment of site conditions has identified the following potential contamination concerns associated with documented impact to site soils and groundwater:

- Residual impacted soil present within the fueling pump island and current underground storage tank portions of the site
- Residual impact to site groundwater
- Free product present on site groundwater
- Offsite migration of contaminants of concern

The selected sampling activities have been designed to address each of the identified likely areas of residual impact. However, migration of contaminants may have extended beyond the identified areas and property boundaries. As such, investigation activities will be modified as necessary to define the extents of impact. In accordance with the MTCA criteria, investigation activities will not be limited by legal property boundaries where landowner authorization for investigation is received, and investigation activities will be completed to define the extents of impact.

5.2 Investigation Strategy

The selected investigation strategy is designed to provide sampling and analysis for the following:

- Worst case contamination in site soils and groundwater
- Delineate the extents of existing soil and groundwater contamination.

Based on historic site use, all samples will be analyzed for the following constituents as set forth in WAC 173-340-900, Table 830-1, and to meet project specific requirements:

- Diesel and heavy oil range organics
- Gasoline range organics

- Gasoline Additives: Benzene, Toluene, Ethylbenzene, total Xylenes, tert-Butyl Methyl Ether (MTBE), 1,2-Dibromoethane (EDB), 1,2-Dichloroethane (EDC), and Ethanol
- Total Lead

See Section 6.4 for selected analytical methodologies. Additional analysis specifically associated evaluation of natural attenuation potential for site groundwater will additionally be completed. However, as a portion of site characterization the additional analysis is not a portion of regulatory compliance and is intended to be utilized as a portion of site remedial strategy evaluation.

5.2.1 Borehole Investigation Activities

Fulcrum proposes to complete up to 15 boreholes within the property boundaries. Boreholes will be excavated utilizing hollow-stem auger, air-rotary, or sonic drilling methods. Boreholes will be completed, at minimum, to the depth of site groundwater at the time of investigation. Boreholes will be collected in the following locations to delineate extents of soil impact and to evaluate the presence of free product on site groundwater:

- Four boreholes surrounding the current underground storage tanks, with one location between the former fueling island area and current underground storage tanks representing the likely source area and potential worst case contamination data point.
- Four boreholes located south and west of the current fueling tanks and pumping island.
- Two boreholes located north and east of the known area of impact and near the property boundaries.
- Five boreholes located on, or immediately offsite, and adjacent to the property boundary.

See Figure 2 for proposed borehole locations. All locations will be adjusted within the field as necessary based on access, underground utilities, fueling system components, or other site features. Additionally, borehole locations may be altered based on results of an initial site land survey and evaluation of groundwater elevation data and groundwater flow direction.

Based on results of the initial proposed activities, additional areas of investigation may be required beyond the property boundaries in order to define the extents of impact. If required, additional boreholes and/or monitoring wells will be completed offsite as necessary if authorized by appropriate land owners and in conformance with the guidance criteria presented in this SAP/QAPP.

5.2.2 Additional Groundwater Monitoring Wells

Five permanent monitoring wells are located at the site providing data points to evaluate the absence or presence of free product on groundwater and to collect groundwater samples for analysis. However, Fulcrum proposes to complete up to five of the boreholes, located on or immediately adjacent to the property boundary as permanent monitoring wells to allow for additional sampling of site groundwater. The purpose of the additional groundwater sampling is to provide additional delineation of contaminant plume extents. Monitoring well locations will be selected based on known extents of impact to evaluate potential offsite migration of contaminants.

Documentation and limited preliminary onsite activities completed by Fulcrum have identified select current onsite well(s) that are non-producing likely due to seasonal fluctuation of groundwater elevation beyond the constructed screened casing interval. Results of the initial groundwater sampling activities will be evaluated by Fulcrum to determine the effectiveness of the current producing onsite wells for delineation of groundwater plume characteristics. Non-producing monitoring well(s) will be decommissioned in accordance with Washington State regulatory standards and re-installed if determined to be appropriately located. The re-installed well(s) will be constructed with an appropriately screened interval to capture groundwater data during seasonal fluctuations. The re-installed wells will be constructed adjacent to the decommissioned well location if determined to be appropriate to delineate groundwater plume characteristics.

5.2.3 Evaluation of Free Product

The presence of free product will be primarily evaluated utilizing field indicators, including sheen, odor, and visual observation of phase layering. The presence of free product will be investigated during completion of boreholes, monitoring wells, sampling of current onsite monitoring wells, and evaluation of laboratory analysis results.

Should free product be identified during onsite activities, Fulcrum will collect samples, as feasible, of suspect product for laboratory analysis. If free product is confirmed to be present on site groundwater, Fulcrum will implement immediate free product recovery, as feasible, and draft a site specific plan for implementation of free product recovery via a permanent system within 30-days.

5.3 Pertinent Regulations and Approach

In March of 1989, the Model Toxics Control Act (MTCA) went into effect in Washington State. The MTCA regulations set standards to ensure quality of cleanup and protection of human health and the environment. A major portion of the MTCA regulation (completed in 1991) was the development of numerical cleanup standards and requirements for cleanup actions. Three options were established under MTCA for site-specific cleanup levels: Method A, B, and C. Method A defines cleanup levels for 25 of the most common hazardous substances found at sites. Method B levels are set using a site risk assessment, which enables consideration of site-specific characteristics. Method C is similar to Method B, however, the individual substance's cancer risk portion of the assessment is set at 1 in 100,000 rather than 1 in 1,000,000.

Ecology's MTCA Method A cleanup tables were developed to provide conservative cleanup levels for sites undergoing routine cleanup actions or those sites with relatively few hazardous substances. Method A cleanup levels are specifically designated as appropriate for residential facilities and are appropriate for a conservative approach at school, public, and commercial sites. Therefore, Fulcrum has determined that Ecology's MTCA Method A cleanup levels to be the most appropriate regulatory guidance for evaluating the need for site cleanup at the site. However, use of Method A levels does not limit the use of site specific Method B levels in future remediation design or implementation. Where MTCA Method A cleanup levels are not provided, Fulcrum will utilize Method B levels.

Based on the variety and number of constituents of concern identified to be present in site soils and/or groundwater, site specific calculated Method B levels may provide a more conservative cleanup level when compared to Method A levels and may be determined to be appropriate for evaluation of site conditions. Should evaluation under Method B cleanup levels be determined to be appropriate for the site based on initial laboratory results, additional analysis will be required to be completed for select samples.

6.0 SOIL SAMPLING PROCEDURES

Soil sampling procedures were selected based upon observed and anticipated field conditions. Sampling will be consistent with Environmental Protection Agency (EPA) protocols as set forth in the document titled, *Preparation of Soil Sampling Protocols: Sampling Techniques and Strategies*. Additionally, all soil samples for volatile analysis will be collected per Ecology's *Technical Memorandum #5: Collecting and Preserving Soil Samples for VOC Analysis*. Specific analytes will be selected based on Ecology's published document titled, *Guidance for Remediation of Petroleum Contaminated Sites, Publication 10-09-057*, revised October 2011.

Following is a summary of collection procedures anticipated for soil sampling, and a summary of sample preparation for sample analysis, and decontamination procedures.

6.1 Sampling Procedure for Soils

Soil samples will be obtained by direct collection from a drill rig operated split spoon. All samples will be collected by hand using new nitrile gloves. Samples will be transferred by hand using new nitrile gloves into pre-labeled sample jars. The number of sample containers at each location will be determined by sample location and analyses to be performed.

Each 40-milliliter vial sample utilized for NWTPH-Gx and EPA Method 8260 analysis will be collected using an impinger sampler to minimize loss of volatile organic compounds. Disposable, single-use impingers are utilized to collect a measured soil sample of undisturbed soil. Following each sample collection, the sample will be immediately placed into a new 40-milliliter vial. Consistent with Ecology guidance, sample preparation, including extraction by Methanol will be completed at the laboratory within 48-hours of sample collection.

Field collected samples will be divided into two portions. The first portion will be placed in a clean, appropriately sized sample jar or vial with a Teflon-lined or septum lid and immediately placed on ice for laboratory analysis. The second portion of the sample will be placed into a re-closeable plastic bag for field screening.

Field screening will include observation, sheen analysis, and/or headspace sampling. Observation refers to visual/olfactory observation of the sample for obvious indications of contamination. Sheen analysis involves dropping a small volume of sample into a container of clean water and observing any resulting sheen produced on the water surface. Headspace sampling is a measurement of the relative concentration of volatile organic carbons (VOCs) in the soil sample headspace. For headspace sampling, the sample will remain in the sealed plastic

bag for a minimum of 30 minutes in a warm area to promote volatilization. The probe of a photo-ionization detector (PID) will then be inserted into the bag and the highest response will be recorded for each sample. The intent of the field screening for VOCs is limited to identification of the presence of elevated concentrations only in order to assist with efficient selection of soil samples for laboratory analysis and is not intended to be utilized to document VOC concentrations, absence of impact, or correlation of field screening data with laboratory analysis results.

Record of physical description of the soil including grain proportions, color, odor, location, condition, etc. will be completed in the field.

6.2 Sample Preparation for Various Analytical Methods

The following general procedures will be used during sample collection and preparation. Wear new disposable protective gloves during sampling activities. Preserve samples and adhere to holding times as described in Tables 4 and 5 as required by the analytical method being requested. Check the sample lid to ensure cleanliness and that it is secured. Carefully label the sample container with the appropriate information. Use only waterproof ink to complete sample container labels. After label information has been completed, secure labels to the sample container by wrapping clear tape over the label and around the container. Transfer samples to a cooler. Preserve samples in the field on ice at 4° C pending preparation for field analysis or shipping to the analytical laboratory.

At a minimum, the following information will be recorded in the field logbook:

1. Sample location designation
2. Sampling location condition and pertinent observations of surrounding area
3. Weather conditions
4. Manufacturer, model number and calibration results of meters/instruments used to measure field parameters
5. Soil color, grain size, and visual and olfactory indications of contamination
6. Soil sample interval/depth
7. Time of sample collection
8. Initials of samplers
9. Laboratory analysis to be performed
10. Any miscellaneous comments or observations

The following field information will additionally be included on the chain-of-custody forms:

1. Sample identification
2. Time of sample collection
3. Initials of samplers
4. Laboratory analysis to be performed
5. Any miscellaneous comments or observations

6.3 Decontamination

Every effort will be made to minimize the need for decontamination of sampling equipment through use dedicated sampling equipment (i.e., bowls, spoons, etc.); however, the use of non-dedicated sampling equipment (i.e., hand trowels, hand auger, split spoons, etc.) may be required in some locations. In these cases, the non-dedicated sampling equipment will be decontaminated prior to each use. Field equipment, that directly contacts samples or sample containers, will be decontaminated prior to use and between each sampling event. The following procedures will be used to prevent cross contamination of samples collected during this project.

Gross contamination will be removed by dry brushing or wiping the equipment with disposable toweling. Field equipment will then be washed in a solution of Alconox™, Liquinox™, or comparable non-hazardous laboratory detergent product, and deionized water. Washed equipment will be double rinsed with deionized water. Rinsate will be discharged to the sample collection location. Field equipment will then be placed on clean aluminum foil or similar material.

All sample containers will be pre-cleaned as required by EPA guidance titled, *Test Methods for Evaluating Solid Waste* (SW-846); Standard Methods for the Examination of Water and Wastewater; and laboratory QA/QC protocol by the container manufacturer or selected analytical laboratory prior to shipping for sample collection. Sample containers will not be used for sample collection and storage without being certified clean by the manufacturer or analytical laboratory.

After the sample is collected and the container lids are tightly sealed the exterior portion of the sample container will be cleaned. Care will be taken to ensure that sample labels remain legible during the exterior container cleaning.

Disposable latex or similar gloves will be used while collecting samples. New disposable gloves will be used for each sample location.

All drill rig tooling including, but not limited to, steel casings, drill rod, and auger flights will be decontaminated via a portable or temporary decontamination station and will utilize steam cleaning and/or a high pressure wash system in accordance with industry standard of care to remove potential contaminants from drill rig tooling.

6.4 Soil Sample Containers, Preservation, and Holding Time Requirements

Required sample containers, preservation methods, and holding times for the analytical parameters selected are summarized in Table 3. Analytical precision and accuracy are defined by the analytical test methodology and the project laboratory's QA/QC program. All analytical method accuracy, precision, and detection limits are within laboratory certification requirements and below the associated selected contaminant concentration cleanup values as established under MTCA Method A.

Table 4 presents the sample types, location, analytical parameters and methods, sample preservation, and specific requirements for sample container size and type for samples collected.

Table 5 summarizes number of QA/QC samples to be submitted according to method requirements.

Table 4: Soil Sample Type, Analytical Parameters, Preservation and Holding Times

Analytical Parameter and Method	Sample Preservation	Sample Containers, Other Comments	Maximum Holding Time
Diesel and Heavy Oil Range Organics by NWTPH-Dx Ext.	Cool to 4° C	4 oz glass jar with Teflon lined lid	Extract within 14-days, Analyze within 40-days of extraction
Gasoline and additives by NWTPH-Gx and EPA Method 8260	Cool to 4° C	Two, 40 millimeter glass with septum lid	Preserve with 48-hours, Analyze within 14-days
Total Metals by EPA Method 6020 (except Mercury)	Cool to 4° C	4 oz glass jar with Teflon lined lid	Analyze within 180 days
Ethanol by EPA Method 8015	Cool to 4° C	4 oz glass jar with Teflon lined lid	Extract within 14-days, Analyze within 40-days of extraction

Table 5: QA/QC Requirements for Soil Analysis

Analytical Parameter and Method	Total Field Samples[a] /Containers	QA/QC Sample Summary Analyses/Containers			
		Organic MS/MSD	Inorganic MS/MSD	Rinsate Blanks[b]	Trip Blanks
Diesel and Heavy Oil Range Organics by NWTPH-Dx Ext.	5 to 10 + d	2/2	NA	2	None
Gasoline and additives by NWTPH-Gx and EPA Method 8260	15 to 30 + d	2/2	NA	2	None
Total Metals by EPA Method 6020	15 to 30 + d	NA	2/2	2	None
Ethanol by EPA Method 8015	15 to 30 + d	2/2	NA	2	None

[a] Total number of field samples are estimated.
[b] Rinsate blanks only required for 1 in 20 samples per non-dedicated sampling device.
NA Not Applicable
d Duplicate Sample

One duplicate sample will be collected for each analytical methodology.

6.5 Investigation-Derived Wastes

Every effort will be made to minimize generation of investigation-derived wastes (IDW) that cannot be disposed of as solid waste. All extra soil volume collected for a sample will remain at the sampling location. Disposable personal protective equipment and sampling equipment will be torn or cut to avoid reuse, double bagged in plastic garbage bags, labeled, and disposed of at an approved solid waste facility.

Drill cuttings and decontamination water will be collected in separate steel drums and stored onsite pending waste characterization in accordance with Ecology's Dangerous Waste regulations as presented in WAC 173-303. Based on results of the waste characterization, disposal of IDW will be completed in accordance with appropriate regulatory criteria.

6.6 Sample Handling and Custody Requirements

The project laboratory will provide sample containers for sample collection, and chain-of-custody forms. Each sample will be placed in the appropriate documented clean, laboratory provided container and sealed. Disposable nitrile gloves will be worn during the sampling process. Gloves will be changed between sample areas or if the gloves have been damaged in any manner. Sample documentation will be completed immediately following sample collection. The chain-of-custody forms will be filled out in ink and placed in a resealable plastic bag to avoid damage. Duplicates will be maintained in Fulcrum's files. The original will be sent to the analytical laboratory. The forms will include the date, site designation, sample designation, analysis required, turnaround, preservation, and authorized signatures.

Each sample will have a unique identification number. The specific designation for sample codes is presented in Table 6 and is based on the date, sample location identification, sample matrix, and consecutive sample number. At a minimum, label information will include:

1. Initials of the collector
2. Date and time of collection
3. Location
4. Sample number

A chain-of-custody record will be filled out and accompany each sample to document sample possession from collection through analytical reporting. A copy of this record will be maintained with analytical results and be included in subsequent data reporting.

Table 6: Sample Coding

Sample Type	Consecutive Sample Number (assigned sequentially)	Sample Interval (depth in feet below ground surface)	Example
Date	1-15	0.5, .01, .02, etc. bgs	111111-02.01

Samples destined for analysis by an offsite laboratory will be cold transported in a cooler. Packaging and shipping of samples for analyses and storage will be per the following protocol:

1. About 2 inches of cushioning material will be placed in the bottom of the cooler.
2. Sample containers will be placed in the cooler in a manner to prevent breakage.
3. Glass jars will be placed in resealable plastic bags and centered in the cooler to prevent breakage.
4. Samples will be packaged with ice enclosed in resealable plastic bags or freeze packs ("blue ice").
5. QA/QC samples will be packaged with the samples that were collected that day.
6. Free space in the cooler will be filled with cushioning material.
7. Chain-of-custody paper work will be placed in plastic bags and placed inside the cooler.
8. Cooler will be wrapped with strapping tape and signed custody seal(s) will be used to secure the cooler lid.
9. Samples will be shipped by commercial carrier for next day delivery. However, samples will not be shipped on Fridays or immediately preceding a holiday, due to next day delivery limitations.

10. Use of separate coolers to protect more delicate sample containers, such as 40 milliliter vials, is encouraged.

When delivery for sample set is scheduled, the shipper will receive a copy of the shipping manifest/tracking number. This documentation will be placed in the project file.

Upon receipt of the shipping container, the laboratory will inspect the integrity of the shipping container seal. The cooler will be opened and the shipment checked against the chain-of-custody record. Any inconsistencies or problems with a sample shipment will be noted and resolved. Once at the laboratory, the samples will be tracked through the laboratory by internal custody procedures and the laboratory's QA/QC procedures will be followed.

6.7 Inspection/Acceptance Requirements for Supplies and Consumables

Upon receipt, all supplies and consumables will be inspected for damage, including the shipping carton, individual packages, and product integrity. Any product that is cracked, leaking, or otherwise damaged or whose individual package is torn or opened to the environment will be discarded or returned.

A certificate indicating the sample container lot and statement that they have been cleaned in accordance to applicable standards will accompany each carton of new sample containers. A statement of cleaning will also be provided for sample containers that have been pre-cleaned and pre-preserved by the laboratory.

All reasonable effort will be made to ensure all sampling supplies and consumables are acquired prior to initiating field activities.

Following is a minimum list of supplies and consumables that will be required to conduct soil sampling.

1. Field notebook
2. Disposable nitrile gloves
3. Sampling equipment for soils (Hydraulic-push sampler, hand coring sampler, plastic spoons and bowls, stainless steel shovel, color chart for soil and water)
4. Camera
5. Sample containers – 4 ounce borosilicate with Teflon lined lids and 40 milliliter glass vials with septum lids
6. Sample labels
7. Ice or "Blue Ice" reusable packages
8. Chain-of-custody forms
9. Decontamination equipment (buckets, spray bottles, brushes, soap, etc.)
10. Deionized water
11. Insulated shipping containers (coolers or ice chests)

7.0 GROUNDWATER SAMPLING PROCEDURES

Groundwater sampling will be completed as two separate phases during onsite investigation activities, including:

- Sampling of groundwater from five previously installed monitoring wells.
- Sampling of groundwater from up to five proposed additional monitoring wells.

Sampling of onsite groundwater monitoring wells will continue as necessary beyond the duration of site characterization activities established under this SAP/QAPP. The extent of quarterly groundwater sampling activities will be determined by the results of the investigation activities; however, a minimum of eight consecutive quarterly events will be completed subsequent to the two proposed initial groundwater sampling events.

Evaluation of constituent impact to site groundwater will be completed as a portion of the initial investigation activities. Should the absence select constituents of concern be confirmed within the initial groundwater investigation sampling events, then the select constituents may be evaluated for potential exclusion from future analysis.

7.1 Groundwater Sampling from Investigation Boreholes

Following completion of boreholes within selected areas, groundwater wells will be constructed. The groundwater wells will be installed to a maximum depth of approximately 10-feet below groundwater elevations to sample the upper portions of groundwater and allow for seasonal fluctuations. The groundwater monitoring wells will be sampled consistent with criteria presented in the following subsections.

The primary objective for completing the monitoring wells is to provide additional site data associated with the absence or presence of free product on site groundwater and secondarily to provide additional data associated with petroleum impact to site groundwater.

7.2 Sampling of Previously Constructed Monitoring Wells

Fulcrum will complete up to two groundwater monitoring events at approximately quarterly intervals from previously constructed onsite monitoring wells. A total of five monitoring wells are located on the site; however, documentation suggests that excessive seasonal fluctuations in groundwater elevation exceed the lowest elevations of one or more of the onsite wells. As such, sampling may only be completed from producing wells at the time of sampling activities.

Additional permanent onsite or offsite groundwater monitoring wells be required to be constructed to meet project objectives, wells will be constructed of 2-inch polyvinyl chloride piping. The intent is that the well screened interval depth will be sufficient to capture seasonal fluctuations, while providing as narrow of a range as possible to isolate the upper most portion of site groundwater.

Samples collected from the monitoring wells are intended to be representative of the groundwater quality at the site.

Monitoring wells will be sampled in order from the likely lowest concentration of environmental contaminants to the highest concentrations. Following the initial groundwater sampling event, this approach will be refined based on the initial analytical results.

The wells will be purged and sampled with a peristaltic pump, using dedicated tubing, at a pump rate of less than or equal to 1.0 liter per minute. The wells will be purged through a continuous flow cell or vessel where pH, temperature, specific conductance, reduction-oxidation potential, and dissolved oxygen will be monitored and recorded beginning at approximately 1/3 of calculated total purge volume. Purging will continue until field parameter readings stabilize as shown in Table 7.

Quarterly groundwater sampling is required beyond the initial proposed investigation activities. All subsequent groundwater sampling activities will be completed in accordance with this SAP/QAPP.

7.3 Groundwater Monitoring Well Purging procedure

Field activities will include the following process at each of the monitoring wells beginning with the upgradient well, or least contaminated, and transitioning to the downgradient wells, or most contaminated:

- Unlock well, remove compression plug, and allow groundwater to equilibrate for 15 minutes.
- Measure water level to the nearest 0.01-feet using water level probe. Measure depth of free product to the nearest 0.01-feet via a water-oil interface probe. Calculate purge volume based on water level reading, depth of well, and casing volume, to achieve a minimum purge of three casing volumes.
- Set up peristaltic or applicable pump and begin purge.
- Maintain flow rate less than or equal to 1.0 liter per minute during the purge event.
- Collect purge water via flow through cell or vessel for field parameters analysis at approximately 1/3, 2/3, and near total purge volume. Purging and measurement of field parameters will continue at intervals of approximately 1/3 of calculated total purge volume until readings stabilize as shown in Table 6.
- Collect four consecutive aliquots of purge water via flow through cell or vessel, representing site groundwater, to be tested for field parameters.
- Decrease purge rate to 0.5 liters per minute and set tubing intake within 2-feet of the top of the water column for collection of sample for laboratory analysis.
- Collect samples for laboratory analysis. 40 milliliter glass vials will be collected with zero headspace as required by the laboratory methodology.
- Secure the wells and demobilize from location.

7.4 Field Instrument Calibration and Frequency

Field instruments that will require calibration are total dissolved solids (TDS)/electrical conductivity (EC), pH, and temperature. The field instruments will be calibrated prior to each day's use in accordance with procedures and schedules recommended by the manufacturer. All calibration data will be recorded in the instrument log, and field notebook. Operation and

calibration procedures for each field instrument will be conducted prior to the start of sampling at each location.

Field instruments and equipment will be inspected and tested prior to, and at the conclusion of, each day's sampling to ensure proper function and integrity. Should any instrument be dropped or similarly impacted during the sampling day, the instrument will be immediately inspected to determine if any damage has occurred and shall be recalibrated.

Field technicians are responsible for employing properly functioning equipment. If an equipment malfunction is suspected, the technician is to stop work and verify that the equipment is functioning properly. If the equipment is found to be malfunctioning, the technician will make a determination as to whether or not it can be repaired in the field without affecting the integrity of the equipment. If the repair can be accomplished under these constraints, then the technician will do so (i.e. battery replacement). If the repair will affect the equipment integrity then the equipment will be tagged to identify the suspect problem and set aside until a qualified technician can repair the equipment or the equipment is replaced.

Equipment that fails calibration or becomes inoperable during use will be removed from service and either segregated to prevent inadvertent use or tagged to indicate it is out of calibration. Such equipment will be repaired and satisfactorily recalibrated prior to reuse. Equipment that cannot be repaired will be replaced.

Data collected with equipment that later fails recalibration will be evaluated. If the data appears to be affected, the results of the evaluation will be documented and the appropriate personnel notified.

7.5 Decontamination

Field equipment that directly contacts water samples or sample containers will be decontaminated prior to use and between each sampling event. The following procedures will be utilized to prevent cross contamination of samples collected during this project.

- Excess moisture will be removed from equipment.
- Field equipment will then be washed in a solution of Alconox™, Liquinox™, or comparable non-hazardous laboratory detergent product.
- Field equipment will then be rinsed with distilled/deionized water.
- Field equipment will then be placed on clean toweling or similar material and allowed to air dry.
- Prior to measurement collection, instruments will be rinsed with well discharge water.

Purge water will be collected in steel drums and stored onsite pending waste characterization in accordance Ecology's Dangerous Waste regulations as presented in WAC 173-303. Purge water will be managed in accordance with regulatory criteria as appropriate based on waste characterization results.

7.6 Groundwater Sample Collection

The following general procedures will be utilized during sample collection and preparations. Disposable nitrile gloves will be used while collecting samples. New disposable gloves will be used for each sample location. Sample container lids will be checked to ensure cleanliness and that it is secured. Containers will be carefully labeled with the appropriate information. Only waterproof ink will be used to complete sample container labeling. After labeling information has been completed, labels will be secured to the sample container by wrapping clear tape over the label and around the container. Samples will then be transferred to a cooler for preservation. Samples will be stored with ice and at temperatures between 0 to 10°C, with a target temperature of 4°C, as required by analytical method being requested. Additional pertinent information will be recorded on chain-of-custody forms. All pertinent field information will be recorded in the field logbook or field forms, including:

- Sample location designation, including general sampling location condition and pertinent observations of surrounding area.
- Weather conditions.
- Purge volume calculations or time required to reach measured parameter equilibrium.
- Manufacturer, model number and calibration results of meters/instruments used to measure field parameters.
- Purging or equilibrium start time, finish time, rate, and total or estimated volume.
- Field parameter measurements made for each required volume measurements.
- Time of sample collection.
- Initials of samplers.
- Laboratory analysis to be performed.
- Any miscellaneous comments or observations.

Samples will be collected when the parameters established in Table 7 are met:

Table 7: Well Purging Criteria

Purge Parameter	Stabilization Criteria
pH	± 0.1 standard unit
Temperature	± 0.1 ºC
Total Dissolved Solids	± 10 µS for values < 1000 µmhos/cm
	± 20 µS for values > 1000 µmhos/cm
Dissolved Oxygen	± 1.5 percent
Redox Potential	± 2.0 mV
Or	
All Parameters	< ± 10% change over 3 consecutive readings at 3 minute intervals

Samples will be collected from each well at the completion of purging. The sample will be collected directly from the pump's discharge tubing into appropriate sample containers. Required sample containers are presented in Table 8, located in Section 7.6.

Filled sample bottles will be labeled with a unique sample number, placed in resealable plastic bags and then stored in ice-filled coolers. Samples will be transported to Fulcrum's office for packaging and overnight shipment by a commercial carrier under chain-of-custody.

Unless modified by special site factors, the following methodology will be followed for collection of all groundwater samples submitted for analysis:

- Obtain the required number of labeled, pre-preserved and un-preserved containers as specified in Table 8 for the selected laboratory analysis. Verify that preservative, if necessary for analysis is present within the sample containers. Use additional containers to collect the specified duplicates.
- Fill out the labels for sample containers (required number of sample containers to be submitted for analysis) in waterproof ink. In addition to the sample collectors name and the sample number, noting the preservative(s) used, and the exact location, date and time of sample collection.
- When using preserved containers, hold the container at an angle, slowly fill it at a low-flow rate of 0.5 L/min to as close to the top as possible. As the sample fills, slowly tip the container upright so as to form a meniscus (the curved upper surface of the water formed by surface tension) at the top. Be careful not to wash out preservatives used.
- If a meniscus is not formed, or cannot be formed without overfilling the container and washing out the preservative, fill the container cap with sample water and slowly pour it into the container to form a meniscus.
- Screw on the cap and turn the container upside down and tap it with a finger. If any bubbles appear, uncap the container, add more water to the meniscus, recap, turn over and repeat until none appear.
- Shake the container for one minute, if a preservative was present in the container.
- Repeat steps above for QA/QC duplicates, blanks and split samples, if necessary.

Wrap glass containers in a bubble pack or other type of padded packing material to prevent breakage.

7.7 Groundwater Analytical Methods

The following analytical method and QA/QC will be completed for groundwater samples.

Table 8: Groundwater Sample Containers and Preservation

Analytical Parameter and Method	Filtered	Container	Preservative	Maximum Holding Time
Volatile Organic Compounds by EPA Method 8260	No	Three, 40 mL vials with Teflon lined septa caps	Preserve with 1:1 HCl, Cool to 4ºC	Analyze within 14 days
Gasoline and BTEX by NWTPH-Gx and EPA Method 8260	No	Three, 40 mL vials with Teflon lined septa caps	Preserve with 1:1 HCl, Cool to 4ºC	Analyze within 14 days
Diesel and Heavy Oil Range Organics by NWTPH-Dx Ext.	No	One, 1-liter amber glass jar with Teflon lined lid	Pre-acidified with 1:1 HCl or H_2SO_4 Cool to 4ºC	Extract within 14 days, Analyze within 40 days
Total Manganese and Lead by EPA Method 200.8	No	One, 500 mL polyethylene bottle	Pre-acidified with 1:1 HNO_3 Cool to 4ºC	Analyze within 180 days
Dissolved Manganese and Lead by EPA Method 6020/200.8	Yes[1]	One, 500 mL polyethylene bottle	Pre-acidified with 1:1 HNO_3 Cool to 4ºC	Analyze within 180 days

Analytical Parameter and Method	Filtered	Container	Preservative	Maximum Holding Time
Ethanol by EPA Method 8015	No	One, 40 mL vials with Teflon lined septa caps	Cool to 4ºC	Analyze within 14-days
Nitrate and Sulfate by EPA Method 300.0	No	One, 500 mL polyethylene bottle	Cool to 4ºC	Analyze within 48-hours
Methane by Method RSK-175	No	One, 40 mL vials with Teflon lined septa caps	Pre-acidified with 1:1 HCl Cool to 4ºC	Analyze within 14 days
Alkalinity by EPA Method 2320	No	One, 500 mL polyethylene bottle	Cool to 4ºC	Analyze within 28-days

1 All dissolved metals will be field filtered with a 0.45 µm pore filter.Where heavy turbidity is present, an unfiltered sample may be collected and the laboratory directed to filter sample.

Table 9: QA/QC Requirements for Groundwater Analysis – Per Event

Parameters/ Method	Total Field Samples[a] /Containers	QA/QC Sample Summary Analyses/Containers			
		Organic MS/MSD	Inorganic MS/MSD	Rinsate Blanks[b]	Trip Blanks
Volatile Organic Compounds by EPA 8260	5 to 10 + d	1/1	NA	NA	None
Gasoline and BTEX by NWTPH-Gx and EPA Method 8260	5 to 10 + d	1/1	NA	NA	None
Diesel and Heavy Oil Range Organics by NWTPH-DX Ext.	5 to 10 + d	1/1	NA	NA	None
Total Manganese and Lead by EPA Method 200.8	5 to 10 + d	NA	1/1	NA	None
Dissolved Manganese and Lead by EPA Method 200.8 [1]	5 to 10 + d	NA	1/1	NA	None
Ethanol by EPA Method 8015	5 to 10 + d	1/1	NA	NA	None
Nitrate and Sulfate by EPA Method 300.0	5 to 10 + d	NA	1/1	NA	None
Methane by Method RSK-175	5 to 10 + d	1/1	NA	NA	None
Alkalinity by EPA Method 2320	5 to 10 + d	NA	1/1	NA	None

1 All dissolved metals will be field filtered with a 0.45 µm pore filter.
[a] Total number of field samples is estimated.
[b] Rinsate blanks only required for 1 in 20 samples per non-dedicated sampling device.
NA Not Applicable
d Duplicate

One duplicate sample will be collected for each monitoring event and analyzed for all analytes under evaluation.

7.8 Sample Custody Procedure

Each sample will have a unique number. The specific designation for the samples will be based

on the date of sampling and number representing the monitoring well sampled. For example, sample number 012213-MW01 would represent monitoring well 01, sampled on January 22, 2013.

A duplicate sample shall be assigned the next sequential monitoring well (e.g. MW-06 if five monitoring wells are installed at the project) and assigned a collection time that is within the other samples collected during the monitoring event.

A chain-of-custody record will be filled out and accompany each set of samples to document sample possession from sample collection through analytical reporting. All pertinent fields shown on the chain-of-custody form will be completed using an ink pen prior to sample shipment. A copy of this record will be maintained with analytical results and will be included in subsequent data reporting.

Samples that need to go to an offsite laboratory will be transported next-day delivery service to the laboratory for analysis. The chain-of-custody record will accompany the samples. All samples will then be delivered directly to the laboratory. Packaging and shipping of samples to the offsite laboratory will be per the following protocol:

1. Sample container lids will be secured with custody tape and packing tape as necessary.
2. About 2 inches of cushioning material will be placed in the bottom of the cooler.
3. Sample containers will be placed in the cooler in a manner to prevent breakage.
4. Glass jars will be placed in resealable plastic bags and centered in the cooler to prevent breakage.
5. Samples will be packaged with ice enclosed in resealable plastic bags or freeze packs ("blue ice").
6. QA/QC samples will be packaged with the samples that were collected that day.
7. Free space in the cooler will be filled with cushioning material.
8. Chain-of-custody paper work will be placed in plastic bags and placed inside the cooler.
9. Cooler will be wrapped with strapping tape to seal it closed.
10. Samples will be shipped by commercial carrier for next day delivery. However, samples will not be shipped on Fridays, or immediately preceding a holiday, due to next day delivery limitations.
11. Use of separate coolers to protect more delicate sample containers, such as 40 milliliter vials, is encouraged.

When a sample set is delivered to the delivery service, the shipper will receive a copy of the shipping documentation. This documentation will be placed in the project file with the chain-of-custody paperwork.

7.9 Laboratory Sample Custody Procedure

Upon receipt of the shipping container, the laboratory will inspect the integrity of the container seal. The cooler will be opened and the shipment checked versus the chain-of-custody record. Any inconsistencies or problems with a sample shipment will be noted and resolved. Once at the laboratory the samples will be tracked through the laboratory by internal custody procedures.

QA/QC procedures to be followed by the selected laboratory will be per that laboratory's QA manual.

8.0 MEASUREMENT PROCEDURES

8.1 Data Acquisition Requirements (Non-direct Measurements)

Non-direct data measurements are those items that require a subjective assessment. Items such as weather, problems with sample collection, etc. will be logged in the field notebook.

8.2 Data Management

Field data will be recorded in the field notebooks by, or under the supervision of a licensed Geologist. Daily observation reports will be generated by Fulcrum and submitted for internal review. Laboratory analytical reports will be transmitted to Fulcrum electronically and via hard copy. The project laboratory will review and validate analytical data in accordance with their internal QA/QC program.

All field notebooks and the project laboratory's analytical data will be reviewed by Fulcrum to assure that all pertinent information is accounted for and is correlated. Fulcrum will complete review of sample collection and laboratory analytical data and summarize the information in a database or report format.

Hard copies of all field notebooks, chain-of-custody forms, analytical data, laboratory reports, assessment reports, and all electronic databases will be maintained by Fulcrum until project completion. Support and backup data will be archived for 5 years beyond completion of the project.

9.0 SOIL AND GROUNDWTER SAMPLE QUALITY CONTROL REQUIREMENTS

9.1 Field QC Requirements

Field quality control will be maintained through the use of standard operating procedures for sample collection, handling, and documentation. Any problems occurring during the sample process will be recorded in the field notebook or field datasheets.

Field quality control for groundwater will also consist of collecting and analyzing field replicate samples. Field replicates are three samples collected sequentially. Replicates will be used to confirm stabilization of groundwater field parameters prior to sample collection.

Duplicate samples will be collected as part of sampling activities. The number, type and handling of QA/QC samples are specified in Table 5 for soil samples and Table 9 for groundwater samples.

Duplicate samples are used to check the precision of field collection or laboratory analyses and verifies repeatability of the sample data. Duplicates are collected the same time as the sample. The duplicate sample will be collected by evenly splitting the collected sample such that the both sub-samples are comparable and representative of the single sample. Duplicate soil samples will be collected from a sample location that is believed to have elevated levels of a particular compound.

9.2 Laboratory QA/QC Requirements

The selected project laboratory will be appropriately Ecology and EPA certified to complete the selected analysis.

Laboratory quality control tests consist of method blanks, matrix spikes, as wells as duplicate and check standards (laboratory control standards). Surrogate recoveries will also be included for the organic analysis. Surrogate recoveries will be used to judge the accuracy for analysis of similar target analytes. Analytical precision can be estimated from duplicate and check standards, duplicate sample analysis, and duplicate spiked sample analyses. Analytical bias will be estimated from matrix spikes, matrix spike duplicates, and check standards. Recoveries from check standards provide an estimate of bias due to calibration. Mean percent recoveries of spiked sample analyses provide an estimate of bias due to interference.

The laboratory staff will report results of quality control analyses in the same units as expressed for the MQOs. They will also conduct quality assurance review of all analytical data generated at the project laboratory prior to releasing the data to the project manager.

The laboratory will be responsible for following their established QA/QC procedures and those required by the analytical methods. The following minimum QA/QC procedures will apply:

1. Sample holding and preservation requirements will be in accordance with analytical method reference parameters.
2. Instrument tuning and calibration will be performed as required by the analytical method and equipment manufacturer.
3. Laboratory QA/QC samples (duplicates) will be analyzed at frequencies specified by EPA, Ecology, and analytical reference methods.
4. The laboratory will review the data package for performance, quality, and completeness.
5. The method detection limit for the parameter analyzed will be below regulatory guidance levels.
6. All laboratory parameters (recoveries, spikes, duplicates, etc.) are within their stated limits.

Laboratory instrumentation will meet applicable calibration requirements to ensure that the instrumentation is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable quantitative performance at the onset of analysis. Calibration during operation verifies acceptable performance of the instrument on a

day-to-day basis. Tuning and instrument performance criteria will also be established, as appropriate; to ensure that instrument measurements may be interpreted correctly.

Laboratory calibration procedures are specified in the protocol for the specific analytical methods used. When there are no previously defined specifications, the calibration procedures will include:

- An initial and final three-point calibration before and after a run.
- A mid-range calibration after every tenth sample.

10.0 DATA MANAGEMENT PROCEDURES

At the completion of each sampling event, all field data and laboratory analytical data will be compiled and evaluated against the project MQOs.

Field methods and forms will be reviewed to assure consistency. Field datasheets will be checked for missing or improbable measurements before leaving each site. Field data entered into spreadsheets or databases will be checked against the field datasheets for errors or omissions. Missing or unusual field parameter data will be omitted from the data set.

Field replicate variability will be evaluated by calculating the relative percent difference (RPD) for each duplicate set of samples and compared to the MQOs listed in Table 3.

Laboratory-generated data review and reporting will follow the procedures outlined in the laboratory's quality assurance program. Results will be checked for missing or questionable data. Individual data, which fails to achieve QA/QC objectives, will be flagged with appropriate qualifiers and their use restricted as appropriate. A standard case narrative of laboratory QA/QC results will be issued by the laboratory for each sampling event.

If the data review and verification suggests significant problems with QA/QC for a sample event, the sample event or individual sample may be reanalyzed by the laboratory or resampled as necessary.

11.0 AUDITS AND REPORTS

The project laboratory participates in performance and system audits of their routine procedures and is an environmental laboratory accredited by the Washington State Department Ecology as of November 23, 2011. See the following link for currently accredited laboratories:

http://www.ecy.wa.gov/programs/eap/labs/documents/AllAccreditedLabListInternet.pdf

Results of the laboratory's performance and system audits of their routine procedures are available from the laboratory on request.

Fulcrum will provide in-progress reports for the project, including an initial soil investigation and groundwater monitoring event and subsequent in-progress reports following each groundwater monitoring event. A final project report will be prepared and issued as a portion of the baseline investigation and at the conclusion of each year of quarterly monitoring.

Draft versions of the report will be prepared and distributed to relevant project team members, including Ecology's site manager, prior to report finalization. Data will be completed in Ecology's Environmental Information Management (EIM) database as a component of report finalization.

12.0 DATA VERIFICATION AND VALIDATION

As part of data review, field notes and data from the laboratory will be reviewed for errors and omissions and to ensure that data are correct, complete, meet investigation objectives, and are consistent. Other items that will be reviewed include:

- Results for quality control samples described in Quality Control section of this document accompany sample results.
- Quality control results indicate that acceptance criteria were met.
- Data qualifiers are properly assigned where necessary.
- Data specified in the Sampling Design section above were obtained.
- Methods and protocols specified in this QAPP were followed.

After receiving the data package, Fulcrum will verify that the results have met the MQOs for bias, precision, and accuracy. Precision will be estimated by calculating the RPD for the field duplicate results. Analytical bias is assumed to be within acceptable limits if laboratory quality control limits are met for blanks, matrix spikes, and check standards. Overall accuracy will be assessed by comparing the measured result with the true value of the blind reference sample. If appropriate, sampling procedures, quality control steps, or analytical procedures will be modified to address identified problems.

Once the data have been reviewed, verified, and validated, the project manager will determine if the data can be used toward the project goals and objectives. A technical report will be prepared at the completion of all sampling and will include the following:

- Maps of the investigation area showing site features, soil and groundwater sample locations, water levels, groundwater flow direction, contaminant concentrations and distribution.
- Description of field and laboratory methods.
- Discussion of data quality and the significance of any problems encountered.
- Summary tables of field and analytical data.
- Discussion of water quality results. Significant or potentially significant findings.
- Recommendations based on project goals if appropriate.

13.0 DATA QUALITY (USABILITY) ASSESSMENT

Applicable field and laboratory data will be entered and stored in Ecology's EIM database once it has been reviewed and verified. Once all the data has been entered into EIM, the project manager will independently review 10% of the project data for possible errors. If significant data entry errors are discovered, a more intensive review will be undertaken.

An EIM user study will be requested from Ecology's EIM coordinator for this project. All monitoring data will be available via the internet once the project data have been validated. The URL address for the database is: http://apps.ecy.wa.gov/eimreporting/search.asp.

All paper and electronic files created for this project will be kept with the project data files for at least 5-years subsequent to completion of the investigation and according to Fulcrum's file retention policy.

14.0 REFERENCES

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APPENDIX C

Health and Safety Plan

FULCRUM
environmental consulting

SITE SPECIFIC HEALTH AND SAFETY PLAN – INITIAL INVESTIGATION

4400 Bullfrog Road
Cle Elum, Washington

Project Number: 12698

July 6, 2012

Prepared for:

Sportland Project, LLC
309 South Main Street
Ellensburg, Washington 98926

Prepared by:

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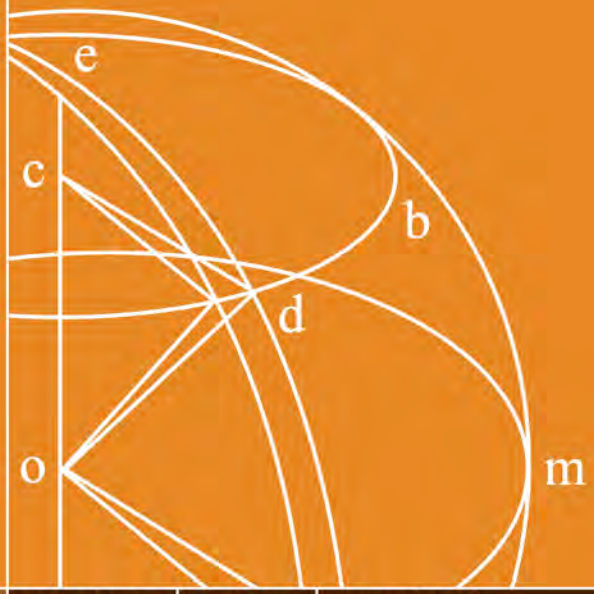

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Report Title: Site Specific Health and Safety Plan – Initial Investigation

Project Number: 12698

Date: July 6, 2012

Site: 4400 Bullfrog Road, Cle Elum, Washington

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Fulcrum Environmental Consulting, Inc.

Report Integrity:

Fulcrum Environmental Consulting, Inc.'s scope of service for this project was limited to those services as established in the proposal, contract, verbal direction, and/or agreement. This report is subject to applicable federal, state, and local regulations governing project-specific conditions and was performed using recognized procedures and standards of the industry. Scientific data collected in situ may document conditions that may be specific to the time and day of service, and subject to change as a result of conditions beyond Fulcrum's control or knowledge. Fulcrum makes no warranties, expressed or implied as to the accuracy or completeness of other's work included herein. Fulcrum has performed these services in accordance with generally accepted environmental science standards of care at the time of the inspection. No warranty, expressed or implied, is made.

1.0 APPLICABILITY OF THIS HEALTH AND SAFETY PLAN

The purpose of this site specific Health and Safety Plan (HSP) is to guide site environmental investigation activities in a safe manner to prevent injury of persons, structures, or the environment. While this HSP has been prepared by Fulcrum Environmental Consulting, Inc. (Fulcrum) it is applicable to all investigators, visitors, and other representatives. Any other HSP prepared or utilized by others at the site shall be at least as stringent as those presented herein.

The HSP is limited to proposed investigation activities associated with the Sportland Mini-Mart facility located at 4400 Bullfrog Road in Cle Elum, Washington.

2.0 GENERAL DESCRIPTION OF PROJECT ACTIVITIES

Since development, the facility has been operated as a retail fueling station with an associated convenience store and adjacent powersports equipment dealership.

2.1 Background

Fulcrum understands that in 1998, onsite storage tanks associated with the retail fueling station were replaced as a portion of gasoline retail fueling system upgrades. During tank removal, gasoline impacted soils were identified. To date, sampling and site characterization has been completed during two separate time eras including by GN Northern, Inc, in 1998 to 1999 and more recently by Valley laboratories in 2012. Results of the completed investigation activities suggest that residual petroleum product may be present within site soils and groundwater. Additionally, free product may be present on site groundwater.

2.2 Description of Investigation Activities

This soil and groundwater investigation represents Fulcrum's first phase in site environmental investigation. The purpose, intent, and approach of the overall site investigation are presented in the project *Sampling and Analysis Plan/Quality Assurance Project Plan*, July 6, 2012. During this soil investigation, mechanical excavation via drilling rig will be completed and from completed boreholes, soil and groundwater samples will be collected for laboratory analysis.

Laboratory analysis includes, but may not be limited to, petroleum hydrocarbons, gasoline additives. All activities shall be completed in a competent manner with controlled process of investigation and material handling.

2.3 Site Location and Description

The Sportland Mini-Mart site is located at 4400 Bullfrog Road in Cle Elum, Washington. The site is comprised of two parcels identified by the Kittitas County Assessor's Office as tax parcels: 953132 and 673034 totaling approximately 1.70 acres. The site contains five onsite structures including: a convenience store, fueling islands and associated canopy, and three retail and storage buildings associated with the powersports equipment dealership.

The site is bordered to the north by Washington Highway 903, to the west by Bullfrog Road, and to the east and south by residential property.

2.4 Overhead Utilities

Overhead utilities are present along the north property boundary adjacent to East Mountain View Avenue. In addition, drop-down service lines, including telephone services, are present between East Mountain View Avenue and site buildings. No work is scheduled to occur in areas with overhead utilities.

2.5 Contact List

This project is a coordination of the efforts of YJ, LLC, Ecology, and Fulcrum. Fulcrum will complete the site investigation activities as a portion of site characterization and remediation.

Table 1 lists the people involved in this project, their respective organization, and their role.

Table 1: Organization of Project Staff and Responsibilities

Person/Agency or Firm	Role/Responsibility
Mr. Jack Wadkins Site Owner 509.925.9330	Mr. Wadkins represents the site owner and individual completing site investigation activities through retention of subcontractors and consultants. Mr. Wadkins will be presented the results of this investigation and recommendations for remedial strategy to facilitate site closure.
Valerie Bound, Toxics Cleanup Program - Section Manager, vdre461@ecy.wa.gov, Central Region, Washington State Department of Ecology 509.454.7886	Provides local regulatory review of agreements related to proposed site development, remedial investigation findings, voluntary cleanup program (VCP) review and approval.
Norm Peck, Site Manager, Central Region, Washington State Department of Ecology nope461@ecy.wa.gov, 509.454.7840	Provides local regulatory review of HSP, if appropriate, and other project documents. Provides technical assistance for project objectives, investigation purpose, and selected route of investigation.
Jeremy M. Lynn, P.G., Geologist Fulcrum Environmental Consulting, Inc. jlynn@efulcrum.net, 509.574.0839	Reviews the project scope, budget, and tracks progress. Responsible for completion of investigation including oversight of field sampling. Conducts review of data, analyzes and interprets data. Writes the draft report and final report.
Kendra Williams, Environmental Technician Fulcrum Environmental Consulting, Inc. KWilliams@efulcrum.net 509.574.0839	Assists with the site investigation and completes groundwater monitoring under the direction of Fulcrum's Environmental Geologist.
Ryan Mathews, CIH, CHMM, Principal Fulcrum Environmental Consulting, Inc. rmathews@efulcrum.net, 509.574.0839	Provides principal review of project documentation and communications.
Travis L. Trent, CIH, P.G. L.H.G, Principal Fulcrum Environmental Consulting, Inc. TTrent@efulcrum.net, 509.459.9220	Provides review for project geologic and hydrogeologic evaluation and project documentation.

Person/Agency or Firm	Role/Responsibility
Mike Ridgeway, Project Manager Fremont Analytical, Inc. mridgeway@fremontanalytical.com, 206.352.3790	Responsible for completion of work tasks, including laboratory analysis, sample container provision, laboratory QA/QC, and review of project laboratory analysis.
Chris Cruse, P.L.S. Cruse & Associates, Inc. cruseandassoc@kvalley.com, 509.962.8242	Provides survey services for the investigation. Tasks specific to the site investigation include, survey and map preparation of sample locations and groundwater monitoring well locations; assisting with dimensioning of contaminant extent; and elevation survey for use in groundwater flow determination.
Jerry Goodrich, Owner Utilities Plus, LLC utilitiesplus07@yahoo.com 509.945.9840	Provides private locate services of the property, including review of proposed excavation locations and groundwater monitoring well location and identify of private site utilities to be addressed by project and site planning tasks.

2.6 Proposed Schedule of events:

Table 2: Projected Schedule of Events

Projected Completion Date	Tasks
July 6, 2012	Complete and submit a draft of the SAP/QAPP and HSP for soil investigation and initial groundwater sampling to Ecology for Review.
July 11, 2012	Completion of SAP/QAPP and HSP review by Ecology and comments provided to Fulcrum for incorporation.
July 13, 2012	Submit final SAP/QAPP to Ecology
July 20, 2012	Complete onsite soil investigation activities and one additional groundwater sampling event. If free product is identified during onsite activities within site soils or groundwater, Fulcrum will notify Ecology immediately.
July 27, 2012	Receipt of soil and groundwater sample analysis. Submit action plan to Ecology for review associated with free product removal if identified during onsite activities.
August 3, 2012	Submit draft report with documenting results of initial investigation data.
August 10, 2012	Submit plan for installation of additional permanent groundwater monitoring wells should they be required based on results of the investigation activities.
August 17, 2012	Implement free product recovery system at the site as soon as feasible following identification of free product. However, a free product recovery system is anticipated to be implemented no later than August 17, 2012 if required.

The proposed time-line is based on an anticipated 5-day turn-around-time for receipt of sample analytical results following completion of onsite activities.

The proposed time-line is also dependent upon subcontractor availability and scheduling. Approximately 1 week following completion of the soil investigation, and upon receipt and

review of laboratory analysis, a draft report of the investigation findings will be issued by Fulcrum.

Additional groundwater monitoring events will occur at approximately quarterly intervals as required through the end of the project.

2.7 Overall Hazard Ranking

Low

The Sportland Mini-Mart is located on privately owned commercial property. Onsite hazards are primarily limited to underground utilities and components associated with retail fueling station operations. Potential hazards from surrounding properties are not present at subject site.

3.0 GENERAL SITE SAFETY

All work shall be performed in compliance with Title 29 of the Code of Federal Regulations (CRF), Part 1910 (29 CFR, General Industry Standards), *Occupational Safety and Health Standards*; 29 CFR 1926, *Safety and Health Regulations For Construction*; Washington Administrative Code (WAC) 296-24, *General Safety and Health Standards*; WAC 296-62, *General Occupational Health Standards*; WAC 296-155, *Safety Standards for Construction Work*; and other applicable federal, state, and local Health and Safety Laws.

In addition, all personnel will not jeopardize the health and safety of themselves or others, or any property, during the course of this investigation.

During onsite operations, each person will be responsible for their own safety. If at any time a site attendant identifies a concern he/she shall alert the Site Safety and Health Officer and request a stoppage of site activities until a review of the situation can be completed.

4.0 SITE INFORMATION

The primary goal of this project is to provide characterization for the presence and extents of impact associated with petroleum hydrocarbon and gasoline additives to site soils and groundwater; and to determine the absence or presence of free product on the surface of site groundwater. Contaminants of concern include total petroleum hydrocarbons and gasoline additives including lead. This data will enable Fulcrum to assist in establishing the extent of contaminant impact; remedial strategies; and remediation costs.

4.1 Planned Duration of Activities

It is anticipated that soil investigation activities will require approximately 2 to 3 days of onsite work in addition to quarterly groundwater sampling. During decommissioning activities, all site

workers will observe excavation activities for indications of residual diesel and gasoline range hydrocarbons, as well as, volatile organic compounds within site soils.

4.2 General Area of Investigation

Mechanical excavation via drill rig will be completed across the site. Locations are anticipated to include the following:

- One borehole within the northern portion of the site and in proximity to the former underground storage tanks
- Four boreholes within the fueling island area to evaluate extents of residual impact
- Four boreholes surrounding the current underground storage tanks, with one location between the fueling island area and underground storage tanks representing a likely worst case contamination data point
- Three boreholes at the southern, southeastern, and southwestern property boundaries to evaluate potential for migration of contaminants
- Up to three additional locations determined to be appropriate during onsite activities based on field indications of impact

In all locations and quantities of boreholes are subject to modification as required based on the presence of underground utilities, structures, and other site features; and field observations as determined appropriate during onsite activities.

4.3 Site Accessibility

The site is an operating retail fueling facility. Access to the site is via Bullfrog Road on the western portion of the site.

5.0 SITE SPECIFIC SAFETY AND HEALTH HAZARDS

5.1 Excavation Hazards

Site activities will include excavation of site soils utilizing hollow-stem auger, air-rotary, or sonic drilling methods. All Fulcrum staff shall have completed excavation safety training prior to the project.

IF PRESENT, NO PERSONNEL SHALL ENTER AN EXCAVATION THAT IS MORE THAN 4-FEET DEEP OR WHERE WATER OR MUDDY SOILS ARE IDENTIFIED.

Underground utilities are expected to be present within the bounds of the subject site. Overhead utilities are present at the site. Work is not intended to occur near overhead utilities.

5.2 Physical Hazards

Workers engaged in strenuous activities are prone to illness due to environmental exposures such as heat or cold. During periods of cold weather, personnel should take measures to prevent hypothermia and frost bite. Layering clothing enables personnel to adjust to changing environmental temperatures and exertion generated body heat. Additionally, the presence of wind can increase the risk of cold exposure. Whenever feasible, site personnel will seek shelter from the wind, such as in a building or vehicle, during rest periods.

The possibility of heat related illnesses are increased when protective clothing is donned. Site personnel are encouraged to drink at least 16 ounces of water before work and at least 8 ounces of water/hour throughout the day. This should be increased to every 30 minutes if temperatures are above 82 degrees Fahrenheit (F), and to every 15 minutes for temperatures above 90 degrees F. Also, personnel should rest in a cool area after drinking water to allow body temperature to cool down. All personnel on-site should be aware of the various symptoms and treatments of heat exposure.

Heavy equipment hazards include the possibility of coming in contact with utilities such as pressurized natural gas lines and overhead electrical lines. Workers need to be aware of personnel, equipment, and machinery limitations. Operators need to be aware of the location of other workers. At a minimum, work boots, appropriate clothing, protective gloves, and safety glasses/goggles must be worn by all personnel when in close proximity to sampling. When site conditions dictate hard hats may also be required.

Machinery and heavy equipment can emit strong sound waves capable of creating permanent hearing damage to those in close proximity. Personnel must wear hearing protection, such as earplugs or earmuffs while near operating machinery and heavy equipment.

5.3 Chemical Hazards

5.3.1 Fuel and Fuel Additives

Compounds for which potential exposure may occur include gasoline, diesel fuels, oils, and various additives. Today, literally hundreds of chemicals are used as petroleum additives. Some of the most important are anti-knock agents and scavengers, pour point depressants, flow improvers, antioxidants, corrosion inhibitors, detergents, and dispersants.

Certain fuels and additives may cause fires or explosions. This risk is increased if the flammable agent or mixture has a low flash point or high pressure, or it's subject to oxidation reactions.

From a toxicology viewpoint, fuels and additives range from innocuous to extremely poisonous. While serious and fatal systemic intoxications do occur, occupational diseases are relatively uncommon. Dermatitis is the disorder most frequently encountered.

Safe handling requires knowledge of flammability characteristics. Compounds which are explosive or flammable, must be protected from open flames, sparks, heat sources, and oxidizing

agents. Vessels, containers, and transport systems must be designed to withstand the pressure, temperature, solvent, and chemical actions of the contents. Appropriate precautionary labels must be clearly displayed.

Good industrial hygiene and fire prevention practices call for storage and handling in clean, uncluttered, and well-ventilated areas. Workers should be educated about the hazards involved. Personal protective equipment (working clothes, eye and face protection, and respiratory protective equipment) must be available and used when needed. Consult the MSDS for personal protective equipment requirements.

Health Hazards

The health effects associated with inhalation of fuels and fuel additives include headache, dizziness, nausea, vomiting, loss of coordination, blurred vision, and fatigue. These compounds are moderately irritating to the skin and may cause redness, edema, or drying of the skin. They also may be absorbed through the skin and are considered moderately irritating to the eyes.

Physical Hazards

These compounds generally are very stable, but contact should be avoided between them, or their fumes and vapors, and any source of heat, sparks, or flame. Proximity of strong oxidizing agents such as chlorine, permanganates, and dichromates should be avoided because contact with these materials may cause spontaneous ignition or an explosion.

Procedures to Lessen or Prevent Exposure

In order to reduce or prevent exposure to these compounds, engineering controls such as increased ventilation may be used. Personal protective equipment such as chemical goggles, face shields, coveralls, lab coats, disposable clothing, gloves, and respiratory protection also may be used for additional protection.

Emergency and First-Aid Procedures

In the event of symptoms of exposure, move **immediately** away from the source of exposure and into fresh air. If symptoms persist, seek medical attention. If a victim is not breathing or is having breathing difficulties, medical attention should be sought immediately. In the event a person ingests these compounds, do not induce vomiting because the material may enter the lungs and cause severe lung damage. Instead, give the person **two or three** cups of milk or water and obtain immediate medical attention. If these compounds get into the eyes, flush them with plenty of water for **fifteen minutes**. If they contact the skin, flush with plenty of water and then follow by washing with soap and water.

5.3.2 Heavy Oil, Lubricants, Hydraulic, and Cutting Fluids

Lubricants generally are petroleum oils of varying viscosities with additives that perform a variety of functions. Although in some instances lubricants also could include soaps, graphite, greases, or even water, this discussion will focus primarily on petroleum oil type lubricants.

Hydraulic fluids also are petroleum oils. Cutting fluids are either mineral oil types or "soluble" types which are oils diluted with water (from 1:10 to 1:80) and held in emulsion with emulsifiers. Synthetic lubricants usually consist of triethanolamine and sodium nitrate, along with many additives.

Health Hazards

The most obvious hazard of oils is damage to the skin. Mineral oil compounds can dissolve the protective fat in the skin, thus causing irritation and inflammation (dermatitis) evidenced by redness, rash, and itching. Heavier types of oil can also clog pores, causing folliculitis, an acne-like condition. Mineral oils are not very volatile, and so do not usually pose a vapor inhalation hazard, but oil mists may form during cutting operations. These mists could be inhaled and cause certain types of lung damage.

The decomposition of synthetic cutting oils could lead to the formation of certain nitrosamines, which are suspected of causing cancer. Also, bacterial growth may occur in some oils, so that inhaling a contaminated mist could result in bacterial infections.

Physical Hazards

In general, these materials have flash points above 350^{o} F; therefore, they do not pose a significant fire or explosion hazard under normal circumstances. They will burn, however, given high enough temperatures. They are stable and generally not volatile. See the MSDS for information on specific compounds.

Detection of Release

Some materials may have a characteristic petroleum odor, but since they are not very volatile, this is not a good method of detection. Oil mists may not be visible to the naked eye. Collection of air samples by an Industrial Hygienist can measure the concentration of oil mists in the air.

Control of Exposure

Exposure to oil mists can be avoided by shielding or isolating mist-producing operations. If mists are unavoidable, a dust, fume, and mist respirator should be worn. Protective clothing such as aprons or coveralls, gloves, and face shields should be worn to prevent skin contact. See the MSDS for information on specific compounds.

5.3.3 Metals

Metals encountered during environmental investigations typically consist of solid particulates associated with soil. Except under rare circumstances, generation of metal fumes during mechanical excavation will not occur. Metals of concern at the site are limited to lead as a gasoline additive.

Health Hazards

Metals encountered during environmental investigations will be found in a solid state. As such inhalation of metal particles is the primary concern. Metal fumes are more commonly the source of inhalation related illness, such as metal fume fever. Inhalation of solid particulates of metals can deposit within lung tissue similar to dust and other airborne particulate.

Metal particulates can also irritate skin and eyes. Protection of skin surfaces with long sleeve shirts, long pants, and gloves are generally effective in minimizing the skin irritation caused by some metals. Mucus membranes, including those of the eyes, nose, and throat can reach adversely to metal particulates.

Physical Hazards

Metals encountered during environmental investigations are typically in a solid form. Physical hazards associated with metal contamination are more likely to be associated with the volatility or flammability associated with other products co-located with the contaminant.

Methods Used to Determine Their Respective Airborne Contaminants

Evaluation for airborne concentration of metals is a commonly completed industrial hygiene exposure assessment. Sampling is completed of workers exposed to the airborne hazard during a work shift. Analysis is completed by standard methods developed by the Occupational Safety and Health Administration (OSHA) and/or the National Institute of Occupational Safety and Health (NIOSH).

Laboratory data is directly comparable to acceptable exposure limits established by the Washington State Department of Labor and Industries, Division of Occupational Safety and Health (DOSH), OSHA, or the American Conference of Governmental Industrial Hygienists (ACGIH).

Procedures to Lessen or Prevent Exposure

Management of the hazards associated with solid metals is similar to the management for dust or other airborne particulate. Use of water sprays to mist dry soils and prevent dust generation is generally effective in mitigating airborne metal particulate hazards. Where dust cannot be managed through engineering controls, personal protective equipment, including respirators with P100 high efficiency particulate air (HEPA) filter cartridges can be used to reduce potential exposure.

Emergency and First-Aid Procedures

Generally emergency medical and first-air procedures are not necessary with exposure to airborne particulate. However, if eye irritation or irritation of the respiratory tract occurs, get out of the exposure area and into fresh air. Seek medical attention if irritation persists.

5.3.4 Cleaners and Detergents

The general terms "detergents and cleaners" apply to all soaps made from natural fats and oils, synthetic washing compounds, and some proteolytic enzymes. In general, injuries that occur through the use of detergents and cleaners are few; they usually are confined to people having an allergy either to the product or to one of its components, and to cases of misuse (i.e., swallowing). There are special risks, however, associated with the use of strong acids and alkaline compounds.

Health Hazards

The health effects generally associated with these products are skin irritations. Depending on the length of time the materials are in contact with the skin, a person may experience effects ranging from mild irritation or dermatitis to severe burns. The eyes can become irritated and severely damaged even by short contact. The inhaled mists of alkaline and acidic cleaning agents can irritate tissues of the entire respiratory tract.

Physical Hazards

Cleaners and detergents generally are very stable compounds. However, acids and bases are incompatible, and should not be combined. Refer to the corrosives section for more detailed information on acids and bases.

Methods Used to Determine Their Respective Airborne Contaminants

Cleaners and detergents usually are compounded as viscous liquids or powders. They normally do not represent an airborne hazard due to their low vapor pressure. Caustics generally are clear and colorless and can form airborne mists. The airborne concentrations will be irritating to the eyes and respiratory tract. Methods for determining airborne concentrations of caustics include colorimetric tubes and personal sampling pumps. Contact the Industrial Hygienist for instructions on monitoring caustics.

Procedures to Lessen or Prevent Exposures

In order to prevent breathing excessive levels of mists, use general and local exhaust ventilation. Additional protective equipment should be worn. See the MSDS for specific personal protective equipment.

Emergency and First-Aid Procedures

If eye irritation or irritation of the respiratory tract occurs, get out of the exposure area and into fresh air. Seek medical attention if irritation persists. If any of these materials get on the skin or into the eyes, wash the area thoroughly with water. It is important to do this as quickly as possible if it is in the eyes: **it may save eyesight**. If any of these products are swallowed, obtain treatment as soon as possible from a knowledgeable doctor or with assistance from a poison information center. **Do not** induce vomiting.

5.3.5 Other Chemicals and Specialty Chemicals

Specialty chemicals will involve a wide range of organic compounds, inorganic compounds, and elements, generally in very small quantities. It is the basic responsibility of individual workers to be knowledgeable about the toxic properties of the materials they use and to follow handling practices which are consistent with those properties. A worker not only must take into account the toxicity of the specific material(s) of concern, but also the physical and chemical properties, the amount and concentrations to be handled, the duration of uses, and the skills and experience of the people involved. Refer to the products' MSDS for specific information.

Health Hazards

The health hazards associated with exposure to specialty chemicals vary. Some health effects may be delayed, as would be the case with chronic exposure to mercury vapor and lead, while exposure to other toxic compounds, such as cadmium, may produce more immediate effects including headaches, dizziness, and respiratory irritation. In most cases, specialty chemicals may be at least moderately irritating to the skin and eyes.

Physical Hazards

The physical hazards associated with exposure to specialty chemicals vary. However physical hazards will fall into one of the following groups: Explosive, flammable, combustible, water reactive, corrosive, poisonous/toxic, oxidizer, or a combination of the above. Refer to the MSDS for specific physical hazards associated with each specialty chemical.

Detection of a Release

Reliance on the sense of smell to determine air concentrations is not a safe. Although odors can alert workers to potential danger, not all chemicals characteristic odor. For other chemicals, an odor may be detected, but only at high concentrations. Direct reading instruments or small personal sampling pumps employed by trained workers are used to collect samples.

Procedures to Lessen or Prevent Exposures

In order to reduce or prevent exposure to any chemical, engineering controls, such as local exhaust ventilation, should be used first. For additional protection, personal protective equipment such as chemical goggles, face shields, protective clothing, and respiratory protection may be used.

Emergency and First-Aid Procedures

If eye irritation or irritation of the respiratory tract occurs, get out of the exposure area and into fresh air. Seek medical attention if irritation persists. If any of these materials get on the skin or into the eyes, wash the area thoroughly with water. It is important to do this as quickly as possible if it is in the eyes: **it may save eyesight**. If any of these products are swallowed, obtain treatment as soon as possible from a knowledgeable doctor or with assistance from a poison information center. **Do not** induce vomiting.

6.0 ENVIRONMENTAL AND PERSONNEL PROTECTION

6.1 Personal Protection

All activities are to be conducted in Level D personnel protective equipment (PPE). Site specific conditions include equipment and machinery. All personnel will take those precautions necessary to prevent injury when near equipment and machinery. All personnel will be required, at a minimum, to use Level D PPE.

Level D PPE will consist of hard-hats, safety glasses, work boots, coveralls or work clothes, and gloves. Sampling personnel are to have onsite Level C PPE (full or 1/2 face Air Purifying Respirators, Sarnex or poly-coated Tyvex coveralls, neoprene or PVC steel toed boots, safety glasses, and nitrile gloves) should site conditions change. Air purifying respirators will be equipped with HEPA and Organic vapor filters.

Personnel observing activities shall maintain a safe distance when choosing to forego PPE.

Action levels are defined as the concentration of a particular chemical or the level of a dangerous condition that mandates a change in personnel safety practices on-site. Air monitoring for action levels will be performed in the breathing zone of site workers. Action levels and response actions for the site are listed in Table 1.

6.2 Environmental Delineation

Environmental delineation will be achieved through the set-up and maintenance of an exclusion zone surrounding the excavation area. The only access to the exclusion zone will be through a decontamination corridor. All personnel and equipment that enters the exclusion zone must be decontaminated prior to leaving the exclusion zone. Disposable or heavily soiled equipment will be deposited and contained in marked barrels within the exclusion zone for later disposal.

6.3 Training Requirements

All personnel involved in sampling activities onsite in which the potential for chemical exposure or physical exertion exists must be enrolled in an active medical monitoring program and have completed their 40-hour Hazardous-Materials Safety course.

7.0 EMERGENCY RESPONSE

FIRE: 911

POLICE: 911

HOSPITAL: Kittitas Valley Community Hospital
603 South Chestnut Street, Ellensburg, Washington
509.962.6841

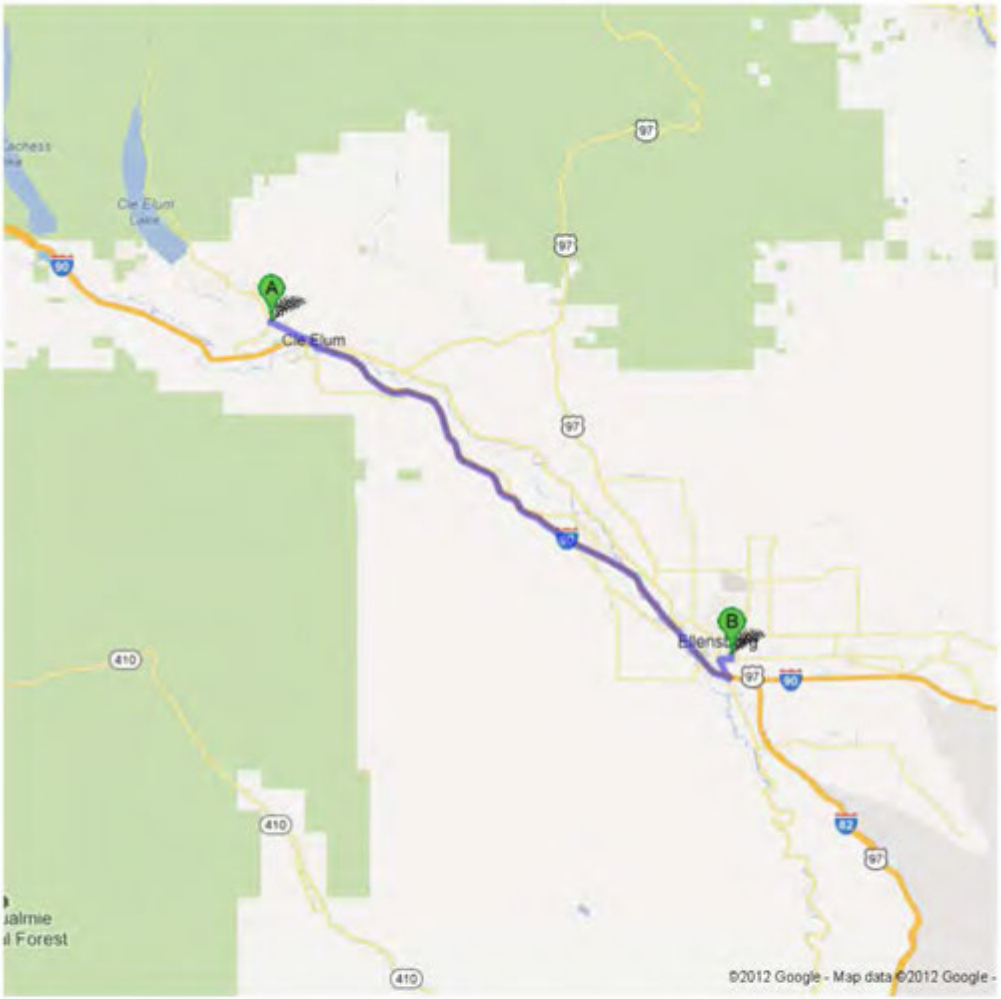
POISON CONTROL CENTER: 1.800.222.1222

EXPLOSIVE UNIT: 911

DIRECTIONS TO HOSPITAL: (following page)

Google

Directions to 603 S Chestnut St, Ellensburg, WA 98926
29.9 mi – about 37 mins



4400 Bullfrog Rd, Cle Elum, WA 98922

1.	Head **north** on **Bullfrog Rd**	go 164 ft total 164 ft
2.	At the traffic circle, take the **1st** exit onto **WA-903 S** About 4 mins	go 1.5 mi total 1.6 mi
3.	Continue onto **W 2nd St**	go 0.4 mi total 2.0 mi
4.	Turn right onto **N Stafford Ave/Statford St** Continue to follow Statford St	go 344 ft total 2.1 mi
5.	Take the 1st left onto **W 1st St** About 1 min	go 256 ft total 2.1 mi
6.	Take the 1st right onto **W Railroad Ave**	go 0.2 mi total 2.3 mi
7.	Take the 1st right onto **S Oakes Ave/S Oaks Ave**	go 400 ft total 2.4 mi
8.	Continue onto **W Russ St** About 58 secs	go 0.4 mi total 2.7 mi
9.	Turn left to merge onto **I-90 E** About 25 mins	go 25.3 mi total 28.0 mi
10.	Take exit **109** to merge onto **Canyon Rd** toward **Ellensburg** About 3 mins	go 1.1 mi total 29.2 mi
11.	Turn right onto **W Mountain View Ave** About 1 min	go 0.5 mi total 29.7 mi
12.	Turn left onto **S Chestnut St** Destination will be on the left About 56 secs	go 0.2 mi total 29.9 mi

603 S Chestnut St, Ellensburg, WA 98926

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

I have read the above site specific HSP for the Soil Investigation, Sportland Mini-Mart Project, Fulcrum project number 12698. I am aware of the risks associated with this project as discussed both verbally and as stated in the aforementioned HSP, and will perform in a manner to decrease the risk of bodily injury to myself or others; property damage; or negatively impact the environment.

Name (print)	Signature	Date	Company
Jeremy Lynn		8/20/2012	Fulcrum
Brian Davis		8-20-12	EWE
Brent Johnson		8-20-12	EWE
Randy Wilder		8-20-12	EWE
Norm Peck		20 Aug 12	Ecology
Kendra Williams		8/20/2012	Fulcrum
Jeremy Lynn		8/21/2012	Fulcrum
Kendra Williams		8/21/2012	Fulcrum
Randy Wilder		8-21-12	EWE
Brian Davis		8-21-12	EWE
Norm Peck		21 Aug 12	Ecology
Brent Johnson		8-21-12	EWE
Jeremy Lynn		8/22/2012	Fulcrum
Kendra Williams		8/22/2012	Fulcrum
Norm Peck		22 Aug 12	Ecology
Brian Davis		8-22-12	EWE
Brent Johnson		8-22-12	EWE
Randy Wilder		8-22-12	EWE

FULCRUM
environmental consulting

SITE SPECIFIC HEALTH AND SAFETY PLAN – MONITORING WELL INSTALLATION PHASE

4400 Bullfrog Road
Cle Elum, Washington

Project Number: 12698

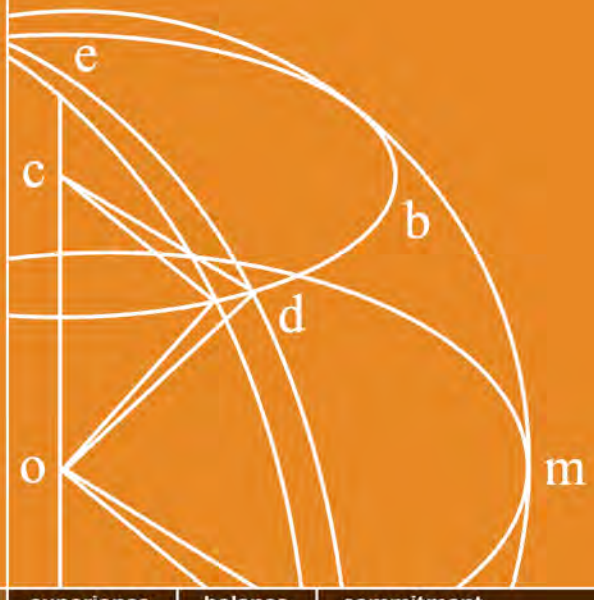
November 2, 2012

Prepared for:

Sportland Project, LLC
309 South Main Street
Ellensburg, Washington 98926

Prepared by:

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901



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Report Title: Site Specific Health and Safety Plan – Monitoring Well Installation Phase

Project Number: 12698

Date: November 2, 2012

Site: 4400 Bullfrog Road, Cle Elum, Washington

Prepared for: Sportland Project, LLC
309 South Main Street
Ellensburg, Washington 98926

Prepared by: Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
509.574.0839

The professionals who completed site services, prepared, and reviewed this report include but are not limited to:

Authored by: _____ **Date:** _____

Kendra J. Williams, G.I.T.,
Fulcrum Environmental Consulting, Inc.

Reviewed by: _____ **Date:** _____

Jeremy M. Lynn, P.G., Geologist
Fulcrum Environmental Consulting, Inc.

Report Integrity:

Fulcrum Environmental Consulting, Inc.'s scope of service for this project was limited to those services as established in the proposal, contract, verbal direction, and/or agreement. This report is subject to applicable federal, state, and local regulations governing project-specific conditions and was performed using recognized procedures and standards of the industry. Scientific data collected in situ may document conditions that may be specific to the time and day of service, and subject to change as a result of conditions beyond Fulcrum's control or knowledge. Fulcrum makes no warranties, expressed or implied as to the accuracy or completeness of other's work included herein. Fulcrum has performed these services in accordance with generally accepted environmental science standards of care at the time of the inspection. No warranty, expressed or implied, is made.

1.0 APPLICABILITY OF THIS HEALTH AND SAFETY PLAN

The purpose of this site specific Health and Safety Plan (HSP) is to guide site environmental investigation activities in a safe manner to prevent injury of persons, structures, or the environment. While this HSP has been prepared by Fulcrum Environmental Consulting, Inc. (Fulcrum) it is applicable to all investigators, visitors, and other representatives. Any other HSP prepared or utilized by others at the site shall be at least as stringent as those presented herein.

The HSP is limited to monitoring well installation activities associated with the Sportland Mini-Mart facility located at 4400 Bullfrog Road in Cle Elum, Washington.

2.0 GENERAL DESCRIPTION OF PROJECT ACTIVITIES

Since development, the facility has been operated as a retail fueling station with an associated convenience store and adjacent powersports equipment dealership.

2.1 Background

Fulcrum understands that in 1998, onsite storage tanks associated with the retail fueling station were replaced as a portion of gasoline retail fueling system upgrades. During tank removal, gasoline impacted soils were identified. To date, sampling and site characterization has been completed during two separate time eras including by GN Northern, Inc, in 1998 to 1999 and more recently by Valley laboratories in 2012. Results of the completed investigation activities suggest that residual petroleum product may be present within site soils and groundwater. Additionally, free product may be present on site groundwater.

2.2 Description of Investigation Activities

The investigation was designed to address three objectives and provide sufficient site data to facilitate remedial alternatives review, selection, and design. The three site-specific project objectives for the in-progress investigation include the following:

- Determine the extents of residual petroleum contamination in site soils
- Evaluate groundwater for the presence of free product
- Determine the extents of residual contamination in site groundwater

To date, investigation activities have addressed two of the three project objectives including determining the extents of residual impact to site soils and determining the absence or presence of free product on site groundwater. The monitoring well installation phase of the investigation is designed to address the third project objective of determining the extents of residual contamination in site groundwater.

The purpose, intent, and approach of the overall site investigation are presented in the project *Sampling and Analysis Plan/Quality Assurance Project Plan*, July 31, 2012. During this monitoring well installation, mechanical excavation via drilling rig will be completed. Samples

will not be collected with the exception of one location. A data gap during the soil investigation included soils at the elevation of 17.5-feet below ground surface in borehole-09. This elevation represents the single location which has not been sampled and identified with petroleum odor in the field. This general location will be sampled during monitoring well installation for laboratory analysis.

2.3 Site Location and Description

The Sportland Mini-Mart site is located at 4400 Bullfrog Road in Cle Elum, Washington. The site is comprised of two parcels identified by the Kittitas County Assessor's Office as tax parcels: 953132 and 673034 totaling approximately 1.70 acres. The site contains five onsite structures including: a convenience store, fueling islands and associated canopy, and three retail and storage buildings associated with the powersports equipment dealership. The site is bordered to the north by Washington Highway 903, to the west by Bullfrog Road, and to the east and south by residential property.

2.4 Overhead Utilities

Overhead utilities are present along the north property boundary adjacent to East Mountain View Avenue. In addition, drop-down service lines, including telephone services, are present between East Mountain View Avenue and site buildings. No work is scheduled to occur in areas with overhead utilities.

2.5 Contact List

This project is a coordination of the efforts of YJ, LLC, Ecology, and Fulcrum. Fulcrum will complete the site investigation activities as a portion of site characterization and remediation.

Table 1 lists the people involved in this project, their respective organization, and their role.

Table 1: Organization of Project Staff and Responsibilities

Person/Agency or Firm	Role/Responsibility
Mr. Jack Wadkins Site Owner 509.925.9330	Mr. Wadkins represents the site owner and individual completing site investigation activities through retention of subcontractors and consultants. Mr. Wadkins will be presented the results of this investigation and recommendations for remedial strategy to facilitate site closure.
Valerie Bound, Toxics Cleanup Program - Section Manager, vdre461@ecy.wa.gov, Central Region, Washington State Department of Ecology 509.454.7886	Provides local regulatory review of agreements related to proposed site development, remedial investigation findings, voluntary cleanup program (VCP) review and approval.
Norm Peck, Site Manager, Central Region, Washington State Department of Ecology nope461@ecy.wa.gov, 509.454.7840	Provides local regulatory review of HSP, if appropriate, and other project documents. Provides technical assistance for project objectives, investigation purpose, and selected route of investigation.
Jeremy M. Lynn, P.G., Geologist	Reviews the project scope, budget, and tracks progress.

Person/Agency or Firm	Role/Responsibility
Fulcrum Environmental Consulting, Inc. jlynn@efulcrum.net, 509.574.0839	Responsible for completion of investigation including oversight of field sampling. Conducts review of data, analyzes and interprets data. Writes the draft report and final report.
Kendra Williams, Environmental Technician Fulcrum Environmental Consulting, Inc. KWilliams@efulcrum.net 509.574.0839	Assists with the site investigation and completes groundwater monitoring under the direction of Fulcrum's Environmental Geologist.
Ryan Mathews, CIH, CHMM, Principal Fulcrum Environmental Consulting, Inc. rmathews@efulcrum.net, 509.574.0839	Provides principal review of project documentation and communications.
Travis L. Trent, CIH, P.G. L.H.G, Principal Fulcrum Environmental Consulting, Inc. TTrent@efulcrum.net, 509.459.9220	Provides review for project geologic and hydrogeologic evaluation and project documentation.
Mike Ridgeway, Project Manager Fremont Analytical, Inc. mridgeway@fremontanalytical.com, 206.352.3790	Responsible for completion of work tasks, including laboratory analysis, sample container provision, laboratory QA/QC, and review of project laboratory analysis.
Chris Cruse, P.L.S. Cruse & Associates, Inc. cruseandassoc@kvalley.com, 509.962.8242	Provides survey services for the investigation. Tasks specific to the site investigation include, survey and map preparation of sample locations and groundwater monitoring well locations; assisting with dimensioning of contaminant extent; and elevation survey for use in groundwater flow determination.
Jerry Goodrich, Owner Utilities Plus, LLC utilitiesplus07@yahoo.com 509.945.9840	Provides private locate services of the property, including review of proposed excavation locations and groundwater monitoring well location and identify of private site utilities to be addressed by project and site planning tasks.

2.6 Proposed Schedule of events:

Table 2: Projected Schedule of Events

Projected Completion Date	Tasks
November 2, 2012	Complete and submit a draft of the HSP for monitoring well installation
November 5 to 6, 2012	Complete onsite monitoring well installation.
November 20, 2012	Complete first monitoring well sampling event.
December 1, 2012	Submit draft report with documenting results of initial monitoring well installation and initial sampling event.

The proposed time-line is based on an anticipated 5-day turn-around-time for receipt of sample analytical results following completion of onsite activities.

The proposed time-line is also dependent upon subcontractor availability and scheduling. Approximately 1 week following completion of the monitoring well sampling event, and upon receipt and review of laboratory analysis, a draft report of the findings will be issued by Fulcrum.

Additional groundwater monitoring events will occur at approximately quarterly intervals as required through the end of the project.

2.7 Overall Hazard Ranking

Low

The Sportland Mini-Mart is located on privately owned commercial property. Onsite hazards are primarily limited to underground utilities and components associated with retail fueling station operations. Potential hazards from surrounding properties are not present at subject site.

3.0 GENERAL SITE SAFETY

All work shall be performed in compliance with Title 29 of the Code of Federal Regulations (CRF), Part 1910 (29 CFR, General Industry Standards), *Occupational Safety and Health Standards*; 29 CFR 1926, *Safety and Health Regulations For Construction*; Washington Administrative Code (WAC) 296-24, *General Safety and Health Standards*; WAC 296-62, *General Occupational Health Standards*; WAC 296-155, *Safety Standards for Construction Work*; and other applicable federal, state, and local Health and Safety Laws.

In addition, all personnel will not jeopardize the health and safety of themselves or others, or any property, during the course of this investigation.

During onsite operations, each person will be responsible for their own safety. If at any time a site attendant identifies a concern he/she shall alert the Site Safety and Health Officer and request a stoppage of site activities until a review of the situation can be completed.

4.0 SITE INFORMATION

The primary goal of the monitoring well installation project is to determine the extents of residual petroleum hydrocarbon and gasoline additives contamination in site groundwater. Contaminants of concern include total petroleum hydrocarbons and gasoline additives including lead. This data will enable Fulcrum to assist in establishing the extent of contaminant impact; remedial strategies; and remediation costs.

4.1 Planned Duration of Activities

It is anticipated that monitoring well installation activities will require approximately 2 to 3 days of onsite work in addition to quarterly groundwater sampling. During installation activities, all site workers will observe excavation activities for indications of residual diesel and gasoline range hydrocarbons, as well as, volatile organic compounds within site soils.

4.2 General locations of monitoring wells

Monitoring wells will be installed with mechanical excavation at locations across the site. Locations are anticipated to include the following:

- Northwest of the mini-mart building within the asphalt paved surface area and former tank basin providing upgradient groundwater data near the northern property boundary. The current upgradient and non-producing well identified as monitoring well 01 is located adjacent to buried high capacity water and sewer lines. Relocating the replacement upgradient well to the former tank basin will provide an adequate buffer between the buried utilities while providing groundwater data north of the presumed area
- East of the mini-mart building and as near Highway 903 and northern property boundary as feasible while maintaining proper clearance of overhead power lines. The monitoring well will provide data associated with observed potential migration of petroleum product during soil investigation. Fulcrum plans on installation of the well consistent with Borehole 09B as identified during the soil investigation due to the presence of subsurface high density boulder(s).
- South of the dealership building and adjacent to the eastern property boundary. The monitoring well will provide additional downgradient data within the presumed direction of groundwater flow
- Southwest of the dealership building and adjacent to the southern property boundary. The well will provide additional downgradient data to capture seasonal fluctuation from the presumed groundwater flow direction.
- Southwest of the dealership building and adjacent to the southern portion of the western property boundary. The well will provide additional downgradient data to capture seasonal fluctuation from the presumed groundwater flow direction.of residual groundwater impact.
- Northeast of the dealership building and adjacent to the eastern property boundary. The well will provide data associated with observed potential migration of petroleum product during soil investigation.

All locations and quantities of monitoring wells are subject to modification as required based on the presence of underground utilities, structures, and other site features; and field observations as determined appropriate during onsite activities.

4.3 Site Accessibility

The site is an operating retail fueling facility. Access to the site is via Bullfrog Road on the western portion of the site.

5.0 SITE SPECIFIC SAFETY AND HEALTH HAZARDS

5.1 Excavation Hazards

Site activities will include excavation of site soils utilizing hollow-stem auger, air-rotary, or sonic drilling methods. All Fulcrum staff shall have completed excavation safety training prior to the project.

IF PRESENT, NO PERSONNEL SHALL ENTER AN EXCAVATION THAT IS MORE THAN 4-FEET DEEP OR WHERE WATER OR MUDDY SOILS ARE IDENTIFIED.

Underground utilities are expected to be present within the bounds of the subject site. Overhead utilities are present at the site. Work is not intended to occur near overhead utilities.

5.2 Physical Hazards

Workers engaged in strenuous activities are prone to illness due to environmental exposures such as heat or cold. During periods of cold weather, personnel should take measures to prevent hypothermia and frost bite. Layering clothing enables personnel to adjust to changing environmental temperatures and exertion generated body heat. Additionally, the presence of wind can increase the risk of cold exposure. Whenever feasible, site personnel will seek shelter from the wind, such as in a building or vehicle, during rest periods.

The possibility of heat related illnesses are increased when protective clothing is donned. Site personnel are encouraged to drink at least 16 ounces of water before work and at least 8 ounces of water/hour throughout the day. This should be increased to every 30 minutes if temperatures are above 82 degrees Fahrenheit (F), and to every 15 minutes for temperatures above 90 degrees F. Also, personnel should rest in a cool area after drinking water to allow body temperature to cool down. All personnel on-site should be aware of the various symptoms and treatments of heat exposure.

Heavy equipment hazards include the possibility of coming in contact with utilities such as pressurized natural gas lines and overhead electrical lines. Workers need to be aware of personnel, equipment, and machinery limitations. Operators need to be aware of the location of other workers. At a minimum, work boots, appropriate clothing, protective gloves, and safety glasses/goggles must be worn by all personnel when in close proximity to sampling. When site conditions dictate hard hats may also be required.

Machinery and heavy equipment can emit strong sound waves capable of creating permanent hearing damage to those in close proximity. Personnel must wear hearing protection, such as earplugs or earmuffs while near operating machinery and heavy equipment.

5.3 Chemical Hazards

5.3.1 Fuel and Fuel Additives

Compounds for which potential exposure may occur include gasoline, diesel fuels, oils, and various additives. Today, literally hundreds of chemicals are used as petroleum additives. Some of the most important are anti-knock agents and scavengers, pour point depressants, flow improvers, antioxidants, corrosion inhibitors, detergents, and dispersants.

Certain fuels and additives may cause fires or explosions. This risk is increased if the flammable agent or mixture has a low flash point or high pressure, or it's subject to oxidation reactions.

From a toxicology viewpoint, fuels and additives range from innocuous to extremely poisonous. While serious and fatal systemic intoxications do occur, occupational diseases are relatively uncommon. Dermatitis is the disorder most frequently encountered.

Safe handling requires knowledge of flammability characteristics. Compounds which are explosive or flammable, must be protected from open flames, sparks, heat sources, and oxidizing agents. Vessels, containers, and transport systems must be designed to withstand the pressure, temperature, solvent, and chemical actions of the contents. Appropriate precautionary labels must be clearly displayed.

Good industrial hygiene and fire prevention practices call for storage and handling in clean, uncluttered, and well-ventilated areas. Workers should be educated about the hazards involved. Personal protective equipment (working clothes, eye and face protection, and respiratory protective equipment) must be available and used when needed. Consult the MSDS for personal protective equipment requirements.

Health Hazards

The health effects associated with inhalation of fuels and fuel additives include headache, dizziness, nausea, vomiting, loss of coordination, blurred vision, and fatigue. These compounds are moderately irritating to the skin and may cause redness, edema, or drying of the skin. They also may be absorbed through the skin and are considered moderately irritating to the eyes.

Physical Hazards

These compounds generally are very stable, but contact should be avoided between them, or their fumes and vapors, and any source of heat, sparks, or flame. Proximity of strong oxidizing agents such as chlorine, permanganates, and dichromates should be avoided because contact with these materials may cause spontaneous ignition or an explosion.

Procedures to Lessen or Prevent Exposure

In order to reduce or prevent exposure to these compounds, engineering controls such as increased ventilation may be used. Personal protective equipment such as chemical goggles, face

shields, coveralls, lab coats, disposable clothing, gloves, and respiratory protection also may be used for additional protection.

Emergency and First-Aid Procedures

In the event of symptoms of exposure, move **immediately** away from the source of exposure and into fresh air. If symptoms persist, seek medical attention. If a victim is not breathing or is having breathing difficulties, medical attention should be sought immediately. In the event a person ingests these compounds, do not induce vomiting because the material may enter the lungs and cause severe lung damage. Instead, give the person **two or three** cups of milk or water and obtain immediate medical attention. If these compounds get into the eyes, flush them with plenty of water for **fifteen minutes**. If they contact the skin, flush with plenty of water and then follow by washing with soap and water.

5.3.2 Heavy Oil, Lubricants, Hydraulic, and Cutting Fluids

Lubricants generally are petroleum oils of varying viscosities with additives that perform a variety of functions. Although in some instances lubricants also could include soaps, graphite, greases, or even water, this discussion will focus primarily on petroleum oil type lubricants. Hydraulic fluids also are petroleum oils. Cutting fluids are either mineral oil types or "soluble" types which are oils diluted with water (from 1:10 to 1:80) and held in emulsion with emulsifiers. Synthetic lubricants usually consist of triethanolamine and sodium nitrate, along with many additives.

Health Hazards

The most obvious hazard of oils is damage to the skin. Mineral oil compounds can dissolve the protective fat in the skin, thus causing irritation and inflammation (dermatitis) evidenced by redness, rash, and itching. Heavier types of oil can also clog pores, causing folliculitis, an acne-like condition. Mineral oils are not very volatile, and so do not usually pose a vapor inhalation hazard, but oil mists may form during cutting operations. These mists could be inhaled and cause certain types of lung damage.

The decomposition of synthetic cutting oils could lead to the formation of certain nitrosamines, which are suspected of causing cancer. Also, bacterial growth may occur in some oils, so that inhaling a contaminated mist could result in bacterial infections.

Physical Hazards

In general, these materials have flash points above 350^{o} F; therefore, they do not pose a significant fire or explosion hazard under normal circumstances. They will burn, however, given high enough temperatures. They are stable and generally not volatile. See the MSDS for information on specific compounds.

Detection of Release

Some materials may have a characteristic petroleum odor, but since they are not very volatile, this is not a good method of detection. Oil mists may not be visible to the naked eye. Collection of air samples by an Industrial Hygienist can measure the concentration of oil mists in the air.

Control of Exposure

Exposure to oil mists can be avoided by shielding or isolating mist-producing operations. If mists are unavoidable, a dust, fume, and mist respirator should be worn. Protective clothing such as aprons or coveralls, gloves, and face shields should be worn to prevent skin contact. See the MSDS for information on specific compounds.

5.3.3 Metals

Metals encountered during environmental investigations typically consist of solid particulates associated with soil. Except under rare circumstances, generation of metal fumes during mechanical excavation will not occur. Metals of concern at the site are limited to lead as a gasoline additive.

Health Hazards

Metals encountered during environmental investigations will be found in a solid state. As such inhalation of metal particles is the primary concern. Metal fumes are more commonly the source of inhalation related illness, such as metal fume fever. Inhalation of solid particulates of metals can deposit within lung tissue similar to dust and other airborne particulate.

Metal particulates can also irritate skin and eyes. Protection of skin surfaces with long sleeve shirts, long pants, and gloves are generally effective in minimizing the skin irritation caused by some metals. Mucus membranes, including those of the eyes, nose, and throat can reach adversely to metal particulates.

Physical Hazards

Metals encountered during environmental investigations are typically in a solid form. Physical hazards associated with metal contamination are more likely to be associated with the volatility or flammability associated with other products co-located with the contaminant.

Methods Used to Determine Their Respective Airborne Contaminants

Evaluation for airborne concentration of metals is a commonly completed industrial hygiene exposure assessment. Sampling is completed of workers exposed to the airborne hazard during a work shift. Analysis is completed by standard methods developed by the Occupational Safety and Health Administration (OSHA) and/or the National Institute of Occupational Safety and Health (NIOSH).

Laboratory data is directly comparable to acceptable exposure limits established by the Washington State Department of Labor and Industries, Division of Occupational Safety and Health (DOSH), OSHA, or the American Conference of Governmental Industrial Hygienists (ACGIH).

Procedures to Lessen or Prevent Exposure

Management of the hazards associated with solid metals is similar to the management for dust or other airborne particulate. Use of water sprays to mist dry soils and prevent dust generation is generally effective in mitigating airborne metal particulate hazards. Where dust cannot be managed through engineering controls, personal protective equipment, including respirators with P100 high efficiency particulate air (HEPA) filter cartridges can be used to reduce potential exposure.

Emergency and First-Aid Procedures

Generally emergency medical and first-air procedures are not necessary with exposure to airborne particulate. However, if eye irritation or irritation of the respiratory tract occurs, get out of the exposure area and into fresh air. Seek medical attention if irritation persists.

5.3.4 Cleaners and Detergents

The general terms "detergents and cleaners" apply to all soaps made from natural fats and oils, synthetic washing compounds, and some proteolytic enzymes. In general, injuries that occur through the use of detergents and cleaners are few; they usually are confined to people having an allergy either to the product or to one of its components, and to cases of misuse (i.e., swallowing). There are special risks, however, associated with the use of strong acids and alkaline compounds.

Health Hazards

The health effects generally associated with these products are skin irritations. Depending on the length of time the materials are in contact with the skin, a person may experience effects ranging from mild irritation or dermatitis to severe burns. The eyes can become irritated and severely damaged even by short contact. The inhaled mists of alkaline and acidic cleaning agents can irritate tissues of the entire respiratory tract.

Physical Hazards

Cleaners and detergents generally are very stable compounds. However, acids and bases are incompatible, and should not be combined. Refer to the corrosives section for more detailed information on acids and bases.

Methods Used to Determine Their Respective Airborne Contaminants

Cleaners and detergents usually are compounded as viscous liquids or powders. They normally do not represent an airborne hazard due to their low vapor pressure. Caustics generally are clear

and colorless and can form airborne mists. The airborne concentrations will be irritating to the eyes and respiratory tract. Methods for determining airborne concentrations of caustics include colorimetric tubes and personal sampling pumps. Contact the Industrial Hygienist for instructions on monitoring caustics.

Procedures to Lessen or Prevent Exposures

In order to prevent breathing excessive levels of mists, use general and local exhaust ventilation. Additional protective equipment should be worn. See the MSDS for specific personal protective equipment.

Emergency and First-Aid Procedures

If eye irritation or irritation of the respiratory tract occurs, get out of the exposure area and into fresh air. Seek medical attention if irritation persists. If any of these materials get on the skin or into the eyes, wash the area thoroughly with water. It is important to do this as quickly as possible if it is in the eyes: **it may save eyesight**. If any of these products are swallowed, obtain treatment as soon as possible from a knowledgeable doctor or with assistance from a poison information center. **Do not** induce vomiting.

5.3.5 Other Chemicals and Specialty Chemicals

Specialty chemicals will involve a wide range of organic compounds, inorganic compounds, and elements, generally in very small quantities. It is the basic responsibility of individual workers to be knowledgeable about the toxic properties of the materials they use and to follow handling practices which are consistent with those properties. A worker not only must take into account the toxicity of the specific material(s) of concern, but also the physical and chemical properties, the amount and concentrations to be handled, the duration of uses, and the skills and experience of the people involved. Refer to the products' MSDS for specific information.

Health Hazards

The health hazards associated with exposure to specialty chemicals vary. Some health effects may be delayed, as would be the case with chronic exposure to mercury vapor and lead, while exposure to other toxic compounds, such as cadmium, may produce more immediate effects including headaches, dizziness, and respiratory irritation. In most cases, specialty chemicals may be at least moderately irritating to the skin and eyes.

Physical Hazards

The physical hazards associated with exposure to specialty chemicals vary. However physical hazards will fall into one of the following groups: Explosive, flammable, combustible, water reactive, corrosive, poisonous/toxic, oxidizer, or a combination of the above. Refer to the MSDS for specific physical hazards associated with each specialty chemical.

Detection of a Release

Reliance on the sense of smell to determine air concentrations is not a safe. Although odors can alert workers to potential danger, not all chemicals characteristic odor. For other chemicals, an odor may be detected, but only at high concentrations. Direct reading instruments or small personal sampling pumps employed by trained workers are used to collect samples.

Procedures to Lessen or Prevent Exposures

In order to reduce or prevent exposure to any chemical, engineering controls, such as local exhaust ventilation, should be used first. For additional protection, personal protective equipment such as chemical goggles, face shields, protective clothing, and respiratory protection may be used.

Emergency and First-Aid Procedures

If eye irritation or irritation of the respiratory tract occurs, get out of the exposure area and into fresh air. Seek medical attention if irritation persists. If any of these materials get on the skin or into the eyes, wash the area thoroughly with water. It is important to do this as quickly as possible if it is in the eyes: **it may save eyesight**. If any of these products are swallowed, obtain treatment as soon as possible from a knowledgeable doctor or with assistance from a poison information center. **Do not** induce vomiting.

6.0 ENVIRONMENTAL AND PERSONNEL PROTECTION

6.1 Personal Protection

All activities are to be conducted in Level D personnel protective equipment (PPE). Site specific conditions include equipment and machinery. All personnel will take those precautions necessary to prevent injury when near equipment and machinery. All personnel will be required, at a minimum, to use Level D PPE.

Level D PPE will consist of hard-hats, safety glasses, work boots, coveralls or work clothes, and gloves. Sampling personnel are to have onsite Level C PPE (full or 1/2 face Air Purifying Respirators, Sarnex or poly-coated Tyvex coveralls, neoprene or PVC steel toed boots, safety glasses, and nitrile gloves) should site conditions change. Air purifying respirators will be equipped with HEPA and Organic vapor filters.

Personnel observing activities shall maintain a safe distance when choosing to forego PPE.

Action levels are defined as the concentration of a particular chemical or the level of a dangerous condition that mandates a change in personnel safety practices on-site. Air monitoring for action levels will be performed in the breathing zone of site workers. Action levels and response actions for the site are listed in Table 1.

6.2 Environmental Delineation

Environmental delineation will be achieved through the set-up and maintenance of an exclusion zone surrounding the excavation area. The only access to the exclusion zone will be through a decontamination corridor. All personnel and equipment that enters the exclusion zone must be decontaminated prior to leaving the exclusion zone. Disposable or heavily soiled equipment will be deposited and contained in marked barrels within the exclusion zone for later disposal.

6.3 Training Requirements

All personnel involved in sampling activities onsite in which the potential for chemical exposure or physical exertion exists must be enrolled in an active medical monitoring program and have completed their 40-hour Hazardous-Materials Safety course.

7.0 EMERGENCY RESPONSE

FIRE: 911

POLICE: 911

HOSPITAL: Kittitas Valley Community Hospital
603 South Chestnut Street, Ellensburg, Washington
509.962.6841

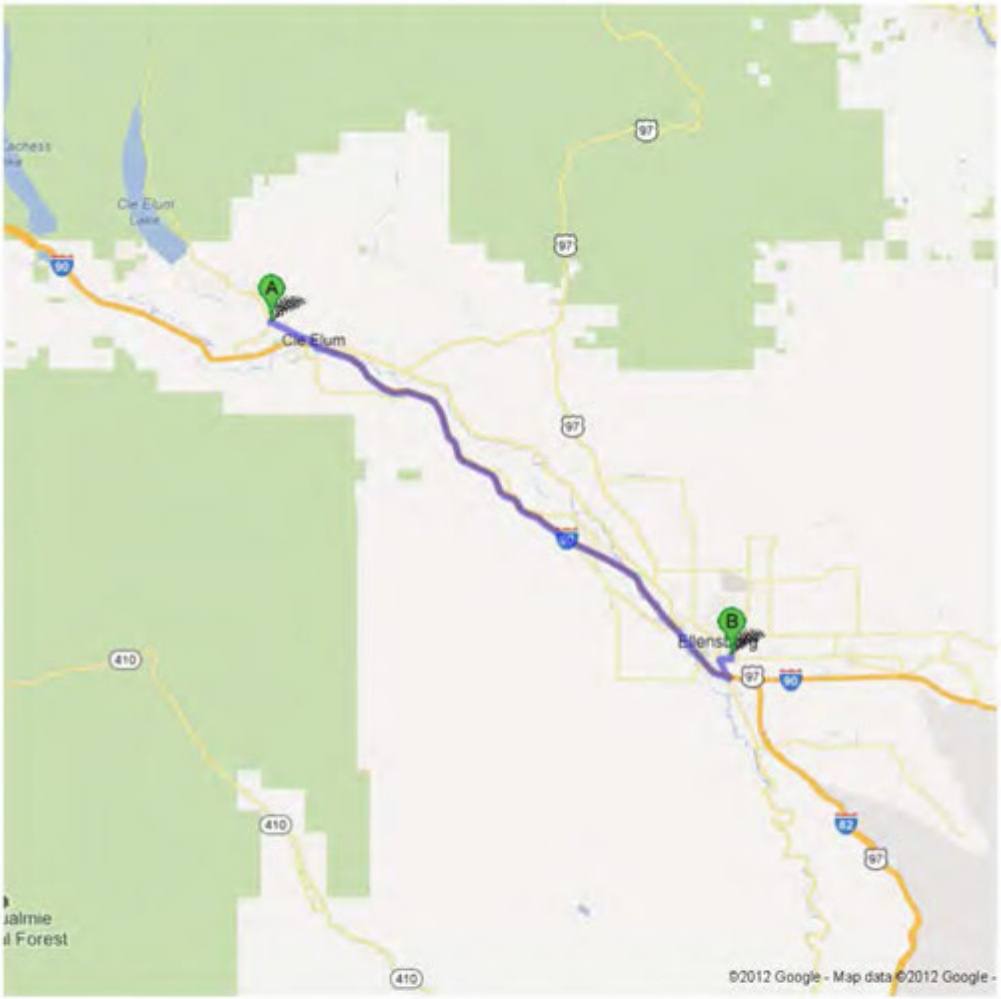
POISON CONTROL CENTER: 1.800.222.1222

EXPLOSIVE UNIT: 911

DIRECTIONS TO HOSPITAL: (following page)

Google

Directions to 603 S Chestnut St, Ellensburg, WA 98926
29.9 mi – about 37 mins



4400 Bullfrog Rd, Cle Elum, WA 98922

1.	Head **north** on **Bullfrog Rd**	go 164 ft total 164 ft
2.	At the traffic circle, take the **1st** exit onto **WA-903 S** About 4 mins	go 1.5 mi total 1.6 mi
3.	Continue onto **W 2nd St**	go 0.4 mi total 2.0 mi
4.	Turn right onto **N Stafford Ave/Statford St** Continue to follow Statford St	go 344 ft total 2.1 mi
5.	Take the 1st left onto **W 1st St** About 1 min	go 256 ft total 2.1 mi
6.	Take the 1st right onto **W Railroad Ave**	go 0.2 mi total 2.3 mi
7.	Take the 1st right onto **S Oakes Ave/S Oaks Ave**	go 400 ft total 2.4 mi
8.	Continue onto **W Russ St** About 58 secs	go 0.4 mi total 2.7 mi
9.	Turn left to merge onto **I-90 E** About 25 mins	go 25.3 mi total 28.0 mi
10.	Take exit **109** to merge onto **Canyon Rd** toward **Ellensburg** About 3 mins	go 1.1 mi total 29.2 mi
11.	Turn right onto **W Mountain View Ave** About 1 min	go 0.5 mi total 29.7 mi
12.	Turn left onto **S Chestnut St** Destination will be on the left About 56 secs	go 0.2 mi total 29.9 mi

603 S Chestnut St, Ellensburg, WA 98926

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

I have read the above site specific HSP for the Soil Investigation, Sportland Mini-Mart Project, Fulcrum project number 12698. I am aware of the risks associated with this project as discussed both verbally and as stated in the aforementioned HSP, and will perform in a manner to decrease the risk of bodily injury to myself or others; property damage; or negatively impact the environment.

Name (print)	Signature	Date	Company
Randy Wilder		11-5-12	EWE
Marc Stirk		11-5-12	E.W.E
Brent Johnson		11-5-12	EWE
Kendra Williams		11-5-12	fulcrum
Ryan Mathews		11/5/12	Fulcrum
Norm Peck		5 Nov 12	Ecology
Randy Wilder		11-6-12	EWE
Brent Johnson		11-6-12	EWE
Marc Stirk		11-6-12	EWE
Kendra Williams		11-6-12	fulcrum
Jeremy Lynn		11-6-12	Fulcrum
Brent Johnson		11-7-12	EWE
Randy Wilder		11-7-12	EWE
Marc Stirk		11-7-12	EWE
Norm Peck		7 Nov 12	Ecology
Kendra Williams		11/7/12	Fulcrum
Jeremy Lynn		"/7/12	Fulcrum

APPENDIX D

Site Photographs

Boreholes were completed by an air rotarty drilling rig.

Sampling station for collecting soil samples from each borehole.

All drilling materials were decontaminated with pressurized water.

Borehole drill cuttings were collected into barrels.

Site business operations continued during borehole investigation.

Samples were collected from each borehole with a split spoon core sampler.

A portion of each sample was collected into plastic bags for field evaluation of volatile organic compounds using a Photo Ionization Detector (PID).

Decontamination water was collected into barrels.

Monitoring well installation occurring with an air rotary drill rig.

Monitoring well drill cuttings were collected into barrels.

Finished monitoring wells were protected while cement hardened.

Monitoring wells were finished with flush mount monuments to prevent damage by site operations.

APPENDIX E

Borehole Logs

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-01
Location:	Cle Elum, Washington	Date Drilled:	8/20/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	20
Drilling Rig:	Air Rotary	Water Level:	~ 16 feet
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5		26 30 30	<5%	N/A	Sandy gravel brown color				2 Split Spoons <5% Recovery No Sample
10		26 47 46	~65%	VOC 0.6 CO ~20	Increase in sand-lens or UST bedding Sandy gravel with clay				2 x VOA 1 x 4 oz 82012.01.10
15		45 82 41	~50%	VOC 1.7 CO ~20	Sandy gravel with clay lights gray color				2 x VOA 1 x 4 oz 82012.01.15 10:10
20		28 51 54	~50%	VOC 0.7 CO ~20	Sandy gravel with clay lights gray color			▼	2 x VOA 1 x 4 oz 82012.01.20 10:45
					END OF BORING				

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-02
Location:	Cle Elum, Washington	Date Drilled:	8/20/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	20
Drilling Rig:	Air Rotary	Water Level:	~ 17.5 feet
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5		7 29 50	~10%	N/A	Sandy gravel light brown color				2 x VOA 1 x 4 oz 82012.02.05 11:56
10			~15%	N/A	Sandy gravel brown and gray color				2 x VOA 1 x 4 oz 82012.02.10 12:30
12.5------- 15		28 105 - 11"	~10% ---------- ~10%	VOC 3.5	Sandy gravel with clay lights gray color Very mild petroleum odor				2 x VOA 1 x 4 oz 12:50 ---------- 2 x VOA 2 x 4 oz 1:05
20		28 51 54	~50%	VOC 4.2	Sandy gravel with clay lights gray color Very mild petroleum odor			▼	2 x VOA 1 x 4 oz Duplicate .11.20 82012.02.20 2:00
					END OF BORING				

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-03
Location:	Cle Elum, Washington	Date Drilled:	8/20/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	20 feet
Drilling Rig:	Air Rotary	Water Level:	~16 feet
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5		27 39 51	~30%	VOC 0.7	Sandy gravel light brown color				2 x VOA 1 x 4 oz 82012.03.05 3:25
10		36 100 -4”	<10%	VOC 1.5	Sandy gravel light brown color				2 x VOA 1 x 4 oz 82012.03.10 3:45
15		31 45 48	~50%	VOC 3.1	Sandy gravel light gray and brown color				4 x VOA 2 x 4 oz Duplicate .12.15 82012.03.15 4:05
20		16 62 100 -5”	~65%	VOC 0.0	Sandy gravel with clay light gray color				2 x VOA 2 x 4 oz 82012.03.20 4:30
					END OF BORING				

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-04
Location:	Cle Elum, Washington	Date Drilled:	8/21/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	17.5 feet
Drilling Rig:	Air Rotary	Water Level:	~16.5 feet
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5		25 73 42	<10%	VOC 0.3	Sandy gravel light brown color No odor or stain				2 x VOA 1 x 4 oz 82112.04.05 7:50
10		37 50 88	<10%	VOC 0.6	Sandy gravel light brown and gray color No odor or stain				2 x VOA 1 x 4 oz 82112.04.10 8:10
15		9 20 61	0%		No odor or stain on wet sampler				No Sample
17.5-------- 20			~25% --------	VOC 5.8 ------	Sandy gravel with clay brown and gray color – No sheen or odor END OF BORING			▼	4 x VOA 2 x 4 oz Dup .13.17.5 82112.04.17.5 8:50

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-05
Location:	Cle Elum, Washington	Date Drilled:	8/21/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	17.5 feet
Drilling Rig:	Air Rotary	Water Level:	~15 feet 7 Inches
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5		15 39 41	~10%	VOC 3.8	Sandy gravel light brown color No odor or sheen				2 x VOA 1 x 4 oz 82112.05.05 9:50
10		34 50 42	~20%	VOC 2.7	Sandy gravel with clay light brown color No odor or sheen				2 x VOA 1 x 4 oz 82112.05.10 10:05
15		44 100	40%	VOC 5.2	Increase in rock / gravel % light gray color No odor, staining / sheen				2 x VOA 1 x 4 oz 82112.05.15 10:30 Saturated
17.5-------- 20		42 100 For 3”	40% --------	VOC 6.2 ------	Sandy gravel - basalt light gray color – No sheen or odor END OF BORING			▼	2 x VOA 1 x 4 oz 82112.05.17.5 10:45

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-06
Location:	Cle Elum, Washington	Date Drilled:	8/21/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	17.5 feet
Drilling Rig:	Air Rotary	Water Level:	~15 feet
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5		28 43 22	~40%	VOC 2.7	Sandy gravel light brown color No odor or stain				2 x VOA 1 x 4 oz 82112.06.05 12:00
10		11 24 23	~40%	VOC 217	Sandy gravel with some clay light brown and gray color Gasoline odor, no sheen or stain				2 x VOA 1 x 4 oz 82112.06.10 12:10
15		61 100 For 5”	~10%	VOC 200	Sandy gravel with clay light gray color No odor, no sheen or stain				2 x VOA 1 x 4 oz 82112.06.15 12:30
17.5-------- 20		9 100 For 5”	~10% --------	VOC 24.7 ------	Sandy gravel with clay light gray color Faint gasoline odor, no sheen END OF BORING			▼	2 x VOA 1 x 4 oz 82112.06.17.5 1:00 No Free Product

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-07
Location:	Cle Elum, Washington	Date Drilled:	8/21/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	20 feet
Drilling Rig:	Air Rotary	Water Level:	~15 feet
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5		28 28 19	~20%	VOC 4.4	Sandy gravel light brown color No odor, no stain or sheen				3 x VOA 1 x 4 oz 82112.07.05 2:40
10		83 3 26	~35%	VOC 7.5	Sandy gravel with clay - high H_2O % No stain or sheen, very mild odor				2 x VOA 1 x 4 oz 82112.07.10 3:00
15		29 34 75	~30%	VOC 463	Sandy gravel with clay, saturated Gasoline odor, no stain or sheen				2 x VOA 1 x 4 oz 82112.07.15 3:35
20		49 34 75	~30%	VOC 1,099	Sandy gravel and clay, saturated Gasoline odor, no stain or sheen			▼	2 x VOA 1 x 4 oz 82112.07.20 4:00
					END OF BORING				

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-08
Location:	Cle Elum, Washington	Date Drilled:	8/22/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	17.5 feet
Drilling Rig:	Air Rotary	Water Level:	~15.5 feet
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5		24 35 42	~50%	VOC 0.1	Sandy gravel light brown color				2 x VOA 1 x 4 oz 82212.08.05 7:45
10		35 44 81	~50%	VOC 0.2	Very lights brown gravelly sand with clay lens No odor / sheen / stain				2 x VOA 1 x 4 oz 82212.08.10 8:00
15		31 88 100	~60%	VOC 25.0	Sandy gravel with clay light green color, saturated No odor, sheen or stain				2 x VOA 1 x 4 oz 82212.08.15 8:20
17.5-------- 20		13 39 73	~75% --------	VOC 2.2 ------	Sandy gravel with clay brown and gray color, increasing in clay %, saturated, no odor sheen or stain END OF BORING			▼	2 x VOA 1 x 4 oz 82212.08.17.5 8:40

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-09
Location:	Cle Elum, Washington	Date Drilled:	8/22/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	20 feet
Drilling Rig:	Air Rotary	Water Level:	20 feet
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5		>100	0%	N/A	Sandy rock observed in drill cuttings				0 recovery No Sample
7.5-------- 10		31,42, 41 -------- 9,28, 50	~60% --------- ~50%	VOC 0.7 VOC 3.8	Sandy gravel with clay no odor or stain ---------- Sandy gravel with clay no odor or stain				2xVOA 1x4 oz 09.7.5 10:10 ---------- 2xVOA 1x4 oz 09.10 10:18
15			~50%	VOC 10.8	Sandy gravel with clay no odor or stain				2 x VOA 1 x 4 oz 82212.09.15 10:30
BH-09A ---------- BH-09B 20			0% at 17.5 ~50%	 VOC 56.7	REFUSAL AT 16' Relocated ~ 8 feet West Sandy gravel with clay, mild gasoline odor no stain or sheen.			▼	4 x VOA 2 x 4 oz Duplicate 14.20 82212.08.17.5 8:40
					END OF BORING				*Gx odor observed at 17.5 feet bgs, no sample recovery

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-10
Location:	Cle Elum, Washington	Date Drilled:	8/22/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	20 feet
Drilling Rig:	Air Rotary	Water Level:	~15.5 feet
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5			~10%	N/A	Sandy gravel brown, gray color No Odor, stain or sheen				2 x VOA 1 x 4 oz 82212.10.05 2:45
10			0%	N/A					No Sample
12.5-------- 15		70, 100 For 3”	10% ---------- 10%	VOC 5.0 ------ VOC 7.0	Sandy gravel with clay brown, gray color No Stain, odor, sheen Sandy gravel with clay brown, gray color No stain, odor, sheen				2xVOA 1x4 oz 10.12.5 3:45 ---------- 2xVOA 1x4 oz 10.15 3:30
17.5-------- 20		11, 75 ------- 40, 42	0% -------- 65%	N/A ------ N/A	Sandy gravel with clay brown and gray color, saturated			▼	No Sample ---------- 2xVOA 1x4 oz 10.20 4:00
					END OF BORING				

Fulcrum Environmental Consulting, Inc. - Borehole Log Form

Project:	Sportland Mini Mart	Borehole:	BH-11
Location:	Cle Elum, Washington	Date Drilled:	8/22/2012
Project No.:	12698	Surface Elevation:	-
Geologist:	J. Lynn (2914)	Total Depth of Hole:	20 feet
Drilling Rig:	Air Rotary	Water Level:	Not Collected, Estimated ~16
Drilling Company:	Environmental West	Page:	1 of 1

Depth BGS (ft.)	Sample Interval	Blow Count	Sample Recovered (in.)	PID Reading (ppm)	Sample Description	USCS Class	Geology	Groundwater	Comments
5		62 100 For 4”	~30%	VOC 3.5	Sandy gravel, light to medium brown No odor, staining or sheen				2 x VOA 1 x 4 oz 82212.11.05 5:15
10		19 75 100	~20%	N/A	Sandy gravel gray color with orange-brown clay No odor, staining or sheen				2 x VOA 1 x 4 oz 82212.11.10 5:27
15		100 For 4”	0%	N/A	No odor on sampler				No Sample
17.5-------- 20		64, 100 ------- 81, 100	---------- 0%	N/A ----- N/A	Sandy gravel with silt, gray brown color faint odor, no stain / sheen				2xVOA 1x4 oz 11.17.5 6:00 ---------- No Sample
					END OF BORING				

Driller's Logs

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT Notice of Intent No. RE 07787

Construction/Decommission ("x" in circle) 468286

⊗ Construction

○ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well ("x" in circle)

⊗ Resource Protection

○ Geotech Soil Boring

Property Owner Sportland Project LLC

Consulting Firm Fulcrum

Site Address 4400 Bullfrog Rd

Unique Ecology Well ID Tag No: BHP-485 MW-5

City Cle Elum County: Kittitas

Location SW 1/4 SW 1/4 Sec 21 Twn 20N R 15 (EWM or WWM) circle one

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter _____ Static Level 14

Work/Decommission Start Date 11-5-12

Work/Decommission Completed Date 11-5-12

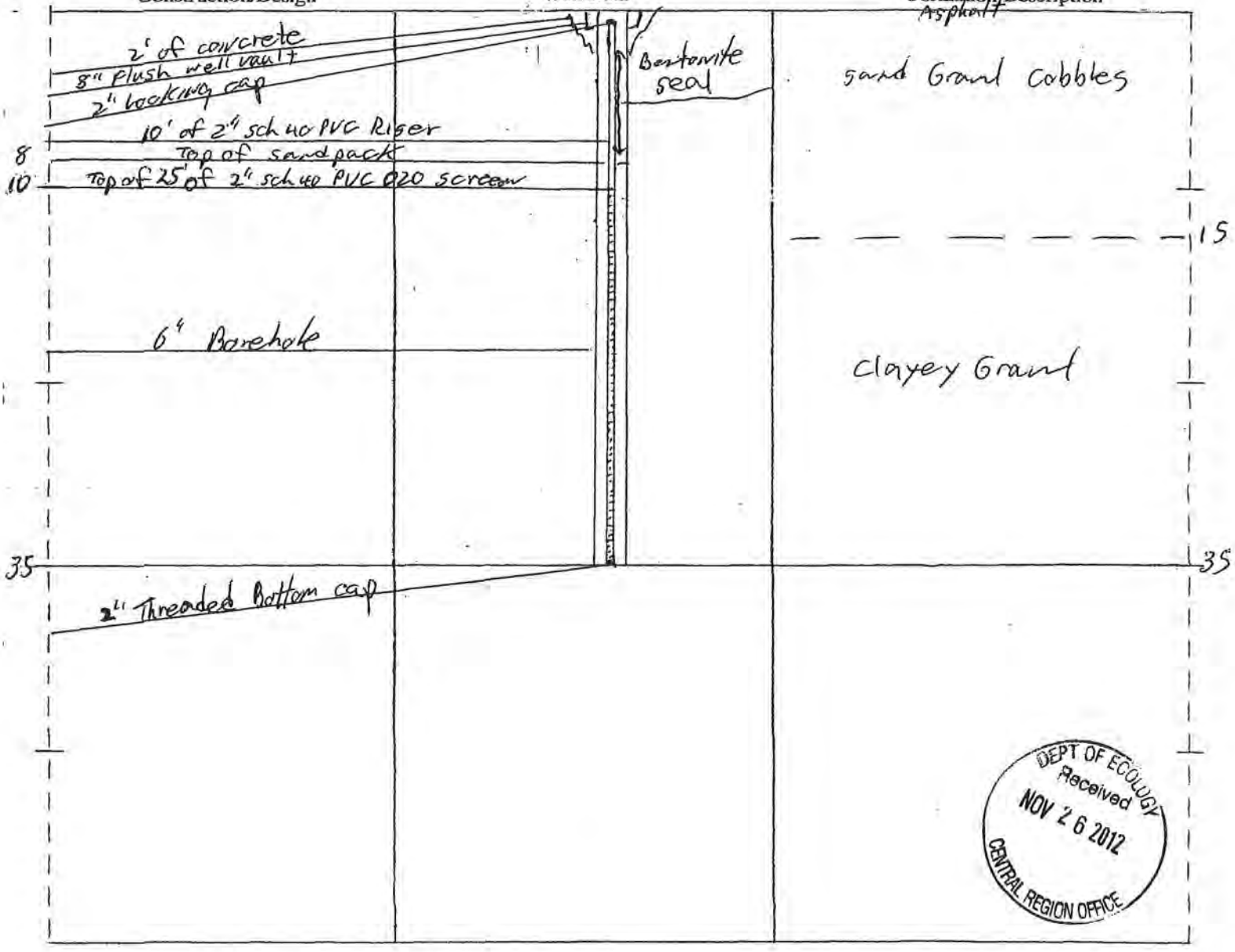
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Randall E Wilder

Driller/Engineer/Trainee Signature _____

Driller or Trainee License No. 2578

If trainee, licensed driller's Signature and License no. _____



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ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT Notice of Intent No. RE 07787

Construction/Decommission ("x" in circle) 468287
- ⊗ Construction
- ○ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well ("x" in circle)
- ⊗ Resource Protection
- ○ Geotech Soil Boring

Property Owner Sportland Project LLC

Consulting Firm Falcrum

Site Address 4400 Bullfrog Rd

Unique Ecology Well ID Tag No: BHP-486 MW-6

City Cle Elum County: Kittitas

Location SW 1/4 SW 1/4 Sec 21 Twn 20N R 15 (EWM or WWM) circle one

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter _____ Static Level 14

Work/Decommission Start Date 11-5-12

Work/Decommission Completed Date 11-5-12

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☑ Driller ☐ Engineer ☐ Trainee Name (Print) Randall E Wilder

Driller/Engineer/Trainee Signature _____

Driller or Trainee License No. 2578

If trainee, licensed driller's Signature and License no. _____

Construction/Design	Well Data	Formation Description
2' of concrete		Asphalt
8" Flush well vault		
2" locking cap		
10' of 2" sch 40 PVC Riser	Bentonite seal	sand Grant Cobbles
Top of sandpack		
Top of 25 of 2" sch 40 PVC 020 screen		
6" Borehole		clayey Grant
2" Threaded Bottom cap		

8 10 15 35 35

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RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT Notice of Intent No. RE 07787

Construction/Decommission ("x" in circle) 468288

- ⊗ Construction
- ○ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well ("x" in circle)

- ⊗ Resource Protection
- ○ Geotech Soil Boring

Property Owner Sportland Project LLC

Consulting Firm Fulcrum

Site Address 4400 Bullfrog Rd

Unique Ecology Well ID Tag No: BHP-487 MW-7

City Cle Elum County: Kittitas

Location SW 1/4 SW 1/4 Sec 21 Twn 20N R 15 (EWM or WWM) circle one

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter _____ Static Level no water

Work/Decommission Start Date 11-5-12

Work/Decommission Completed Date 11-5-12

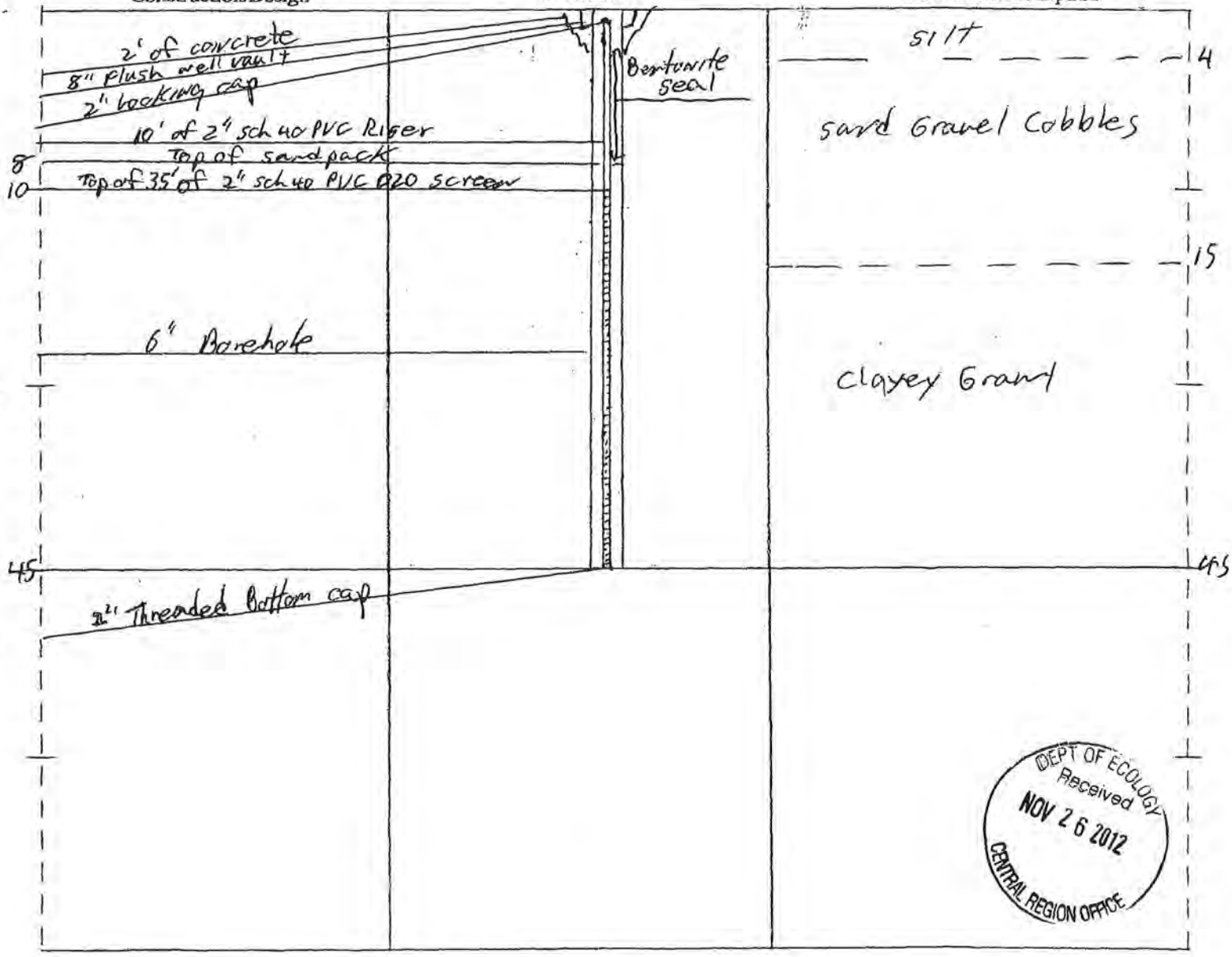
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☑ Driller ☐ Engineer ☐ Trainee Name (Print) Randall E Wilder

Driller/Engineer/Trainee Signature _____

Driller or Trainee License No. 2578

If trainee, licensed driller's Signature and License no. _____



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RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT Notice of Intent No. RE 027787

Construction/Decommission ("x" in circle) 468284

⊗ Construction

○ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well ("x" in circle)

⊗ Resource Protection

○ Geotech Soil Boring

Property Owner Sportland Project LLC

Consulting Firm Fulcrum

Site Address 4400 Bullfrog Rd

Unique Ecology Well ID Tag No: BHP-490 - MW-8

City Cle Elum County: Kittitas

Location SW 1/4 SW 1/4 Sec 21 Twn 20N R 15 (EWM or WWM) circle one

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

☑ Driller ☐ Engineer ☐ Trainee Name (Print) Randall E Wilder

Driller/Engineer/Trainee Signature _____

Driller or Trainee License No. 2578

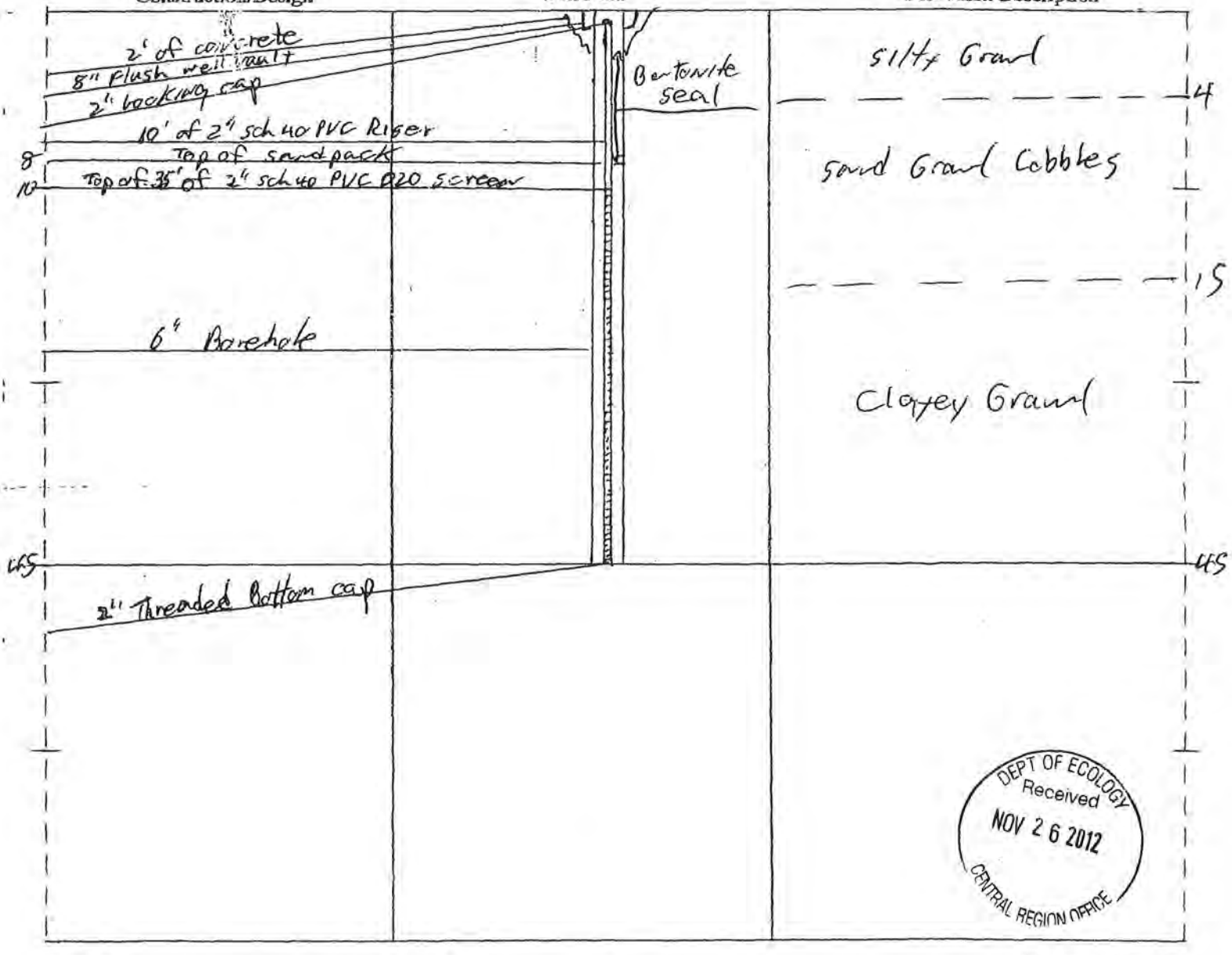
Tax Parcel No. _____

Cased or Uncased Diameter _____ Static Level 15

Work/Decommission Start Date 11-6-12

Work/Decommission Completed Date 11-6-12

If trainee, licensed driller's Signature and License no. _____



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RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT Notice of Intent No. RE07787

Construction/Decommission ("x" in circle) 468285

- ⊗ Construction
- ○ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well ("x" in circle)

- ⊗ Resource Protection
- ○ Geotech Soil Boring

Property Owner Sportland Project LLC

Consulting Firm Fulcrum

Site Address 4400 Bullfrog Rd

Unique Ecology Well ID Tag No: BHP-488 MW-9

City Cle Elum County: Kittitas

Location SW 1/4 SW 1/4 Sec 21 Twn 20N R 15 (E/W/M) circle one or WWM

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☑ Driller ☐ Engineer ☐ Trainee Name (Print) Randall E Wilder

Driller/Engineer/Trainee Signature _____

Driller or Trainee License No. 2578

If trainee, licensed driller's Signature and License no. _____

Cased or Uncased Diameter _____ Static Level 14

Work/Decommission (Start Date) 11-6-12

Work/Decommission (Completed Date) 11-6-12

Construction/Design	Well Data	Formation Description
2' of concrete 8" plush well vault 2" locking cap		Asphalt silt
10' of 2" sch 40 PVC Riser	Bentonite seal	sand Gravel Cobbles
Top of sandpack		
Top of 25' of 2" sch 40 PVC 020 screen		
6" Borehole		Clayey Gravel
2" Threaded Bottom cap		

3 8 10 17 35 35

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RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT Notice of Intent No. RE07787

Construction/Decommission ("x" in circle) 468283

- ⊗ Construction
- ○ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well ("x" in circle)

- ⊗ Resource Protection
- ○ Geotech Soil Boring

Property Owner Sportland Project LLC

Consulting Firm Fulcrum

Site Address 4400 Bullfrog Rd

Unique Ecology Well ID Tag No: BHP-489 MW-10

City Cle Elum County: Kittitas

Location SW 1/4 SW 1/4 Sec 21 Twn 20N R 15 (EWM or WWM) circle one

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter _____ Static Level 15

Work/Decommission Start Date 11-6-12

Work/Decommission Completed Date 11-6-12

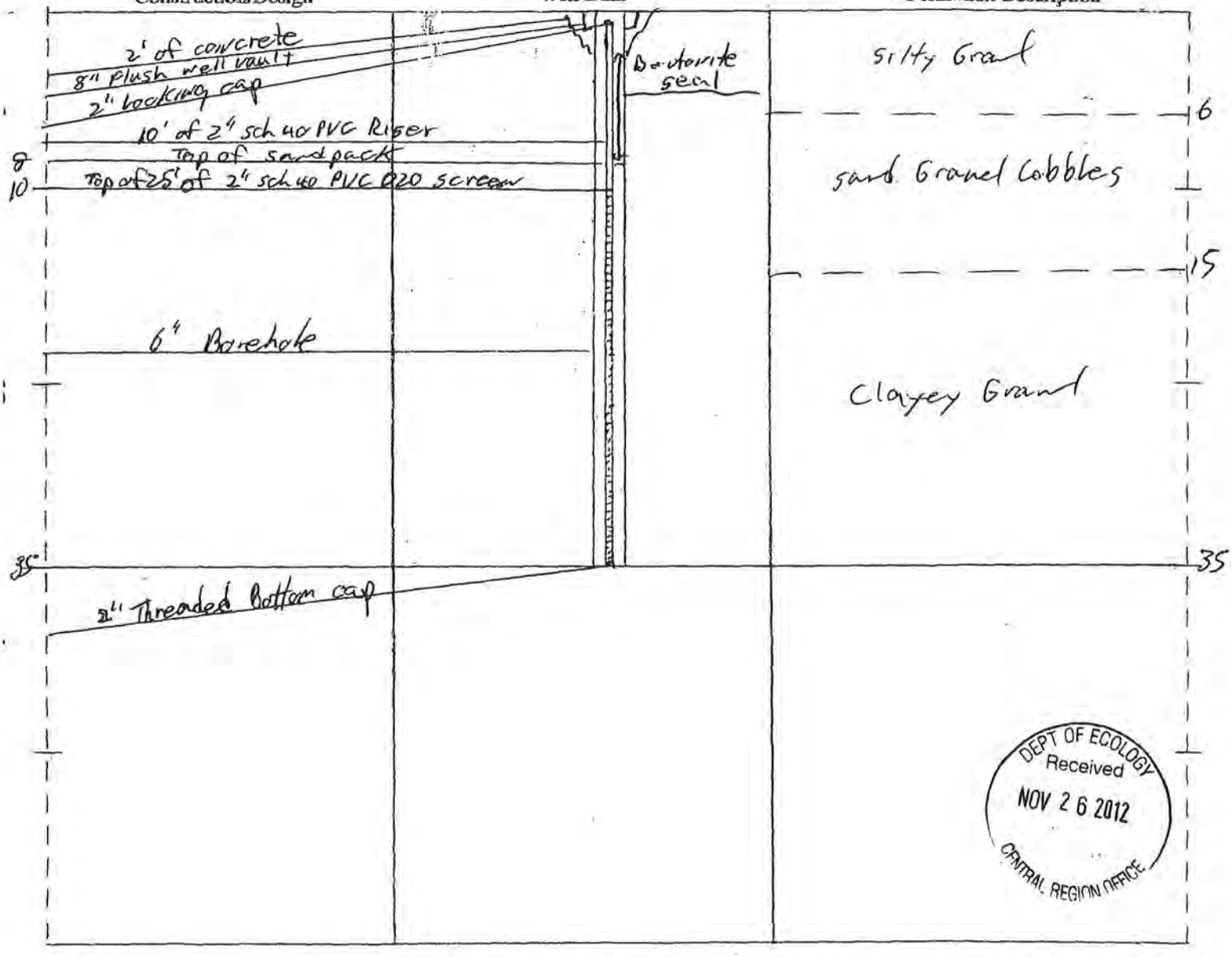
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☑ Driller ☐ Engineer ☐ Trainee Name (Print) Randall E Wilder

Driller/Engineer/Trainee Signature _____

Driller or Trainee License No. 2578

If trainee, licensed driller's Signature and License no. _____



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APPENDIX F

Soil and Groundwater Laboratory Analytical

Table F.1 Soil Sample Laboratory Analytical Results Summary

		Sample Number	82012.01.15	82012.01.20	82012.02.15	82012.02.20	82012.03.10	82012.03.15	82012.03.20	82112.04.10	82112.04.17.5	82112.05.15	82112.05.17.5	82112.06.05	82112.06.10	82112.06.15	82112.06.17.5	82112.07.05	82112.07.10	82112.07.15	82112.07.20	82212.08.10	82212.08.15	82212.08.17.5	82212.09.10	82212.09.15	82212.09B.20	82212.10.15	82212.10.20	82212.11.10	82212.11.17.5	82012.15.20	82012.12.15	82212.14.20	110612-MW09.17.5	MTCA Method A	MTCA Method B Carcinogenic	MTCA Method B Non-Carcinogenic
		Depth (Feet)	15	20	15	20	10	15	20	10	17.5	15	17.5	5	10	15	17.5	5	10	15	20	10	15	17.5	10	15	20	15	20	10	17.5	20	15	20				
Analyte	Petroleum Hydrocarbons	Diesel (Fuel Oil)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,000	NE	NE
		Diesel Range Organics (C12-C24)																																	320			
		Kerosene (Diesel 1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	314	70.5	-	-	-	-	-	-	-	-	-	-	-	-	-		2,000	NE	NE
		Heavy Oil	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,000	NE	NE
		Gasoline	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2,150**	30/100	NE	NE
		Gasoline Range Organics (C_6-C_{12})	-	-	-	-	-	-	-	-	-	-	-	-	20.7	**118**	-	-	-	**266**	**357**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30/100	NE	NE
	Extractable Petroleum Hydrocarbons	Aliphatic Hydrocarbon (C8-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	47.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	14.8	-	-	-
		Aliphatic Hydrocarbon (C10-12)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	26.9	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	10.1	-	-	-
		Aliphatic Hydrocarbon (C12-16)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	16.5	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	7.41	-	-	-
		Aliphatic Hydrocarbon (C16-21)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-
		Aliphatic Hydrocarbon (C21-34)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-
		Aromatic Hydrocarbon (C8-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	86.4	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	27.2	-	-	-
		Aromatic Hydrocarbon (C10-12)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	60.9	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	25.3	-	-	-
		Aromatic Hydrocarbon (C12-16)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	44.3	6.45	-	-	-	-	-	-	-	-	-	-	-	-	-	17.1	-	-	-
		Aromatic Hydrocarbon (C16-21)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-
		Aromatic Hydrocarbon (C21-34)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-
	Volatile Petroleum Hydrocarbons	Aliphatic Hydrocarbon (C5-C6)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.651	-	-	-	1.47	21.4	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-
		Aliphatic Hydrocarbon (C6-C8)	-	-	-	-	-	-	-	-	-	-	-	-	-	12.1	-	-	-	14.4	53.3	-	-	-	-	-	-	-	-	-	-	-	-	-	120	-	-	-
		Aliphatic Hydrocarbon (C8-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	30.7	78.6	-	-	-	-	-	-	-	-	-	-	-	-	-	160	-	-	-
		Aliphatic Hydrocarbon (C10-C12)	-	-	-	-	-	-	-	-	-	-	-	-	-	11.0	-	-	-	35.8	46.5	-	-	-	-	-	-	-	-	-	-	-	-	-	117	-	-	-
		Aromatic Hydrocarbon (C8-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	14.9	-	-	-	112	146	-	-	-	-	-	-	-	-	-	-	-	-	-	242	-	-	-
		Aromatic Hydrocarbon (C10-C12)	-	-	-	-	-	-	-	-	-	-	-	-	-	28.1	-	-	-	94.7	68.1	-	-	-	-	-	-	-	-	-	-	-	-	-	220	-	-	-
		Aromatic Hydrocarbon (C12-C13)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	1.35	-	-	-
	Gasoline Additatives or Components	Ethanol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE	NE
		Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	0.392	-	-	-	**7.38**	**6.21**	-	-	-	-	-	-	-	-	-	-	-	-	-	**10.4**	5	NE	1,600
		n-Hexane	-	-	-	-	-	-	-	-	-	-	-	-	-	3.09	-	-	-	**2.71**	**12.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE	NE	4,800
		Methyl tert-butyl ether (MTBE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	0.1	NE	NE
		1,2-Dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	11	1,600
		1,2-Dibromomethane (EDB)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	0.005	0.5	720
		Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.640**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	18	320
		Toluene	ND	ND	0.0254	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.98	**30.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**10.6**	7	NE	6,400
		Ethylbenzene	ND	ND	0.0746	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.505	ND	ND	ND	5.55	**10.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**22.6**	6	NE	8,000
		m, p-Xylene	ND	ND	0.114	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.203	2.16	0.0616	ND	ND	**27.0**	**46.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.037	0.057	ND	0.0347	**98.7**	9	NE	16,000
		o-Xylene	ND	ND	0.0300	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0280	0.257	ND	ND	ND	7.38	**16.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**30.3**	9	NE	1,600
	Metals	Lead	3.23	2.5	4.23	2.34	4.35	3.52	3.20	3.3	3.30	2.7	4.18	3.80	3.78	2.81	2.27	3.28	3.84	4.91	4.87	4.12	4.35	2.97	3.33	3.91	2.25	2.24	2.84	2.57	2.41	3.32	2.66	2.38	2.37	250	NE	NE

The following samples were not analyzed: 82012.01.10, 82012.02.05, 82012.02.10, 82012.02.12.5, 2012.03.05, 82112.04.05, 82112.05.05, 82112.05.10, 82212.08.05, 82212.09.7.5, 82212.10.05, 82212.10.12.5, 82212.11.05, 82112.13.17.5

1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Fulcrum Environmental
Jeremy Lynn
406 N. 2nd Street
Yakima, Washington 98901

RE: Sportland
Lab ID: 1208159

September 14, 2012

Attention Jeremy Lynn:

Fremont Analytical, Inc. received 46 sample(s) on 8/21/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Ethanol by SW8015
Extractable Petroleum Hydrocarbons by NWEPH
Gasoline by NWTPH-Gx
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Fremont Analytical

Date: *09/14/2012*

CLIENT: Fulcrum Environmental
Project: Sportland
Lab Order: 1208159

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1208159-001	082012.01.10	08/20/2012 9:45 AM	08/21/2012 9:45 AM
1208159-002	082012.01.15	08/20/2012 10:10 AM	08/21/2012 9:45 AM
1208159-003	082012.01.20	08/20/2012 10:45 AM	08/21/2012 9:45 AM
1208159-004	082012.02.05	08/20/2012 11:56 AM	08/21/2012 9:45 AM
1208159-005	082012.02.10	08/20/2012 12:30 PM	08/21/2012 9:45 AM
1208159-006	082012.02.12.5	08/20/2012 12:50 PM	08/21/2012 9:45 AM
1208159-007	082012.02.15	08/20/2012 1:05 PM	08/21/2012 9:45 AM
1208159-008	082012.02.20	08/20/2012 2:00 PM	08/21/2012 9:45 AM
1208159-009	082012.15.20	08/20/2012 1:00 PM	08/21/2012 9:45 AM
1208159-010	082012.03.05	08/20/2012 3:25 PM	08/21/2012 9:45 AM
1208159-011	082012.03.10	08/20/2012 3:45 PM	08/21/2012 9:45 AM
1208159-012	082012.03.15	08/20/2012 4:05 PM	08/21/2012 9:45 AM
1208159-013	082012.12.15	08/20/2012 4:02 PM	08/21/2012 9:45 AM
1208159-014	082012.03.20	08/20/2012 4:30 PM	08/21/2012 9:45 AM
1208159-015	082112.05.05	08/21/2012 9:50 AM	08/22/2012 10:00 AM
1208159-016	082112.05.10	08/21/2012 10:05 AM	08/22/2012 10:00 AM
1208159-017	082112.05.15	08/21/2012 10:30 AM	08/22/2012 10:00 AM
1208159-018	082112.05.17.5	08/21/2012 10:35 AM	08/22/2012 10:00 AM
1208159-019	082112.06.05	08/21/2012 12:00 PM	08/22/2012 10:00 AM
1208159-020	082112.06.10	08/21/2012 12:10 PM	08/22/2012 10:00 AM
1208159-021	082112.06.15	08/21/2012 12:30 PM	08/22/2012 10:00 AM
1208159-022	082112.06.17.5	08/21/2012 1:00 PM	08/22/2012 10:00 AM
1208159-023	082112.04.05	08/21/2012 7:50 AM	08/22/2012 10:00 AM
1208159-024	082112.04.10	08/21/2012 8:10 AM	08/22/2012 10:00 AM
1208159-025	082112.04.17.5	08/21/2012 8:50 AM	08/22/2012 10:00 AM
1208159-026	082112.07.05	08/21/2012 2:40 PM	08/22/2012 10:00 AM
1208159-027	082112.07.10	08/21/2012 3:00 PM	08/22/2012 10:00 AM
1208159-028	082112.07.15	08/21/2012 3:35 PM	08/22/2012 10:00 AM
1208159-029	082112.07.20	08/21/2012 4:00 PM	08/22/2012 10:00 AM
1208159-030	082212.08.05	08/22/2012 7:45 AM	08/23/2012 12:45 PM
1208159-031	082212.08.10	08/22/2012 8:00 AM	08/22/2012 10:00 AM
1208159-032	082212.08.15	08/22/2012 8:20 AM	08/23/2012 12:45 PM
1208159-033	082212.08.17.5	08/22/2012 8:40 AM	08/22/2012 10:00 AM
1208159-034	082212.09.7.5	08/22/2012 10:10 AM	08/23/2012 12:45 PM
1208159-035	082212.09.10	08/22/2012 10:18 AM	08/23/2012 12:45 PM
1208159-036	082212.09.15	08/22/2012 10:30 AM	08/23/2012 12:45 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Fulcrum Environmental
Project: Sportland
Lab Order: 1208159

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1208159-037	082212.09B.20	08/22/2012 1:20 PM	08/23/2012 12:45 PM
1208159-038	082212.14.20	08/22/2012 1:10 PM	08/23/2012 12:45 PM
1208159-039	082212.10.05	08/22/2012 2:45 PM	08/23/2012 12:45 PM
1208159-040	082212.10.12.5	08/22/2012 3:15 PM	08/23/2012 12:45 PM
1208159-041	082212.10.15	08/22/2012 3:30 PM	08/23/2012 12:45 PM
1208159-042	082212.10.20	08/22/2012 4:00 PM	08/23/2012 12:45 PM
1208159-043	082212.11.05	08/22/2012 5:15 PM	08/23/2012 12:45 PM
1208159-044	082212.11.10	08/22/2012 5:27 PM	08/23/2012 12:45 PM
1208159-045	082212.11.17.5	08/22/2012 6:00 PM	08/23/2012 12:45 PM
1208159-046	082112.13.17.5	08/21/2012 8:50 AM	08/22/2012 10:00 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1208159**
Date: **9/14/2012**

CLIENT: Fulcrum Environmental
Project: Sportland

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.
Prep Comments for PREP-EPH-S, Sample 1208159-021C: Mecl2 preserved 9/1/12
Prep Comments for PREP-EPH-S, Sample 1208159-028C: Mecl2 preserved 9/1/12
Prep Comments for PREP-EPH-S, Sample 1208159-029C: Mecl2 preserved 9/1/12

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 10:10:00 AM
Project: Sportland
Lab ID: 1208159-002
Matrix: Soil
Client Sample ID: 082012.01.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	18.9		mg/Kg-dry	1	8/29/2012 7:18:00 AM
Heavy Oil	ND	47.2		mg/Kg-dry	1	8/29/2012 7:18:00 AM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	8/29/2012 7:18:00 AM
Surr: o-Terphenyl	101	50-150		%REC	1	8/29/2012 7:18:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	0.912		mg/Kg-dry	1	8/28/2012 3:47:00 PM
Surr: Methanol	104	65-135		%REC	1	8/28/2012 3:47:00 PM
Gasoline by NWTPH-Gx				Batch ID: 3096		Analyst: EM
Gasoline	ND	4.27		mg/Kg-dry	1	8/31/2012 9:27:00 AM
Surr: 1,2-Dichloroethane-d4	87.7	65-135		%REC	1	8/31/2012 9:27:00 AM
Surr: Fluorobenzene	80.6	65-135		%REC	1	8/31/2012 9:27:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3096		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0427		mg/Kg-dry	1	8/31/2012 9:27:00 AM
1,2-Dichloroethane (EDC)	ND	0.0256		mg/Kg-dry	1	8/31/2012 9:27:00 AM
Benzene	ND	0.0171		mg/Kg-dry	1	8/31/2012 9:27:00 AM
Toluene	ND	0.0171		mg/Kg-dry	1	8/31/2012 9:27:00 AM
1,2-Dibromoethane (EDB)	ND	0.00427		mg/Kg-dry	1	8/31/2012 9:27:00 AM
Ethylbenzene	ND	0.0256		mg/Kg-dry	1	8/31/2012 9:27:00 AM
m,p-Xylene	ND	0.0171		mg/Kg-dry	1	8/31/2012 9:27:00 AM
o-Xylene	ND	0.0171		mg/Kg-dry	1	8/31/2012 9:27:00 AM
Surr: 1-Bromo-4-fluorobenzene	97.5	63.1-141		%REC	1	8/31/2012 9:27:00 AM
Surr: Dibromofluoromethane	91.8	67.6-119		%REC	1	8/31/2012 9:27:00 AM
Surr: Toluene-d8	94.4	78.5-126		%REC	1	8/31/2012 9:27:00 AM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	3.23	0.173		mg/Kg-dry	1	8/28/2012 8:54:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 10:10:00 AM
Project: Sportland
Lab ID: 1208159-002
Matrix: Soil
Client Sample ID: 082012.01.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	9.71			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 10:45:00 AM
Project: Sportland
Lab ID: 1208159-003
Matrix: Soil
Client Sample ID: 082012.01.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3151		Analyst: BR
Diesel (Fuel Oil)	ND	20.0		mg/Kg-dry	1	9/10/2012 9:42:00 PM
Heavy Oil	ND	50.0		mg/Kg-dry	1	9/10/2012 9:42:00 PM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	9/10/2012 9:42:00 PM
Surr: o-Terphenyl	107	50-150		%REC	1	9/10/2012 9:42:00 PM
Ethanol by SW8015				Batch ID: 3157		Analyst: BR
Ethanol	ND	1.09		mg/Kg-dry	1	9/10/2012 8:47:00 PM
Surr: Methanol	98.2	65-135		%REC	1	9/10/2012 8:47:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5646		Analyst: EM
Gasoline	ND	5.71		mg/Kg-dry	1	9/1/2012 7:56:00 PM
Surr: 1,2-Dichloroethane-d4	86.1	65-135		%REC	1	9/1/2012 7:56:00 PM
Surr: Fluorobenzene	68.4	65-135		%REC	1	9/1/2012 7:56:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3127		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0571		mg/Kg-dry	1	9/1/2012 7:56:00 PM
1,2-Dichloroethane (EDC)	ND	0.0343		mg/Kg-dry	1	9/1/2012 7:56:00 PM
Benzene	ND	0.0228		mg/Kg-dry	1	9/1/2012 7:56:00 PM
Toluene	ND	0.0228		mg/Kg-dry	1	9/1/2012 7:56:00 PM
1,2-Dibromoethane (EDB)	ND	0.00571		mg/Kg-dry	1	9/1/2012 7:56:00 PM
Ethylbenzene	ND	0.0343		mg/Kg-dry	1	9/1/2012 7:56:00 PM
m,p-Xylene	ND	0.0228		mg/Kg-dry	1	9/1/2012 7:56:00 PM
o-Xylene	ND	0.0228		mg/Kg-dry	1	9/1/2012 7:56:00 PM
Surr: 1-Bromo-4-fluorobenzene	88.9	63.1-141		%REC	1	9/1/2012 7:56:00 PM
Surr: Dibromofluoromethane	98.2	67.6-119		%REC	1	9/1/2012 7:56:00 PM
Surr: Toluene-d8	98.6	78.5-126		%REC	1	9/1/2012 7:56:00 PM
Total Metals by EPA Method 6020				Batch ID: 3149		Analyst: SG
Lead	2.47	0.171		mg/Kg-dry	1	9/12/2012 7:46:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 10:45:00 AM
Project: Sportland
Lab ID: 1208159-003
Matrix: Soil
Client Sample ID: 082012.01.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	9.53			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 1:05:00 PM
Project: Sportland
Lab ID: 1208159-007
Matrix: Soil
Client Sample ID: 082012.02.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	20.9		mg/Kg-dry	1	8/29/2012 7:45:00 AM
Heavy Oil	ND	52.2		mg/Kg-dry	1	8/29/2012 7:45:00 AM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	8/29/2012 7:45:00 AM
Surr: o-Terphenyl	102	50-150		%REC	1	8/29/2012 7:45:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.83		mg/Kg-dry	1	8/28/2012 4:08:00 PM
Surr: Methanol	102	65-135		%REC	1	8/28/2012 4:08:00 PM
Gasoline by NWTPH-Gx				Batch ID: 3096		Analyst: EM
Gasoline	ND	5.18		mg/Kg-dry	1	8/31/2012 9:58:00 AM
Surr: 1,2-Dichloroethane-d4	84.2	65-135		%REC	1	8/31/2012 9:58:00 AM
Surr: Fluorobenzene	78.5	65-135		%REC	1	8/31/2012 9:58:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3096		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0518		mg/Kg-dry	1	8/31/2012 9:58:00 AM
1,2-Dichloroethane (EDC)	ND	0.0311		mg/Kg-dry	1	8/31/2012 9:58:00 AM
Benzene	ND	0.0207		mg/Kg-dry	1	8/31/2012 9:58:00 AM
Toluene	0.0254	0.0207		mg/Kg-dry	1	8/31/2012 9:58:00 AM
1,2-Dibromoethane (EDB)	ND	0.00518		mg/Kg-dry	1	8/31/2012 9:58:00 AM
Ethylbenzene	0.0746	0.0311		mg/Kg-dry	1	8/31/2012 9:58:00 AM
m,p-Xylene	0.114	0.0207		mg/Kg-dry	1	8/31/2012 9:58:00 AM
o-Xylene	0.0300	0.0207		mg/Kg-dry	1	8/31/2012 9:58:00 AM
Surr: 1-Bromo-4-fluorobenzene	93.7	63.1-141		%REC	1	8/31/2012 9:58:00 AM
Surr: Dibromofluoromethane	91.3	67.6-119		%REC	1	8/31/2012 9:58:00 AM
Surr: Toluene-d8	96.8	78.5-126		%REC	1	8/31/2012 9:58:00 AM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	4.23	0.156		mg/Kg-dry	1	8/28/2012 9:56:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 1:05:00 PM
Project: Sportland
Lab ID: 1208159-007
Matrix: Soil
Client Sample ID: 082012.02.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	8.58			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 2:00:00 PM
Project: Sportland
Lab ID: 1208159-008
Matrix: Soil
Client Sample ID: 082012.02.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	21.3		mg/Kg-dry	1	8/29/2012 8:12:00 AM
Heavy Oil	ND	53.1		mg/Kg-dry	1	8/29/2012 8:12:00 AM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	8/29/2012 8:12:00 AM
Surr: o-Terphenyl	102	50-150		%REC	1	8/29/2012 8:12:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.04		mg/Kg-dry	1	8/28/2012 4:14:00 PM
Surr: Methanol	94.4	65-135		%REC	1	8/28/2012 4:14:00 PM
Gasoline by NWTPH-Gx				Batch ID: 3096		Analyst: EM
Gasoline	ND	4.44		mg/Kg-dry	1	8/31/2012 12:37:00 PM
Surr: 1,2-Dichloroethane-d4	54.8	65-135	S	%REC	1	8/31/2012 12:37:00 PM
Surr: Fluorobenzene	80.2	65-135		%REC	1	8/31/2012 12:37:00 PM

NOTES:
S - Outlying surrogate recovery observed. The method is in control as indicated by the Method Blank (MB) and Laboratory Control Sample (LCS).

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3096		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0444		mg/Kg-dry	1	8/31/2012 12:37:00 PM
1,2-Dichloroethane (EDC)	ND	0.0266		mg/Kg-dry	1	8/31/2012 12:37:00 PM
Benzene	ND	0.0178		mg/Kg-dry	1	8/31/2012 12:37:00 PM
Toluene	ND	0.0178		mg/Kg-dry	1	8/31/2012 12:37:00 PM
1,2-Dibromoethane (EDB)	ND	0.00444		mg/Kg-dry	1	8/31/2012 12:37:00 PM
Ethylbenzene	ND	0.0266		mg/Kg-dry	1	8/31/2012 12:37:00 PM
m,p-Xylene	ND	0.0178		mg/Kg-dry	1	8/31/2012 12:37:00 PM
o-Xylene	ND	0.0178		mg/Kg-dry	1	8/31/2012 12:37:00 PM
Surr: 1-Bromo-4-fluorobenzene	85.5	63.1-141		%REC	1	8/31/2012 12:37:00 PM
Surr: Dibromofluoromethane	91.1	67.6-119		%REC	1	8/31/2012 12:37:00 PM
Surr: Toluene-d8	95.4	78.5-126		%REC	1	8/31/2012 12:37:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 2:00:00 PM
Project: Sportland
Lab ID: 1208159-008
Matrix: Soil
Client Sample ID: 082012.02.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	2.34	0.166		mg/Kg-dry	1	8/28/2012 10:06:24 PM
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	10.9			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 1:00:00 PM
Project: Sportland
Lab ID: 1208159-009
Matrix: Soil
Client Sample ID: 082012.15.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	22.2		mg/Kg-dry	1	8/29/2012 8:40:00 AM
Heavy Oil	ND	55.5		mg/Kg-dry	1	8/29/2012 8:40:00 AM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	8/29/2012 8:40:00 AM
Surr: o-Terphenyl	102	50-150		%REC	1	8/29/2012 8:40:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	0.871		mg/Kg-dry	1	8/28/2012 4:19:00 PM
Surr: Methanol	83.5	65-135		%REC	1	8/28/2012 4:19:00 PM
Gasoline by NWTPH-Gx				Batch ID: 3096		Analyst: EM
Gasoline	ND	4.15		mg/Kg-dry	1	8/31/2012 1:08:00 PM
Surr: 1,2-Dichloroethane-d4	83.6	65-135		%REC	1	8/31/2012 1:08:00 PM
Surr: Fluorobenzene	76.0	65-135		%REC	1	8/31/2012 1:08:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3096		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0415		mg/Kg-dry	1	8/31/2012 1:08:00 PM
1,2-Dichloroethane (EDC)	ND	0.0249		mg/Kg-dry	1	8/31/2012 1:08:00 PM
Benzene	ND	0.0166		mg/Kg-dry	1	8/31/2012 1:08:00 PM
Toluene	ND	0.0166		mg/Kg-dry	1	8/31/2012 1:08:00 PM
1,2-Dibromoethane (EDB)	ND	0.00415		mg/Kg-dry	1	8/31/2012 1:08:00 PM
Ethylbenzene	ND	0.0249		mg/Kg-dry	1	8/31/2012 1:08:00 PM
m,p-Xylene	0.0573	0.0166		mg/Kg-dry	1	8/31/2012 1:08:00 PM
o-Xylene	ND	0.0166		mg/Kg-dry	1	8/31/2012 1:08:00 PM
Surr: 1-Bromo-4-fluorobenzene	88.4	63.1-141		%REC	1	8/31/2012 1:08:00 PM
Surr: Dibromofluoromethane	91.4	67.6-119		%REC	1	8/31/2012 1:08:00 PM
Surr: Toluene-d8	97.2	78.5-126		%REC	1	8/31/2012 1:08:00 PM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	3.32	0.168		mg/Kg-dry	1	8/28/2012 10:39:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 1:00:00 PM
Project: Sportland
Lab ID: 1208159-009
Matrix: Soil
Client Sample ID: 082012.15.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	10.7			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 3:45:00 PM
Project: Sportland
Lab ID: 1208159-011
Matrix: Soil
Client Sample ID: 082012.03.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	8/29/2012 9:07:00 AM
Heavy Oil	ND	54.8		mg/Kg-dry	1	8/29/2012 9:07:00 AM
Surr: 2-Fluorobiphenyl	109	50-150		%REC	1	8/29/2012 9:07:00 AM
Surr: o-Terphenyl	106	50-150		%REC	1	8/29/2012 9:07:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.22		mg/Kg-dry	1	8/28/2012 4:25:00 PM
Surr: Methanol	92.1	65-135		%REC	1	8/28/2012 4:25:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	4.87		mg/Kg-dry	1	8/31/2012 5:57:00 AM
Surr: 1,2-Dichloroethane-d4	135	65-135		%REC	1	8/31/2012 5:57:00 AM
Surr: Fluorobenzene	108	65-135		%REC	1	8/31/2012 5:57:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0487		mg/Kg-dry	1	8/31/2012 5:57:00 AM
1,2-Dichloroethane (EDC)	ND	0.0292		mg/Kg-dry	1	8/31/2012 5:57:00 AM
Benzene	ND	0.0195		mg/Kg-dry	1	8/31/2012 5:57:00 AM
Toluene	ND	0.0195		mg/Kg-dry	1	8/31/2012 5:57:00 AM
1,2-Dibromoethane (EDB)	ND	0.00487		mg/Kg-dry	1	8/31/2012 5:57:00 AM
Ethylbenzene	ND	0.0292		mg/Kg-dry	1	8/31/2012 5:57:00 AM
m,p-Xylene	ND	0.0195		mg/Kg-dry	1	8/31/2012 5:57:00 AM
o-Xylene	ND	0.0195		mg/Kg-dry	1	8/31/2012 5:57:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.1	63.1-141		%REC	1	8/31/2012 5:57:00 AM
Surr: Dibromofluoromethane	99.3	67.6-119		%REC	1	8/31/2012 5:57:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	8/31/2012 5:57:00 AM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	4.35	0.163		mg/Kg-dry	1	8/28/2012 10:48:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 3:45:00 PM
Project: Sportland
Lab ID: 1208159-011
Matrix: Soil
Client Sample ID: 082012.03.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	10.5			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 4:05:00 PM
Project: Sportland
Lab ID: 1208159-012
Matrix: Soil
Client Sample ID: 082012.03.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	21.6		mg/Kg-dry	1	8/29/2012 9:34:00 AM
Heavy Oil	ND	54.0		mg/Kg-dry	1	8/29/2012 9:34:00 AM
Surr: 2-Fluorobiphenyl	116	50-150		%REC	1	8/29/2012 9:34:00 AM
Surr: o-Terphenyl	111	50-150		%REC	1	8/29/2012 9:34:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.11		mg/Kg-dry	1	8/28/2012 4:30:00 PM
Surr: Methanol	91.7	65-135		%REC	1	8/28/2012 4:30:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	6.78		mg/Kg-dry	1	8/31/2012 6:56:00 AM
Surr: 1,2-Dichloroethane-d4	133	65-135		%REC	1	8/31/2012 6:56:00 AM
Surr: Fluorobenzene	109	65-135		%REC	1	8/31/2012 6:56:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0678		mg/Kg-dry	1	8/31/2012 6:56:00 AM
1,2-Dichloroethane (EDC)	ND	0.0407		mg/Kg-dry	1	8/31/2012 6:56:00 AM
Benzene	ND	0.0271		mg/Kg-dry	1	8/31/2012 6:56:00 AM
Toluene	ND	0.0271		mg/Kg-dry	1	8/31/2012 6:56:00 AM
1,2-Dibromoethane (EDB)	ND	0.00678		mg/Kg-dry	1	8/31/2012 6:56:00 AM
Ethylbenzene	ND	0.0407		mg/Kg-dry	1	8/31/2012 6:56:00 AM
m,p-Xylene	ND	0.0271		mg/Kg-dry	1	8/31/2012 6:56:00 AM
o-Xylene	ND	0.0271		mg/Kg-dry	1	8/31/2012 6:56:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.6	63.1-141		%REC	1	8/31/2012 6:56:00 AM
Surr: Dibromofluoromethane	99.9	67.6-119		%REC	1	8/31/2012 6:56:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	8/31/2012 6:56:00 AM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	3.52	0.173		mg/Kg-dry	1	8/28/2012 10:58:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 4:05:00 PM
Project: Sportland
Lab ID: 1208159-012
Matrix: Soil
Client Sample ID: 082012.03.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	12.5			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 4:02:00 PM
Project: Sportland
Lab ID: 1208159-013
Matrix: Soil
Client Sample ID: 082012.12.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	19.7		mg/Kg-dry	1	8/29/2012 10:02:00 AM
Heavy Oil	ND	49.1		mg/Kg-dry	1	8/29/2012 10:02:00 AM
Surr: 2-Fluorobiphenyl	109	50-150		%REC	1	8/29/2012 10:02:00 AM
Surr: o-Terphenyl	104	50-150		%REC	1	8/29/2012 10:02:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.13		mg/Kg-dry	1	8/28/2012 4:36:00 PM
Surr: Methanol	93.8	65-135		%REC	1	8/28/2012 4:36:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	5.35		mg/Kg-dry	1	8/31/2012 8:23:00 AM
Surr: 1,2-Dichloroethane-d4	135	65-135		%REC	1	8/31/2012 8:23:00 AM
Surr: Fluorobenzene	108	65-135		%REC	1	8/31/2012 8:23:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0535		mg/Kg-dry	1	8/31/2012 8:23:00 AM
1,2-Dichloroethane (EDC)	ND	0.0321		mg/Kg-dry	1	8/31/2012 8:23:00 AM
Benzene	ND	0.0214		mg/Kg-dry	1	8/31/2012 8:23:00 AM
Toluene	ND	0.0214		mg/Kg-dry	1	8/31/2012 8:23:00 AM
1,2-Dibromoethane (EDB)	ND	0.00535		mg/Kg-dry	1	8/31/2012 8:23:00 AM
Ethylbenzene	ND	0.0321		mg/Kg-dry	1	8/31/2012 8:23:00 AM
m,p-Xylene	ND	0.0214		mg/Kg-dry	1	8/31/2012 8:23:00 AM
o-Xylene	ND	0.0214		mg/Kg-dry	1	8/31/2012 8:23:00 AM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	8/31/2012 8:23:00 AM
Surr: Dibromofluoromethane	99.8	67.6-119		%REC	1	8/31/2012 8:23:00 AM
Surr: Toluene-d8	100	78.5-126		%REC	1	8/31/2012 8:23:00 AM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	2.66	0.166		mg/Kg-dry	1	8/28/2012 11:08:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 4:02:00 PM
Project: Sportland
Lab ID: 1208159-013
Matrix: Soil
Client Sample ID: 082012.12.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	10.6			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 4:30:00 PM
Project: Sportland
Lab ID: 1208159-014
Matrix: Soil
Client Sample ID: 082012.03.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3151		Analyst: BR
Diesel (Fuel Oil)	ND	20.3		mg/Kg-dry	1	9/10/2012 10:37:00 PM
Heavy Oil	ND	50.7		mg/Kg-dry	1	9/10/2012 10:37:00 PM
Surr: 2-Fluorobiphenyl	110	50-150		%REC	1	9/10/2012 10:37:00 PM
Surr: o-Terphenyl	111	50-150		%REC	1	9/10/2012 10:37:00 PM
Ethanol by SW8015				Batch ID: 3157		Analyst: BR
Ethanol	ND	1.02		mg/Kg-dry	1	9/10/2012 8:58:00 PM
Surr: Methanol	97.5	65-135		%REC	1	9/10/2012 8:58:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5646		Analyst: EM
Gasoline	ND	4.61		mg/Kg-dry	1	9/1/2012 8:27:00 PM
Surr: 1,2-Dichloroethane-d4	90.9	65-135		%REC	1	9/1/2012 8:27:00 PM
Surr: Fluorobenzene	70.3	65-135		%REC	1	9/1/2012 8:27:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3127		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0461		mg/Kg-dry	1	9/1/2012 8:27:00 PM
1,2-Dichloroethane (EDC)	ND	0.0277		mg/Kg-dry	1	9/1/2012 8:27:00 PM
Benzene	ND	0.0185		mg/Kg-dry	1	9/1/2012 8:27:00 PM
Toluene	ND	0.0185		mg/Kg-dry	1	9/1/2012 8:27:00 PM
1,2-Dibromoethane (EDB)	ND	0.00461		mg/Kg-dry	1	9/1/2012 8:27:00 PM
Ethylbenzene	ND	0.0277		mg/Kg-dry	1	9/1/2012 8:27:00 PM
m,p-Xylene	ND	0.0185		mg/Kg-dry	1	9/1/2012 8:27:00 PM
o-Xylene	ND	0.0185		mg/Kg-dry	1	9/1/2012 8:27:00 PM
Surr: 1-Bromo-4-fluorobenzene	89.2	63.1-141		%REC	1	9/1/2012 8:27:00 PM
Surr: Dibromofluoromethane	98.3	67.6-119		%REC	1	9/1/2012 8:27:00 PM
Surr: Toluene-d8	100	78.5-126		%REC	1	9/1/2012 8:27:00 PM
Total Metals by EPA Method 6020				Batch ID: 3149		Analyst: SG
Lead	3.20	0.165		mg/Kg-dry	1	9/12/2012 7:56:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/20/2012 4:30:00 PM
Project: Sportland
Lab ID: 1208159-014
Matrix: Soil
Client Sample ID: 082012.03.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	10.0			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 10:30:00 AM
Project: Sportland
Lab ID: 1208159-017
Matrix: Soil
Client Sample ID: 082112.05.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	20.7		mg/Kg-dry	1	8/29/2012 10:29:00 AM
Heavy Oil	ND	51.7		mg/Kg-dry	1	8/29/2012 10:29:00 AM
Surr: 2-Fluorobiphenyl	107	50-150		%REC	1	8/29/2012 10:29:00 AM
Surr: o-Terphenyl	103	50-150		%REC	1	8/29/2012 10:29:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.05		mg/Kg-dry	1	8/28/2012 4:41:00 PM
Surr: Methanol	91.4	65-135		%REC	1	8/28/2012 4:41:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	3.96		mg/Kg-dry	1	8/31/2012 8:52:00 AM
Surr: 1,2-Dichloroethane-d4	134	65-135		%REC	1	8/31/2012 8:52:00 AM
Surr: Fluorobenzene	109	65-135		%REC	1	8/31/2012 8:52:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0396		mg/Kg-dry	1	8/31/2012 8:52:00 AM
1,2-Dichloroethane (EDC)	ND	0.0237		mg/Kg-dry	1	8/31/2012 8:52:00 AM
Benzene	ND	0.0158		mg/Kg-dry	1	8/31/2012 8:52:00 AM
Toluene	ND	0.0158		mg/Kg-dry	1	8/31/2012 8:52:00 AM
1,2-Dibromoethane (EDB)	ND	0.00396		mg/Kg-dry	1	8/31/2012 8:52:00 AM
Ethylbenzene	ND	0.0237		mg/Kg-dry	1	8/31/2012 8:52:00 AM
m,p-Xylene	ND	0.0158		mg/Kg-dry	1	8/31/2012 8:52:00 AM
o-Xylene	ND	0.0158		mg/Kg-dry	1	8/31/2012 8:52:00 AM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	8/31/2012 8:52:00 AM
Surr: Dibromofluoromethane	98.4	67.6-119		%REC	1	8/31/2012 8:52:00 AM
Surr: Toluene-d8	99.4	78.5-126		%REC	1	8/31/2012 8:52:00 AM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	2.73	0.186		mg/Kg-dry	1	8/28/2012 11:17:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 10:30:00 AM
Project: Sportland
Lab ID: 1208159-017
Matrix: Soil
Client Sample ID: 082112.05.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	10.6			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 10:35:00 AM
Project: Sportland
Lab ID: 1208159-018
Matrix: Soil
Client Sample ID: 082112.05.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3151		Analyst: BR
Diesel (Fuel Oil)	ND	20.5		mg/Kg-dry	1	9/10/2012 11:04:00 PM
Heavy Oil	ND	51.3		mg/Kg-dry	1	9/10/2012 11:04:00 PM
Surr: 2-Fluorobiphenyl	111	50-150		%REC	1	9/10/2012 11:04:00 PM
Surr: o-Terphenyl	114	50-150		%REC	1	9/10/2012 11:04:00 PM
Ethanol by SW8015				Batch ID: 3157		Analyst: BR
Ethanol	ND	1.06		mg/Kg-dry	1	9/10/2012 9:14:00 PM
Surr: Methanol	92.0	65-135		%REC	1	9/10/2012 9:14:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5646		Analyst: EM
Gasoline	ND	5.31		mg/Kg-dry	1	9/1/2012 5:48:00 PM
Surr: 1,2-Dichloroethane-d4	88.5	65-135		%REC	1	9/1/2012 5:48:00 PM
Surr: Fluorobenzene	69.3	65-135		%REC	1	9/1/2012 5:48:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3127		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0531		mg/Kg-dry	1	9/1/2012 5:48:00 PM
1,2-Dichloroethane (EDC)	ND	0.0319		mg/Kg-dry	1	9/1/2012 5:48:00 PM
Benzene	ND	0.0213		mg/Kg-dry	1	9/1/2012 5:48:00 PM
Toluene	ND	0.0213		mg/Kg-dry	1	9/1/2012 5:48:00 PM
1,2-Dibromoethane (EDB)	ND	0.00531		mg/Kg-dry	1	9/1/2012 5:48:00 PM
Ethylbenzene	ND	0.0319		mg/Kg-dry	1	9/1/2012 5:48:00 PM
m,p-Xylene	ND	0.0213		mg/Kg-dry	1	9/1/2012 5:48:00 PM
o-Xylene	ND	0.0213		mg/Kg-dry	1	9/1/2012 5:48:00 PM
Surr: 1-Bromo-4-fluorobenzene	82.8	63.1-141		%REC	1	9/1/2012 5:48:00 PM
Surr: Dibromofluoromethane	99.1	67.6-119		%REC	1	9/1/2012 5:48:00 PM
Surr: Toluene-d8	97.4	78.5-126		%REC	1	9/1/2012 5:48:00 PM
Total Metals by EPA Method 6020				Batch ID: 3149		Analyst: SG
Lead	4.18	0.174		mg/Kg-dry	1	9/12/2012 8:26:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 10:35:00 AM
Project: Sportland
Lab ID: 1208159-018
Matrix: Soil
Client Sample ID: 082112.05.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	9.72			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 12:00:00 PM
Project: Sportland
Lab ID: 1208159-019
Matrix: Soil
Client Sample ID: 082112.06.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3151		Analyst: BR
Diesel (Fuel Oil)	ND	19.8		mg/Kg-dry	1	9/10/2012 11:31:00 PM
Heavy Oil	ND	49.6		mg/Kg-dry	1	9/10/2012 11:31:00 PM
Surr: 2-Fluorobiphenyl	113	50-150		%REC	1	9/10/2012 11:31:00 PM
Surr: o-Terphenyl	119	50-150		%REC	1	9/10/2012 11:31:00 PM
Ethanol by SW8015				Batch ID: 3157		Analyst: BR
Ethanol	ND	1.09		mg/Kg-dry	1	9/10/2012 9:19:00 PM
Surr: Methanol	93.9	65-135		%REC	1	9/10/2012 9:19:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5646		Analyst: EM
Gasoline	ND	5.00		mg/Kg-dry	1	9/1/2012 6:20:00 PM
Surr: 1,2-Dichloroethane-d4	91.5	65-135		%REC	1	9/1/2012 6:20:00 PM
Surr: Fluorobenzene	71.5	65-135		%REC	1	9/1/2012 6:20:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3127		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0500		mg/Kg-dry	1	9/1/2012 6:20:00 PM
1,2-Dichloroethane (EDC)	ND	0.0300		mg/Kg-dry	1	9/1/2012 6:20:00 PM
Benzene	ND	0.0200		mg/Kg-dry	1	9/1/2012 6:20:00 PM
Toluene	ND	0.0200		mg/Kg-dry	1	9/1/2012 6:20:00 PM
1,2-Dibromoethane (EDB)	ND	0.00500		mg/Kg-dry	1	9/1/2012 6:20:00 PM
Ethylbenzene	ND	0.0300		mg/Kg-dry	1	9/1/2012 6:20:00 PM
m,p-Xylene	ND	0.0200		mg/Kg-dry	1	9/1/2012 6:20:00 PM
o-Xylene	ND	0.0200		mg/Kg-dry	1	9/1/2012 6:20:00 PM
Surr: 1-Bromo-4-fluorobenzene	87.8	63.1-141		%REC	1	9/1/2012 6:20:00 PM
Surr: Dibromofluoromethane	100	67.6-119		%REC	1	9/1/2012 6:20:00 PM
Surr: Toluene-d8	97.6	78.5-126		%REC	1	9/1/2012 6:20:00 PM
Total Metals by EPA Method 6020				Batch ID: 3149		Analyst: SG
Lead	3.80	0.148		mg/Kg-dry	1	9/12/2012 1:28:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 12:00:00 PM
Project: Sportland
Lab ID: 1208159-019
Matrix: Soil
Client Sample ID: 082112.06.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	9.17			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 12:10:00 PM
Project: Sportland
Lab ID: 1208159-020
Matrix: Soil
Client Sample ID: 082112.06.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	21.0		mg/Kg-dry	1	8/29/2012 11:24:00 AM
Heavy Oil	ND	52.5		mg/Kg-dry	1	8/29/2012 11:24:00 AM
Surr: 2-Fluorobiphenyl	111	50-150		%REC	1	8/29/2012 11:24:00 AM
Surr: o-Terphenyl	108	50-150		%REC	1	8/29/2012 11:24:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.67		mg/Kg-dry	1	8/28/2012 4:46:00 PM
Surr: Methanol	100	65-135		%REC	1	8/28/2012 4:46:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	5.95		mg/Kg-dry	1	8/31/2012 9:42:00 AM
Gasoline Range Organics C6-C12	20.7	5.95		mg/Kg-dry	1	8/31/2012 9:42:00 AM
Surr: 1,2-Dichloroethane-d4	134	65-135		%REC	1	8/31/2012 9:42:00 AM
Surr: Fluorobenzene	108	65-135		%REC	1	8/31/2012 9:42:00 AM

NOTES:
GRO - Indicates the presence of unresolved compounds eluting from toluene to dodecane (~C7->C12).

Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0595		mg/Kg-dry	1	8/31/2012 9:42:00 AM
1,2-Dichloroethane (EDC)	ND	0.0357		mg/Kg-dry	1	8/31/2012 9:42:00 AM
Benzene	ND	0.0238		mg/Kg-dry	1	8/31/2012 9:42:00 AM
Toluene	ND	0.0238		mg/Kg-dry	1	8/31/2012 9:42:00 AM
1,2-Dibromoethane (EDB)	ND	0.00595		mg/Kg-dry	1	8/31/2012 9:42:00 AM
Ethylbenzene	ND	0.0357		mg/Kg-dry	1	8/31/2012 9:42:00 AM
m,p-Xylene	0.203	0.0238		mg/Kg-dry	1	8/31/2012 9:42:00 AM
o-Xylene	0.0280	0.0238		mg/Kg-dry	1	8/31/2012 9:42:00 AM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141		%REC	1	8/31/2012 9:42:00 AM
Surr: Dibromofluoromethane	98.0	67.6-119		%REC	1	8/31/2012 9:42:00 AM
Surr: Toluene-d8	102	78.5-126		%REC	1	8/31/2012 9:42:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 12:10:00 PM
Project: Sportland
Lab ID: 1208159-020
Matrix: Soil
Client Sample ID: 082112.06.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	3.78	0.166		mg/Kg-dry	1	8/28/2012 11:27:30 PM
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	9.88			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**

Date Reported: **9/14/2012**

Client: Fulcrum Environmental **Collection Date:** 8/21/2012 12:30:00 PM

Project: Sportland

Lab ID: 1208159-021 **Matrix:** Soil

Client Sample ID: 082112.06.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	22.4		mg/Kg-dry	1	8/29/2012 11:51:00 AM
Heavy Oil	ND	55.9		mg/Kg-dry	1	8/29/2012 11:51:00 AM
Surr: 2-Fluorobiphenyl	110	50-150		%REC	1	8/29/2012 11:51:00 AM
Surr: o-Terphenyl	107	50-150		%REC	1	8/29/2012 11:51:00 AM
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 3156		Analyst: BR
Aliphatic Hydrocarbon (C8-C10)	ND	4.79		mg/Kg-dry	1	9/13/2012 12:56:00 PM
Aliphatic Hydrocarbon (C10-C12)	ND	4.79		mg/Kg-dry	1	9/13/2012 12:56:00 PM
Aliphatic Hydrocarbon (C12-C16)	ND	4.79		mg/Kg-dry	1	9/13/2012 12:56:00 PM
Aliphatic Hydrocarbon (C16-C21)	ND	4.79		mg/Kg-dry	1	9/13/2012 12:56:00 PM
Aliphatic Hydrocarbon (C21-C34)	ND	4.79		mg/Kg-dry	1	9/13/2012 12:56:00 PM
Aromatic Hydrocarbon (C8-C10)	ND	4.78	*	mg/Kg-dry	1	9/13/2012 6:11:00 PM
Aromatic Hydrocarbon (C10-C12)	ND	4.78		mg/Kg-dry	1	9/13/2012 6:11:00 PM
Aromatic Hydrocarbon (C12-C16)	ND	4.78		mg/Kg-dry	1	9/13/2012 6:11:00 PM
Aromatic Hydrocarbon (C16-C21)	ND	4.78		mg/Kg-dry	1	9/13/2012 6:11:00 PM
Aromatic Hydrocarbon (C21-C34)	ND	4.78		mg/Kg-dry	1	9/13/2012 6:11:00 PM
Surr: 1-Chlorooctadecane	65.8	65-140		%REC	1	9/13/2012 12:56:00 PM
Surr: o-Terphenyl	78.3	65-140		%REC	1	9/13/2012 6:11:00 PM

NOTES:

* Flagged value is not within established control limits

Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.12		mg/Kg-dry	1	8/28/2012 4:52:00 PM
Surr: Methanol	88.3	65-135		%REC	1	8/28/2012 4:52:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 3138		Analyst: EM
Aliphatic Hydrocarbon (C5-C6)	0.651	0.557		mg/Kg-dry	1	9/4/2012 8:38:00 AM
Aliphatic Hydrocarbon (C6-C8)	12.1	0.557		mg/Kg-dry	1	9/4/2012 8:38:00 AM
Aliphatic Hydrocarbon (C8-C10)	18.7	0.557		mg/Kg-dry	1	9/4/2012 8:38:00 AM
Aliphatic Hydrocarbon (C10-C12)	11.0	0.557		mg/Kg-dry	1	9/4/2012 8:38:00 AM
Aromatic Hydrocarbon (C8-C10)	14.9	0.557		mg/Kg-dry	1	9/4/2012 8:38:00 AM
Aromatic Hydrocarbon (C10-C12)	28.1	0.557		mg/Kg-dry	1	9/4/2012 8:38:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 12:30:00 PM
Project: Sportland
Lab ID: 1208159-021
Matrix: Soil
Client Sample ID: 082112.06.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 3138		Analyst: EM
Aromatic Hydrocarbon (C12-C13)	ND	0.557		mg/Kg-dry	1	9/4/2012 8:38:00 AM
Surr: Bromofluorobenzene	228	65-140	S	%REC	1	9/4/2012 8:38:00 AM
Surr: Trifluorotoluene	86.8	65-140		%REC	1	9/4/2012 8:38:00 AM
NOTES: S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).						
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	55.6	D	mg/Kg-dry	10	8/31/2012 10:11:00 AM
Gasoline Range Organics C6-C12	118	55.6	D	mg/Kg-dry	10	8/31/2012 10:11:00 AM
Surr: 1,2-Dichloroethane-d4	135	65-135	D	%REC	10	8/31/2012 10:11:00 AM
Surr: Fluorobenzene	109	65-135	D	%REC	10	8/31/2012 10:11:00 AM
NOTES: GRO - Indicates the presence of unresolved compounds eluting from toluene to dodecane (~C7->C12).						
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0556		mg/Kg-dry	1	8/31/2012 6:10:00 PM
1,2-Dichloroethane (EDC)	ND	0.0333		mg/Kg-dry	1	8/31/2012 6:10:00 PM
Benzene	ND	0.0222		mg/Kg-dry	1	8/31/2012 6:10:00 PM
Toluene	ND	0.0222		mg/Kg-dry	1	8/31/2012 6:10:00 PM
1,2-Dibromoethane (EDB)	ND	0.00556		mg/Kg-dry	1	8/31/2012 6:10:00 PM
Ethylbenzene	0.505	0.0333		mg/Kg-dry	1	8/31/2012 6:10:00 PM
m,p-Xylene	2.16	0.222	D	mg/Kg-dry	10	8/31/2012 10:11:00 AM
o-Xylene	0.257	0.0222		mg/Kg-dry	1	8/31/2012 6:10:00 PM
Hexane	3.09	0.222	D	mg/Kg-dry	10	8/31/2012 10:11:00 AM
Naphthalene	0.392	0.0333		mg/Kg-dry	1	8/31/2012 6:10:00 PM
Surr: 1-Bromo-4-fluorobenzene	103	63.1-141		%REC	1	8/31/2012 6:10:00 PM
Surr: Dibromofluoromethane	98.9	67.6-119		%REC	1	8/31/2012 6:10:00 PM
Surr: Toluene-d8	99.9	78.5-126		%REC	1	8/31/2012 6:10:00 PM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	2.81	0.224		mg/Kg-dry	1	8/28/2012 11:37:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 12:30:00 PM
Project: Sportland
Lab ID: 1208159-021
Matrix: Soil
Client Sample ID: 082112.06.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	10.6			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 1:00:00 PM
Project: Sportland
Lab ID: 1208159-022
Matrix: Soil
Client Sample ID: 082112.06.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	8/29/2012 7:12:00 PM
Heavy Oil	ND	54.8		mg/Kg-dry	1	8/29/2012 7:12:00 PM
Surr: 2-Fluorobiphenyl	128	50-150		%REC	1	8/29/2012 7:12:00 PM
Surr: o-Terphenyl	124	50-150		%REC	1	8/29/2012 7:12:00 PM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	0.928		mg/Kg-dry	1	8/28/2012 4:57:00 PM
Surr: Methanol	89.6	65-135		%REC	1	8/28/2012 4:57:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	4.74		mg/Kg-dry	1	8/31/2012 5:40:00 PM
Surr: 1,2-Dichloroethane-d4	133	65-135		%REC	1	8/31/2012 5:40:00 PM
Surr: Fluorobenzene	108	65-135		%REC	1	8/31/2012 5:40:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0474		mg/Kg-dry	1	8/31/2012 5:40:00 PM
1,2-Dichloroethane (EDC)	ND	0.0284		mg/Kg-dry	1	8/31/2012 5:40:00 PM
Benzene	ND	0.0190		mg/Kg-dry	1	8/31/2012 5:40:00 PM
Toluene	ND	0.0190		mg/Kg-dry	1	8/31/2012 5:40:00 PM
1,2-Dibromoethane (EDB)	ND	0.00474		mg/Kg-dry	1	8/31/2012 5:40:00 PM
Ethylbenzene	ND	0.0284		mg/Kg-dry	1	8/31/2012 5:40:00 PM
m,p-Xylene	0.0616	0.0190		mg/Kg-dry	1	8/31/2012 5:40:00 PM
o-Xylene	ND	0.0190		mg/Kg-dry	1	8/31/2012 5:40:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.8	63.1-141		%REC	1	8/31/2012 5:40:00 PM
Surr: Dibromofluoromethane	99.4	67.6-119		%REC	1	8/31/2012 5:40:00 PM
Surr: Toluene-d8	99.4	78.5-126		%REC	1	8/31/2012 5:40:00 PM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	2.27	0.157		mg/Kg-dry	1	8/28/2012 11:46:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 1:00:00 PM
Project: Sportland
Lab ID: 1208159-022
Matrix: Soil
Client Sample ID: 082112.06.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	10.5			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 8:10:00 AM
Project: Sportland
Lab ID: 1208159-024
Matrix: Soil
Client Sample ID: 082112.04.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	20.3		mg/Kg-dry	1	8/29/2012 7:40:00 PM
Heavy Oil	ND	50.6		mg/Kg-dry	1	8/29/2012 7:40:00 PM
Surr: 2-Fluorobiphenyl	116	50-150		%REC	1	8/29/2012 7:40:00 PM
Surr: o-Terphenyl	112	50-150		%REC	1	8/29/2012 7:40:00 PM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.19		mg/Kg-dry	1	8/28/2012 5:02:00 PM
Surr: Methanol	95.7	65-135		%REC	1	8/28/2012 5:02:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	8.60		mg/Kg-dry	1	8/31/2012 11:10:00 AM
Surr: 1,2-Dichloroethane-d4	134	65-135		%REC	1	8/31/2012 11:10:00 AM
Surr: Fluorobenzene	110	65-135		%REC	1	8/31/2012 11:10:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0860		mg/Kg-dry	1	8/31/2012 11:10:00 AM
1,2-Dichloroethane (EDC)	ND	0.0516		mg/Kg-dry	1	8/31/2012 11:10:00 AM
Benzene	ND	0.0344		mg/Kg-dry	1	8/31/2012 11:10:00 AM
Toluene	ND	0.0344		mg/Kg-dry	1	8/31/2012 11:10:00 AM
1,2-Dibromoethane (EDB)	ND	0.00860		mg/Kg-dry	1	8/31/2012 11:10:00 AM
Ethylbenzene	ND	0.0516		mg/Kg-dry	1	8/31/2012 11:10:00 AM
m,p-Xylene	ND	0.0344		mg/Kg-dry	1	8/31/2012 11:10:00 AM
o-Xylene	ND	0.0344		mg/Kg-dry	1	8/31/2012 11:10:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	8/31/2012 11:10:00 AM
Surr: Dibromofluoromethane	100	67.6-119		%REC	1	8/31/2012 11:10:00 AM
Surr: Toluene-d8	99.1	78.5-126		%REC	1	8/31/2012 11:10:00 AM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	3.26	0.159		mg/Kg-dry	1	8/29/2012 12:06:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 8:10:00 AM
Project: Sportland
Lab ID: 1208159-024
Matrix: Soil
Client Sample ID: 082112.04.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	5.97			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 8:50:00 AM
Project: Sportland
Lab ID: 1208159-025
Matrix: Soil
Client Sample ID: 082112.04.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	20.7		mg/Kg-dry	1	8/31/2012 11:25:00 AM
Heavy Oil	ND	51.8		mg/Kg-dry	1	8/31/2012 11:25:00 AM
Surr: 2-Fluorobiphenyl	113	50-150		%REC	1	8/31/2012 11:25:00 AM
Surr: o-Terphenyl	111	50-150		%REC	1	8/31/2012 11:25:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	0.906		mg/Kg-dry	1	8/28/2012 5:08:00 PM
Surr: Methanol	89.0	65-135		%REC	1	8/28/2012 5:08:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	4.99		mg/Kg-dry	1	8/31/2012 11:39:00 AM
Surr: 1,2-Dichloroethane-d4	134	65-135		%REC	1	8/31/2012 11:39:00 AM
Surr: Fluorobenzene	109	65-135		%REC	1	8/31/2012 11:39:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0499		mg/Kg-dry	1	8/31/2012 11:39:00 AM
1,2-Dichloroethane (EDC)	ND	0.0299		mg/Kg-dry	1	8/31/2012 11:39:00 AM
Benzene	ND	0.0199		mg/Kg-dry	1	8/31/2012 11:39:00 AM
Toluene	ND	0.0199		mg/Kg-dry	1	8/31/2012 11:39:00 AM
1,2-Dibromoethane (EDB)	ND	0.00499		mg/Kg-dry	1	8/31/2012 11:39:00 AM
Ethylbenzene	ND	0.0299		mg/Kg-dry	1	8/31/2012 11:39:00 AM
m,p-Xylene	ND	0.0199		mg/Kg-dry	1	8/31/2012 11:39:00 AM
o-Xylene	ND	0.0199		mg/Kg-dry	1	8/31/2012 11:39:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.9	63.1-141		%REC	1	8/31/2012 11:39:00 AM
Surr: Dibromofluoromethane	99.0	67.6-119		%REC	1	8/31/2012 11:39:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	8/31/2012 11:39:00 AM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	3.30	0.178		mg/Kg-dry	1	8/29/2012 12:38:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 8:50:00 AM
Project: Sportland
Lab ID: 1208159-025
Matrix: Soil
Client Sample ID: 082112.04.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	12.4			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 2:40:00 PM
Project: Sportland
Lab ID: 1208159-026
Matrix: Soil
Client Sample ID: 082112.07.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3151		Analyst: BR
Diesel (Fuel Oil)	ND	19.8		mg/Kg-dry	1	9/10/2012 11:58:00 PM
Heavy Oil	ND	49.5		mg/Kg-dry	1	9/10/2012 11:58:00 PM
Surr: 2-Fluorobiphenyl	113	50-150		%REC	1	9/10/2012 11:58:00 PM
Surr: o-Terphenyl	115	50-150		%REC	1	9/10/2012 11:58:00 PM
Ethanol by SW8015				Batch ID: 3157		Analyst: BR
Ethanol	ND	1.00		mg/Kg-dry	1	9/10/2012 9:24:00 PM
Surr: Methanol	96.3	65-135		%REC	1	9/10/2012 9:24:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5646		Analyst: EM
Gasoline	ND	9.69		mg/Kg-dry	1	9/1/2012 9:03:00 PM
Surr: 1,2-Dichloroethane-d4	89.1	65-135		%REC	1	9/1/2012 9:03:00 PM
Surr: Fluorobenzene	71.1	65-135		%REC	1	9/1/2012 9:03:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3127		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0969		mg/Kg-dry	1	9/1/2012 9:03:00 PM
1,2-Dichloroethane (EDC)	ND	0.0582		mg/Kg-dry	1	9/1/2012 9:03:00 PM
Benzene	ND	0.0388		mg/Kg-dry	1	9/1/2012 9:03:00 PM
Toluene	ND	0.0388		mg/Kg-dry	1	9/1/2012 9:03:00 PM
1,2-Dibromoethane (EDB)	ND	0.00969		mg/Kg-dry	1	9/1/2012 9:03:00 PM
Ethylbenzene	ND	0.0582		mg/Kg-dry	1	9/1/2012 9:03:00 PM
m,p-Xylene	ND	0.0388		mg/Kg-dry	1	9/1/2012 9:03:00 PM
o-Xylene	ND	0.0388		mg/Kg-dry	1	9/1/2012 9:03:00 PM
Surr: 1-Bromo-4-fluorobenzene	85.9	63.1-141		%REC	1	9/1/2012 9:03:00 PM
Surr: Dibromofluoromethane	97.9	67.6-119		%REC	1	9/1/2012 9:03:00 PM
Surr: Toluene-d8	98.8	78.5-126		%REC	1	9/1/2012 9:03:00 PM
Total Metals by EPA Method 6020				Batch ID: 3149		Analyst: SG
Lead	3.28	0.149		mg/Kg-dry	1	9/12/2012 8:36:18 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 2:40:00 PM
Project: Sportland
Lab ID: 1208159-026
Matrix: Soil
Client Sample ID: 082112.07.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	6.56			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 3:00:00 PM
Project: Sportland
Lab ID: 1208159-027
Matrix: Soil
Client Sample ID: 082112.07.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	21.7		mg/Kg-dry	1	8/29/2012 4:26:00 PM
Heavy Oil	ND	54.4		mg/Kg-dry	1	8/29/2012 4:26:00 PM
Surr: 2-Fluorobiphenyl	120	50-150		%REC	1	8/29/2012 4:26:00 PM
Surr: o-Terphenyl	115	50-150		%REC	1	8/29/2012 4:26:00 PM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.11		mg/Kg-dry	1	8/28/2012 5:13:00 PM
Surr: Methanol	90.9	65-135		%REC	1	8/28/2012 5:13:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	5.21		mg/Kg-dry	1	8/31/2012 12:08:00 PM
Surr: 1,2-Dichloroethane-d4	134	65-135		%REC	1	8/31/2012 12:08:00 PM
Surr: Fluorobenzene	108	65-135		%REC	1	8/31/2012 12:08:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0521		mg/Kg-dry	1	8/31/2012 12:08:00 PM
1,2-Dichloroethane (EDC)	ND	0.0313		mg/Kg-dry	1	8/31/2012 12:08:00 PM
Benzene	ND	0.0208		mg/Kg-dry	1	8/31/2012 12:08:00 PM
Toluene	ND	0.0208		mg/Kg-dry	1	8/31/2012 12:08:00 PM
1,2-Dibromoethane (EDB)	ND	0.00521		mg/Kg-dry	1	8/31/2012 12:08:00 PM
Ethylbenzene	ND	0.0313		mg/Kg-dry	1	8/31/2012 12:08:00 PM
m,p-Xylene	ND	0.0208		mg/Kg-dry	1	8/31/2012 12:08:00 PM
o-Xylene	ND	0.0208		mg/Kg-dry	1	8/31/2012 12:08:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.7	63.1-141		%REC	1	8/31/2012 12:08:00 PM
Surr: Dibromofluoromethane	99.0	67.6-119		%REC	1	8/31/2012 12:08:00 PM
Surr: Toluene-d8	100	78.5-126		%REC	1	8/31/2012 12:08:00 PM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	3.84	0.171		mg/Kg-dry	1	8/29/2012 12:48:37 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 3:00:00 PM
Project: Sportland
Lab ID: 1208159-027
Matrix: Soil
Client Sample ID: 082112.07.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	12.7			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**

Date Reported: **9/14/2012**

Client: Fulcrum Environmental **Collection Date:** 8/21/2012 3:35:00 PM

Project: Sportland

Lab ID: 1208159-028 **Matrix:** Soil

Client Sample ID: 082112.07.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel 1/ Kerosene	314	22.4		mg/Kg-dry	1	8/29/2012 4:54:00 PM
Diesel (Fuel Oil)	ND	22.4		mg/Kg-dry	1	8/29/2012 4:54:00 PM
Heavy Oil	ND	56.0		mg/Kg-dry	1	8/29/2012 4:54:00 PM
Surr: 2-Fluorobiphenyl	126	50-150		%REC	1	8/29/2012 4:54:00 PM
Surr: o-Terphenyl	120	50-150		%REC	1	8/29/2012 4:54:00 PM
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 3156		Analyst: BR
Aliphatic Hydrocarbon (C8-C10)	47.0	5.17		mg/Kg-dry	1	9/13/2012 1:40:00 PM
Aliphatic Hydrocarbon (C10-C12)	26.9	5.17		mg/Kg-dry	1	9/13/2012 1:40:00 PM
Aliphatic Hydrocarbon (C12-C16)	16.5	5.17		mg/Kg-dry	1	9/13/2012 1:40:00 PM
Aliphatic Hydrocarbon (C16-C21)	ND	5.17		mg/Kg-dry	1	9/13/2012 1:40:00 PM
Aliphatic Hydrocarbon (C21-C34)	ND	5.17		mg/Kg-dry	1	9/13/2012 1:40:00 PM
Aromatic Hydrocarbon (C8-C10)	86.4	5.21	*	mg/Kg-dry	1	9/13/2012 2:25:00 PM
Aromatic Hydrocarbon (C10-C12)	60.9	5.21		mg/Kg-dry	1	9/13/2012 2:25:00 PM
Aromatic Hydrocarbon (C12-C16)	44.3	5.21		mg/Kg-dry	1	9/13/2012 2:25:00 PM
Aromatic Hydrocarbon (C16-C21)	ND	5.21		mg/Kg-dry	1	9/13/2012 2:25:00 PM
Aromatic Hydrocarbon (C21-C34)	ND	5.21		mg/Kg-dry	1	9/13/2012 2:25:00 PM
Surr: 1-Chlorooctadecane	65.1	65-140		%REC	1	9/13/2012 1:40:00 PM
Surr: o-Terphenyl	80.4	65-140		%REC	1	9/13/2012 2:25:00 PM

NOTES:

* Flagged value is not within established control limits

* Flagged value is not within established control limits

Ethanol by SW8015				Batch ID: 3067	Analyst: MD
Ethanol	ND	1.12		mg/Kg-dry	1	8/28/2012 5:19:00 PM
Surr: Methanol	91.3	65-135		%REC	1	8/28/2012 5:19:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 3138		Analyst: EM
Aliphatic Hydrocarbon (C5-C6)	1.47	0.556		mg/Kg-dry	1	9/3/2012 5:36:00 PM
Aliphatic Hydrocarbon (C6-C8)	14.4	0.556		mg/Kg-dry	1	9/3/2012 5:36:00 PM
Aliphatic Hydrocarbon (C8-C10)	30.7	0.556		mg/Kg-dry	1	9/3/2012 5:36:00 PM
Aliphatic Hydrocarbon (C10-C12)	35.8	0.556		mg/Kg-dry	1	9/3/2012 5:36:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**

Date Reported: **9/14/2012**

Client: Fulcrum Environmental **Collection Date:** 8/21/2012 3:35:00 PM

Project: Sportland

Lab ID: 1208159-028 **Matrix:** Soil

Client Sample ID: 082112.07.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 3138		Analyst: EM
Aromatic Hydrocarbon (C8-C10)	112	0.556		mg/Kg-dry	1	9/3/2012 5:36:00 PM
Aromatic Hydrocarbon (C10-C12)	94.7	5.56	D	mg/Kg-dry	10	9/13/2012 3:42:00 PM
Aromatic Hydrocarbon (C12-C13)	ND	0.556		mg/Kg-dry	1	9/3/2012 5:36:00 PM
Surr: Bromofluorobenzene	109	65-140	D	%REC	10	9/13/2012 3:42:00 PM
Surr: Trifluorotoluene	106	65-140		%REC	1	9/3/2012 5:36:00 PM

NOTES:

S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	56.0	D	mg/Kg-dry	10	8/31/2012 12:38:00 PM
Gasoline Range Organics C6-C12	266	56.0	D	mg/Kg-dry	10	8/31/2012 12:38:00 PM
Surr: 1,2-Dichloroethane-d4	134	65-135	D	%REC	10	8/31/2012 12:38:00 PM
Surr: Fluorobenzene	108	65-135	D	%REC	10	8/31/2012 12:38:00 PM

NOTES:

GRO - Indicates the presence of unresolved compounds eluting from toluene to dodecane (~C7->C12).

Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0560		mg/Kg-dry	1	8/31/2012 6:41:00 PM
1,2-Dichloroethane (EDC)	ND	0.0336		mg/Kg-dry	1	8/31/2012 6:41:00 PM
Benzene	ND	0.0224		mg/Kg-dry	1	8/31/2012 6:41:00 PM
Toluene	2.98	0.224	D	mg/Kg-dry	10	8/31/2012 12:38:00 PM
1,2-Dibromoethane (EDB)	ND	0.00560		mg/Kg-dry	1	8/31/2012 6:41:00 PM
Ethylbenzene	5.55	0.336	D	mg/Kg-dry	10	8/31/2012 12:38:00 PM
m,p-Xylene	27.0	0.224	D	mg/Kg-dry	10	8/31/2012 12:38:00 PM
o-Xylene	8.97	0.224	D	mg/Kg-dry	10	8/31/2012 12:38:00 PM
Hexane	2.71	0.224	D	mg/Kg-dry	10	8/31/2012 12:38:00 PM
Naphthalene	7.38	0.336	D	mg/Kg-dry	10	8/31/2012 12:38:00 PM
Surr: 1-Bromo-4-fluorobenzene	105	63.1-141		%REC	1	8/31/2012 6:41:00 PM
Surr: Dibromofluoromethane	98.2	67.6-119		%REC	1	8/31/2012 6:41:00 PM
Surr: Toluene-d8	100	78.5-126		%REC	1	8/31/2012 6:41:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 3:35:00 PM
Project: Sportland
Lab ID: 1208159-028
Matrix: Soil
Client Sample ID: 082112.07.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	4.91	0.224		mg/Kg-dry	1	8/29/2012 12:58:16 AM
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	10.8			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 4:00:00 PM
Project: Sportland
Lab ID: 1208159-029
Matrix: Soil
Client Sample ID: 082112.07.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel 1/ Kerosene	70.5	22.1		mg/Kg-dry	1	8/29/2012 5:21:00 PM
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	8/29/2012 5:21:00 PM
Heavy Oil	ND	55.3		mg/Kg-dry	1	8/29/2012 5:21:00 PM
Surr: 2-Fluorobiphenyl	143	50-150		%REC	1	8/29/2012 5:21:00 PM
Surr: o-Terphenyl	137	50-150		%REC	1	8/29/2012 5:21:00 PM
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 3156		Analyst: BR
Aliphatic Hydrocarbon (C8-C10)	ND	5.49		mg/Kg-dry	1	9/14/2012 9:36:00 AM
Aliphatic Hydrocarbon (C10-C12)	ND	5.49		mg/Kg-dry	1	9/14/2012 9:36:00 AM
Aliphatic Hydrocarbon (C12-C16)	ND	5.49		mg/Kg-dry	1	9/14/2012 9:36:00 AM
Aliphatic Hydrocarbon (C16-C21)	ND	5.49		mg/Kg-dry	1	9/14/2012 9:36:00 AM
Aliphatic Hydrocarbon (C21-C34)	ND	5.49		mg/Kg-dry	1	9/14/2012 9:36:00 AM
Aromatic Hydrocarbon (C8-C10)	ND	5.37	*	mg/Kg-dry	1	9/14/2012 8:52:00 AM
Aromatic Hydrocarbon (C10-C12)	ND	5.37		mg/Kg-dry	1	9/14/2012 8:52:00 AM
Aromatic Hydrocarbon (C12-C16)	6.45	5.37		mg/Kg-dry	1	9/14/2012 8:52:00 AM
Aromatic Hydrocarbon (C16-C21)	ND	5.37		mg/Kg-dry	1	9/14/2012 8:52:00 AM
Aromatic Hydrocarbon (C21-C34)	ND	5.37		mg/Kg-dry	1	9/14/2012 8:52:00 AM
Surr: 1-Chlorooctadecane	69.9	65-140		%REC	1	9/14/2012 9:36:00 AM
Surr: o-Terphenyl	76.7	65-140		%REC	1	9/14/2012 8:52:00 AM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.11		mg/Kg-dry	1	8/28/2012 5:24:00 PM
Surr: Methanol	88.5	65-135		%REC	1	8/28/2012 5:24:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 3138		Analyst: EM
Aliphatic Hydrocarbon (C5-C6)	21.4	0.565		mg/Kg-dry	1	9/3/2012 3:01:00 PM
Aliphatic Hydrocarbon (C6-C8)	53.3	5.65	D	mg/Kg-dry	10	9/13/2012 5:42:00 PM
Aliphatic Hydrocarbon (C8-C10)	78.6	5.65	D	mg/Kg-dry	10	9/13/2012 5:42:00 PM
Aliphatic Hydrocarbon (C10-C12)	46.5	5.65	D	mg/Kg-dry	10	9/13/2012 5:42:00 PM
Aromatic Hydrocarbon (C8-C10)	146	5.65	D	mg/Kg-dry	10	9/13/2012 5:42:00 PM
Aromatic Hydrocarbon (C10-C12)	68.1	5.65	D	mg/Kg-dry	10	9/13/2012 5:42:00 PM
Aromatic Hydrocarbon (C12-C13)	ND	0.565		mg/Kg-dry	1	9/3/2012 3:01:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/21/2012 4:00:00 PM
Project: Sportland
Lab ID: 1208159-029
Matrix: Soil
Client Sample ID: 082112.07.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 3138		Analyst: EM
Surr: Bromofluorobenzene	116	65-140	D	%REC	10	9/13/2012 5:42:00 PM
Surr: Trifluorotoluene	75.9	65-140	D	%REC	10	9/13/2012 5:42:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	55.3	D	mg/Kg-dry	10	8/31/2012 1:07:00 PM
Gasoline Range Organics C6-C12	357	55.3	D	mg/Kg-dry	10	8/31/2012 1:07:00 PM
Surr: 1,2-Dichloroethane-d4	133	65-135	D	%REC	10	8/31/2012 1:07:00 PM
Surr: Fluorobenzene	108	65-135	D	%REC	10	8/31/2012 1:07:00 PM
NOTES:						
GRO - Indicates the presence of unresolved compounds eluting from toluene to dodecane (~C7->C12).						
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0553		mg/Kg-dry	1	8/31/2012 7:12:00 PM
1,2-Dichloroethane (EDC)	ND	0.0332		mg/Kg-dry	1	8/31/2012 7:12:00 PM
Benzene	0.640	0.0221		mg/Kg-dry	1	8/31/2012 7:12:00 PM
Toluene	30.8	0.221	D	mg/Kg-dry	10	8/31/2012 1:07:00 PM
1,2-Dibromoethane (EDB)	ND	0.00553		mg/Kg-dry	1	8/31/2012 7:12:00 PM
Ethylbenzene	10.7	0.332	D	mg/Kg-dry	10	8/31/2012 1:07:00 PM
m,p-Xylene	46.8	0.221	D	mg/Kg-dry	10	8/31/2012 1:07:00 PM
o-Xylene	16.2	0.221	D	mg/Kg-dry	10	8/31/2012 1:07:00 PM
Hexane	12.8	0.221	D	mg/Kg-dry	10	8/31/2012 1:07:00 PM
Naphthalene	6.21	0.332	D	mg/Kg-dry	10	8/31/2012 1:07:00 PM
Surr: 1-Bromo-4-fluorobenzene	103	63.1-141		%REC	1	8/31/2012 7:12:00 PM
Surr: Dibromofluoromethane	87.4	67.6-119		%REC	1	8/31/2012 7:12:00 PM
Surr: Toluene-d8	101	78.5-126		%REC	1	8/31/2012 7:12:00 PM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	4.87	0.221		mg/Kg-dry	1	8/29/2012 1:07:55 AM
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	9.55			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 8:00:00 AM
Project: Sportland
Lab ID: 1208159-031
Matrix: Soil
Client Sample ID: 082212.08.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3151		Analyst: BR
Diesel (Fuel Oil)	ND	20.8		mg/Kg-dry	1	9/11/2012 12:25:00 AM
Heavy Oil	ND	52.0		mg/Kg-dry	1	9/11/2012 12:25:00 AM
Surr: 2-Fluorobiphenyl	111	50-150		%REC	1	9/11/2012 12:25:00 AM
Surr: o-Terphenyl	113	50-150		%REC	1	9/11/2012 12:25:00 AM
Ethanol by SW8015				Batch ID: 3157		Analyst: BR
Ethanol	ND	1.06		mg/Kg-dry	1	9/11/2012 9:52:00 AM
Surr: Methanol	91.1	65-135		%REC	1	9/11/2012 9:52:00 AM
Gasoline by NWTPH-Gx				Batch ID: R5646		Analyst: EM
Gasoline	ND	6.03		mg/Kg-dry	1	9/1/2012 9:35:00 PM
Surr: 1,2-Dichloroethane-d4	84.3	65-135		%REC	1	9/1/2012 9:35:00 PM
Surr: Fluorobenzene	68.4	65-135		%REC	1	9/1/2012 9:35:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3127		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0603		mg/Kg-dry	1	9/1/2012 9:35:00 PM
1,2-Dichloroethane (EDC)	ND	0.0362		mg/Kg-dry	1	9/1/2012 9:35:00 PM
Benzene	ND	0.0241		mg/Kg-dry	1	9/1/2012 9:35:00 PM
Toluene	ND	0.0241		mg/Kg-dry	1	9/1/2012 9:35:00 PM
1,2-Dibromoethane (EDB)	ND	0.00603		mg/Kg-dry	1	9/1/2012 9:35:00 PM
Ethylbenzene	ND	0.0362		mg/Kg-dry	1	9/1/2012 9:35:00 PM
m,p-Xylene	ND	0.0241		mg/Kg-dry	1	9/1/2012 9:35:00 PM
o-Xylene	ND	0.0241		mg/Kg-dry	1	9/1/2012 9:35:00 PM
Surr: 1-Bromo-4-fluorobenzene	82.7	63.1-141		%REC	1	9/1/2012 9:35:00 PM
Surr: Dibromofluoromethane	95.2	67.6-119		%REC	1	9/1/2012 9:35:00 PM
Surr: Toluene-d8	96.7	78.5-126		%REC	1	9/1/2012 9:35:00 PM
Total Metals by EPA Method 6020				Batch ID: 3149		Analyst: SG
Lead	4.12	0.168		mg/Kg-dry	1	9/12/2012 9:35:32 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 8:00:00 AM
Project: Sportland
Lab ID: 1208159-031
Matrix: Soil
Client Sample ID: 082212.08.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	7.50			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 8:20:00 AM
Project: Sportland
Lab ID: 1208159-032
Matrix: Soil
Client Sample ID: 082212.08.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	8/29/2012 5:49:00 PM
Heavy Oil	ND	55.3		mg/Kg-dry	1	8/29/2012 5:49:00 PM
Surr: 2-Fluorobiphenyl	127	50-150		%REC	1	8/29/2012 5:49:00 PM
Surr: o-Terphenyl	122	50-150		%REC	1	8/29/2012 5:49:00 PM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.14		mg/Kg-dry	1	8/28/2012 5:29:00 PM
Surr: Methanol	82.7	65-135		%REC	1	8/28/2012 5:29:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	5.53		mg/Kg-dry	1	8/31/2012 1:37:00 PM
Surr: 1,2-Dichloroethane-d4	133	65-135		%REC	1	8/31/2012 1:37:00 PM
Surr: Fluorobenzene	108	65-135		%REC	1	8/31/2012 1:37:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0553		mg/Kg-dry	1	8/31/2012 1:37:00 PM
1,2-Dichloroethane (EDC)	ND	0.0332		mg/Kg-dry	1	8/31/2012 1:37:00 PM
Benzene	ND	0.0221		mg/Kg-dry	1	8/31/2012 1:37:00 PM
Toluene	ND	0.0221		mg/Kg-dry	1	8/31/2012 1:37:00 PM
1,2-Dibromoethane (EDB)	ND	0.00553		mg/Kg-dry	1	8/31/2012 1:37:00 PM
Ethylbenzene	ND	0.0332		mg/Kg-dry	1	8/31/2012 1:37:00 PM
m,p-Xylene	ND	0.0221		mg/Kg-dry	1	8/31/2012 1:37:00 PM
o-Xylene	ND	0.0221		mg/Kg-dry	1	8/31/2012 1:37:00 PM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	8/31/2012 1:37:00 PM
Surr: Dibromofluoromethane	99.6	67.6-119		%REC	1	8/31/2012 1:37:00 PM
Surr: Toluene-d8	99.2	78.5-126		%REC	1	8/31/2012 1:37:00 PM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	4.35	0.186		mg/Kg-dry	1	8/29/2012 1:17:34 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 8:20:00 AM
Project: Sportland
Lab ID: 1208159-032
Matrix: Soil
Client Sample ID: 082212.08.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	11.2			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 8:40:00 AM
Project: Sportland
Lab ID: 1208159-033
Matrix: Soil
Client Sample ID: 082212.08.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3151		Analyst: BR
Diesel (Fuel Oil)	ND	20.7		mg/Kg-dry	1	9/11/2012 12:52:00 AM
Heavy Oil	ND	51.8		mg/Kg-dry	1	9/11/2012 12:52:00 AM
Surr: 2-Fluorobiphenyl	105	50-150		%REC	1	9/11/2012 12:52:00 AM
Surr: o-Terphenyl	107	50-150		%REC	1	9/11/2012 12:52:00 AM
Ethanol by SW8015				Batch ID: 3157		Analyst: BR
Ethanol	ND	0.989		mg/Kg-dry	1	9/11/2012 9:57:00 AM
Surr: Methanol	91.7	65-135		%REC	1	9/11/2012 9:57:00 AM
Gasoline by NWTPH-Gx				Batch ID: R5646		Analyst: EM
Gasoline	ND	5.58		mg/Kg-dry	1	9/1/2012 4:41:00 PM
Surr: 1,2-Dichloroethane-d4	90.8	65-135		%REC	1	9/1/2012 4:41:00 PM
Surr: Fluorobenzene	67.6	65-135		%REC	1	9/1/2012 4:41:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3127		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0558		mg/Kg-dry	1	9/1/2012 4:41:00 PM
1,2-Dichloroethane (EDC)	ND	0.0335		mg/Kg-dry	1	9/1/2012 4:41:00 PM
Benzene	ND	0.0223		mg/Kg-dry	1	9/1/2012 4:41:00 PM
Toluene	ND	0.0223		mg/Kg-dry	1	9/1/2012 4:41:00 PM
1,2-Dibromoethane (EDB)	ND	0.00558		mg/Kg-dry	1	9/1/2012 4:41:00 PM
Ethylbenzene	ND	0.0335		mg/Kg-dry	1	9/1/2012 4:41:00 PM
m,p-Xylene	ND	0.0223		mg/Kg-dry	1	9/1/2012 4:41:00 PM
o-Xylene	ND	0.0223		mg/Kg-dry	1	9/1/2012 4:41:00 PM
Surr: 1-Bromo-4-fluorobenzene	85.4	63.1-141		%REC	1	9/1/2012 4:41:00 PM
Surr: Dibromofluoromethane	103	67.6-119		%REC	1	9/1/2012 4:41:00 PM
Surr: Toluene-d8	101	78.5-126		%REC	1	9/1/2012 4:41:00 PM
Total Metals by EPA Method 6020				Batch ID: 3149		Analyst: SG
Lead	2.97	0.141		mg/Kg-dry	1	9/12/2012 9:45:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 8:40:00 AM
Project: Sportland
Lab ID: 1208159-033
Matrix: Soil
Client Sample ID: 082212.08.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	11.8			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 10:18:00 AM
Project: Sportland
Lab ID: 1208159-035
Matrix: Soil
Client Sample ID: 082212.09.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3063		Analyst: BR
Diesel (Fuel Oil)	ND	20.4		mg/Kg-dry	1	8/29/2012 6:17:00 PM
Heavy Oil	ND	51.1		mg/Kg-dry	1	8/29/2012 6:17:00 PM
Surr: 2-Fluorobiphenyl	138	50-150		%REC	1	8/29/2012 6:17:00 PM
Surr: o-Terphenyl	133	50-150		%REC	1	8/29/2012 6:17:00 PM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.06		mg/Kg-dry	1	8/28/2012 5:35:00 PM
Surr: Methanol	92.4	65-135		%REC	1	8/28/2012 5:35:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	4.26		mg/Kg-dry	1	8/31/2012 2:07:00 PM
Surr: 1,2-Dichloroethane-d4	135	65-135		%REC	1	8/31/2012 2:07:00 PM
Surr: Fluorobenzene	107	65-135		%REC	1	8/31/2012 2:07:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0426		mg/Kg-dry	1	8/31/2012 2:07:00 PM
1,2-Dichloroethane (EDC)	ND	0.0256		mg/Kg-dry	1	8/31/2012 2:07:00 PM
Benzene	ND	0.0171		mg/Kg-dry	1	8/31/2012 2:07:00 PM
Toluene	ND	0.0171		mg/Kg-dry	1	8/31/2012 2:07:00 PM
1,2-Dibromoethane (EDB)	ND	0.00426		mg/Kg-dry	1	8/31/2012 2:07:00 PM
Ethylbenzene	ND	0.0256		mg/Kg-dry	1	8/31/2012 2:07:00 PM
m,p-Xylene	ND	0.0171		mg/Kg-dry	1	8/31/2012 2:07:00 PM
o-Xylene	ND	0.0171		mg/Kg-dry	1	8/31/2012 2:07:00 PM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	8/31/2012 2:07:00 PM
Surr: Dibromofluoromethane	100	67.6-119		%REC	1	8/31/2012 2:07:00 PM
Surr: Toluene-d8	99.4	78.5-126		%REC	1	8/31/2012 2:07:00 PM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	3.33	0.176		mg/Kg-dry	1	8/29/2012 1:27:13 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 10:18:00 AM
Project: Sportland
Lab ID: 1208159-035
Matrix: Soil
Client Sample ID: 082212.09.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	12.6			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 10:30:00 AM
Project: Sportland
Lab ID: 1208159-036
Matrix: Soil
Client Sample ID: 082212.09.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3070		Analyst: BR
Diesel (Fuel Oil)	ND	19.8		mg/Kg-dry	1	8/28/2012 9:16:00 PM
Heavy Oil	ND	49.6		mg/Kg-dry	1	8/28/2012 9:16:00 PM
Surr: 2-Fluorobiphenyl	109	50-150		%REC	1	8/28/2012 9:16:00 PM
Surr: o-Terphenyl	103	50-150		%REC	1	8/28/2012 9:16:00 PM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.08		mg/Kg-dry	1	8/28/2012 5:40:00 PM
Surr: Methanol	96.0	65-135		%REC	1	8/28/2012 5:40:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	5.71		mg/Kg-dry	1	8/31/2012 2:37:00 PM
Surr: 1,2-Dichloroethane-d4	134	65-135		%REC	1	8/31/2012 2:37:00 PM
Surr: Fluorobenzene	108	65-135		%REC	1	8/31/2012 2:37:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0571		mg/Kg-dry	1	8/31/2012 2:37:00 PM
1,2-Dichloroethane (EDC)	ND	0.0342		mg/Kg-dry	1	8/31/2012 2:37:00 PM
Benzene	ND	0.0228		mg/Kg-dry	1	8/31/2012 2:37:00 PM
Toluene	ND	0.0228		mg/Kg-dry	1	8/31/2012 2:37:00 PM
1,2-Dibromoethane (EDB)	ND	0.00571		mg/Kg-dry	1	8/31/2012 2:37:00 PM
Ethylbenzene	ND	0.0342		mg/Kg-dry	1	8/31/2012 2:37:00 PM
m,p-Xylene	ND	0.0228		mg/Kg-dry	1	8/31/2012 2:37:00 PM
o-Xylene	ND	0.0228		mg/Kg-dry	1	8/31/2012 2:37:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.2	63.1-141		%REC	1	8/31/2012 2:37:00 PM
Surr: Dibromofluoromethane	99.2	67.6-119		%REC	1	8/31/2012 2:37:00 PM
Surr: Toluene-d8	99.6	78.5-126		%REC	1	8/31/2012 2:37:00 PM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	3.91	0.163		mg/Kg-dry	1	8/29/2012 1:36:52 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 10:30:00 AM
Project: Sportland
Lab ID: 1208159-036
Matrix: Soil
Client Sample ID: 082212.09.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	6.17			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 1:20:00 PM
Project: Sportland
Lab ID: 1208159-037
Matrix: Soil
Client Sample ID: 082212.09B.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3070		Analyst: BR
Diesel (Fuel Oil)	ND	19.5		mg/Kg-dry	1	8/28/2012 9:44:00 PM
Heavy Oil	ND	48.7		mg/Kg-dry	1	8/28/2012 9:44:00 PM
Surr: 2-Fluorobiphenyl	111	50-150		%REC	1	8/28/2012 9:44:00 PM
Surr: o-Terphenyl	107	50-150		%REC	1	8/28/2012 9:44:00 PM
Ethanol by SW8015				Batch ID: 3067		Analyst: MD
Ethanol	ND	1.01		mg/Kg-dry	1	8/28/2012 5:45:00 PM
Surr: Methanol	119	65-135		%REC	1	8/28/2012 5:45:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	6.04		mg/Kg-dry	1	8/31/2012 3:37:00 PM
Surr: 1,2-Dichloroethane-d4	132	65-135		%REC	1	8/31/2012 3:37:00 PM
Surr: Fluorobenzene	110	65-135		%REC	1	8/31/2012 3:37:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0604		mg/Kg-dry	1	8/31/2012 3:37:00 PM
1,2-Dichloroethane (EDC)	ND	0.0362		mg/Kg-dry	1	8/31/2012 3:37:00 PM
Benzene	ND	0.0242		mg/Kg-dry	1	8/31/2012 3:37:00 PM
Toluene	ND	0.0242		mg/Kg-dry	1	8/31/2012 3:37:00 PM
1,2-Dibromoethane (EDB)	ND	0.00604		mg/Kg-dry	1	8/31/2012 3:37:00 PM
Ethylbenzene	ND	0.0362		mg/Kg-dry	1	8/31/2012 3:37:00 PM
m,p-Xylene	ND	0.0242		mg/Kg-dry	1	8/31/2012 3:37:00 PM
o-Xylene	ND	0.0242		mg/Kg-dry	1	8/31/2012 3:37:00 PM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	8/31/2012 3:37:00 PM
Surr: Dibromofluoromethane	99.0	67.6-119		%REC	1	8/31/2012 3:37:00 PM
Surr: Toluene-d8	99.0	78.5-126		%REC	1	8/31/2012 3:37:00 PM
Total Metals by EPA Method 6020				Batch ID: 3055		Analyst: SG
Lead	2.25	0.173		mg/Kg-dry	1	8/29/2012 1:46:32 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 1:20:00 PM
Project: Sportland
Lab ID: 1208159-037
Matrix: Soil
Client Sample ID: 082212.09B.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	9.21			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 1:10:00 PM
Project: Sportland
Lab ID: 1208159-038
Matrix: Soil
Client Sample ID: 082212.14.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3070		Analyst: BR
Diesel (Fuel Oil)	ND	20.9		mg/Kg-dry	1	8/28/2012 10:11:00 PM
Heavy Oil	ND	52.2		mg/Kg-dry	1	8/28/2012 10:11:00 PM
Surr: 2-Fluorobiphenyl	119	50-150		%REC	1	8/28/2012 10:11:00 PM
Surr: o-Terphenyl	114	50-150		%REC	1	8/28/2012 10:11:00 PM
Ethanol by SW8015				Batch ID: 3068		Analyst: MD
Ethanol	ND	1.00		mg/Kg-dry	1	8/28/2012 6:07:00 PM
Surr: Methanol	121	65-135		%REC	1	8/28/2012 6:07:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	6.32		mg/Kg-dry	1	8/31/2012 4:08:00 PM
Surr: 1,2-Dichloroethane-d4	134	65-135		%REC	1	8/31/2012 4:08:00 PM
Surr: Fluorobenzene	110	65-135		%REC	1	8/31/2012 4:08:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0632		mg/Kg-dry	1	8/31/2012 4:08:00 PM
1,2-Dichloroethane (EDC)	ND	0.0379		mg/Kg-dry	1	8/31/2012 4:08:00 PM
Benzene	ND	0.0253		mg/Kg-dry	1	8/31/2012 4:08:00 PM
Toluene	ND	0.0253		mg/Kg-dry	1	8/31/2012 4:08:00 PM
1,2-Dibromoethane (EDB)	ND	0.00632		mg/Kg-dry	1	8/31/2012 4:08:00 PM
Ethylbenzene	ND	0.0379		mg/Kg-dry	1	8/31/2012 4:08:00 PM
m,p-Xylene	0.0347	0.0253		mg/Kg-dry	1	8/31/2012 4:08:00 PM
o-Xylene	ND	0.0253		mg/Kg-dry	1	8/31/2012 4:08:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.3	63.1-141		%REC	1	8/31/2012 4:08:00 PM
Surr: Dibromofluoromethane	99.3	67.6-119		%REC	1	8/31/2012 4:08:00 PM
Surr: Toluene-d8	98.4	78.5-126		%REC	1	8/31/2012 4:08:00 PM
Total Metals by EPA Method 6020				Batch ID: 3075		Analyst: SG
Lead	2.38	0.179		mg/Kg-dry	1	8/29/2012 2:00:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 1:10:00 PM
Project: Sportland
Lab ID: 1208159-038
Matrix: Soil
Client Sample ID: 082212.14.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	12.1			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 3:30:00 PM
Project: Sportland
Lab ID: 1208159-041
Matrix: Soil
Client Sample ID: 082212.10.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3070		Analyst: BR
Diesel (Fuel Oil)	ND	20.1		mg/Kg-dry	1	8/28/2012 10:38:00 PM
Heavy Oil	ND	50.2		mg/Kg-dry	1	8/28/2012 10:38:00 PM
Surr: 2-Fluorobiphenyl	105	50-150		%REC	1	8/28/2012 10:38:00 PM
Surr: o-Terphenyl	101	50-150		%REC	1	8/28/2012 10:38:00 PM
Ethanol by SW8015				Batch ID: 3068		Analyst: MD
Ethanol	ND	0.971		mg/Kg-dry	1	8/28/2012 6:28:00 PM
Surr: Methanol	75.1	65-135		%REC	1	8/28/2012 6:28:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	5.40		mg/Kg-dry	1	8/31/2012 4:38:00 PM
Surr: 1,2-Dichloroethane-d4	134	65-135		%REC	1	8/31/2012 4:38:00 PM
Surr: Fluorobenzene	110	65-135		%REC	1	8/31/2012 4:38:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0540		mg/Kg-dry	1	8/31/2012 4:38:00 PM
1,2-Dichloroethane (EDC)	ND	0.0324		mg/Kg-dry	1	8/31/2012 4:38:00 PM
Benzene	ND	0.0216		mg/Kg-dry	1	8/31/2012 4:38:00 PM
Toluene	ND	0.0216		mg/Kg-dry	1	8/31/2012 4:38:00 PM
1,2-Dibromoethane (EDB)	ND	0.00540		mg/Kg-dry	1	8/31/2012 4:38:00 PM
Ethylbenzene	ND	0.0324		mg/Kg-dry	1	8/31/2012 4:38:00 PM
m,p-Xylene	ND	0.0216		mg/Kg-dry	1	8/31/2012 4:38:00 PM
o-Xylene	ND	0.0216		mg/Kg-dry	1	8/31/2012 4:38:00 PM
Surr: 1-Bromo-4-fluorobenzene	103	63.1-141		%REC	1	8/31/2012 4:38:00 PM
Surr: Dibromofluoromethane	98.9	67.6-119		%REC	1	8/31/2012 4:38:00 PM
Surr: Toluene-d8	99.0	78.5-126		%REC	1	8/31/2012 4:38:00 PM
Total Metals by EPA Method 6020				Batch ID: 3075		Analyst: SG
Lead	2.24	0.156		mg/Kg-dry	1	8/29/2012 3:25:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 3:30:00 PM
Project: Sportland
Lab ID: 1208159-041
Matrix: Soil
Client Sample ID: 082212.10.15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	5.87			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 4:00:00 PM
Project: Sportland
Lab ID: 1208159-042
Matrix: Soil
Client Sample ID: 082212.10.20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3151		Analyst: BR
Diesel (Fuel Oil)	ND	21.5		mg/Kg-dry	1	9/11/2012 1:19:00 AM
Heavy Oil	ND	53.8		mg/Kg-dry	1	9/11/2012 1:19:00 AM
Surr: 2-Fluorobiphenyl	107	50-150		%REC	1	9/11/2012 1:19:00 AM
Surr: o-Terphenyl	108	50-150		%REC	1	9/11/2012 1:19:00 AM
Gasoline by NWTPH-Gx				Batch ID: R5646		Analyst: EM
Gasoline	ND	5.29		mg/Kg-dry	1	9/1/2012 6:52:00 PM
Surr: 1,2-Dichloroethane-d4	89.0	65-135		%REC	1	9/1/2012 6:52:00 PM
Surr: Fluorobenzene	68.6	65-135		%REC	1	9/1/2012 6:52:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3127		Analyst: EM
Benzene	ND	0.0212		mg/Kg-dry	1	9/1/2012 6:52:00 PM
Toluene	ND	0.0212		mg/Kg-dry	1	9/1/2012 6:52:00 PM
Ethylbenzene	ND	0.0317		mg/Kg-dry	1	9/1/2012 6:52:00 PM
m,p-Xylene	ND	0.0212		mg/Kg-dry	1	9/1/2012 6:52:00 PM
o-Xylene	ND	0.0212		mg/Kg-dry	1	9/1/2012 6:52:00 PM
Surr: 1-Bromo-4-fluorobenzene	89.8	63.1-141		%REC	1	9/1/2012 6:52:00 PM
Surr: Dibromofluoromethane	101	67.6-119		%REC	1	9/1/2012 6:52:00 PM
Surr: Toluene-d8	97.8	78.5-126		%REC	1	9/1/2012 6:52:00 PM
Total Metals by EPA Method 6020				Batch ID: 3149		Analyst: SG
Lead	2.84	0.173		mg/Kg-dry	1	9/12/2012 9:54:49 AM
Sample Moisture (Percent Moisture)				Batch ID: R5636		Analyst: AO
Percent Moisture	16.3			wt%	1	9/10/2012 1:35:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 5:27:00 PM
Project: Sportland
Lab ID: 1208159-044
Matrix: Soil
Client Sample ID: 082212.11.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3070		Analyst: BR
Diesel (Fuel Oil)	ND	21.5		mg/Kg-dry	1	8/28/2012 11:06:00 PM
Heavy Oil	ND	53.7		mg/Kg-dry	1	8/28/2012 11:06:00 PM
Surr: 2-Fluorobiphenyl	109	50-150		%REC	1	8/28/2012 11:06:00 PM
Surr: o-Terphenyl	106	50-150		%REC	1	8/28/2012 11:06:00 PM
Ethanol by SW8015				Batch ID: 3068		Analyst: MD
Ethanol	ND	1.55		mg/Kg-dry	1	8/28/2012 6:34:00 PM
Surr: Methanol	67.0	65-135		%REC	1	8/28/2012 6:34:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	6.09		mg/Kg-dry	1	8/31/2012 3:07:00 PM
Surr: 1,2-Dichloroethane-d4	134	65-135		%REC	1	8/31/2012 3:07:00 PM
Surr: Fluorobenzene	110	65-135		%REC	1	8/31/2012 3:07:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0609		mg/Kg-dry	1	8/31/2012 3:07:00 PM
1,2-Dichloroethane (EDC)	ND	0.0365		mg/Kg-dry	1	8/31/2012 3:07:00 PM
Benzene	ND	0.0244		mg/Kg-dry	1	8/31/2012 3:07:00 PM
Toluene	ND	0.0244		mg/Kg-dry	1	8/31/2012 3:07:00 PM
1,2-Dibromoethane (EDB)	ND	0.00609		mg/Kg-dry	1	8/31/2012 3:07:00 PM
Ethylbenzene	ND	0.0365		mg/Kg-dry	1	8/31/2012 3:07:00 PM
m,p-Xylene	ND	0.0244		mg/Kg-dry	1	8/31/2012 3:07:00 PM
o-Xylene	ND	0.0244		mg/Kg-dry	1	8/31/2012 3:07:00 PM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	8/31/2012 3:07:00 PM
Surr: Dibromofluoromethane	99.8	67.6-119		%REC	1	8/31/2012 3:07:00 PM
Surr: Toluene-d8	98.3	78.5-126		%REC	1	8/31/2012 3:07:00 PM
Total Metals by EPA Method 6020				Batch ID: 3075		Analyst: SG
Lead	2.57	0.173		mg/Kg-dry	1	8/29/2012 3:34:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 5:27:00 PM
Project: Sportland
Lab ID: 1208159-044
Matrix: Soil
Client Sample ID: 082212.11.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	12.3			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 6:00:00 PM
Project: Sportland
Lab ID: 1208159-045
Matrix: Soil
Client Sample ID: 082212.11.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3070		Analyst: BR
Diesel (Fuel Oil)	ND	20.5		mg/Kg-dry	1	8/28/2012 11:33:00 PM
Heavy Oil	ND	51.3		mg/Kg-dry	1	8/28/2012 11:33:00 PM
Surr: 2-Fluorobiphenyl	111	50-150		%REC	1	8/28/2012 11:33:00 PM
Surr: o-Terphenyl	108	50-150		%REC	1	8/28/2012 11:33:00 PM
Ethanol by SW8015				Batch ID: 3068		Analyst: MD
Ethanol	ND	1.13		mg/Kg-dry	1	8/28/2012 6:39:00 PM
Surr: Methanol	69.0	65-135		%REC	1	8/28/2012 6:39:00 PM
Gasoline by NWTPH-Gx				Batch ID: R5556		Analyst: EM
Gasoline	ND	6.30		mg/Kg-dry	1	8/31/2012 5:09:00 PM
Surr: 1,2-Dichloroethane-d4	133	65-135		%REC	1	8/31/2012 5:09:00 PM
Surr: Fluorobenzene	109	65-135		%REC	1	8/31/2012 5:09:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3099		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0630		mg/Kg-dry	1	8/31/2012 5:09:00 PM
1,2-Dichloroethane (EDC)	ND	0.0378		mg/Kg-dry	1	8/31/2012 5:09:00 PM
Benzene	ND	0.0252		mg/Kg-dry	1	8/31/2012 5:09:00 PM
Toluene	ND	0.0252		mg/Kg-dry	1	8/31/2012 5:09:00 PM
1,2-Dibromoethane (EDB)	ND	0.00630		mg/Kg-dry	1	8/31/2012 5:09:00 PM
Ethylbenzene	ND	0.0378		mg/Kg-dry	1	8/31/2012 5:09:00 PM
m,p-Xylene	0.0372	0.0252		mg/Kg-dry	1	8/31/2012 5:09:00 PM
o-Xylene	ND	0.0252		mg/Kg-dry	1	8/31/2012 5:09:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.0	63.1-141		%REC	1	8/31/2012 5:09:00 PM
Surr: Dibromofluoromethane	98.3	67.6-119		%REC	1	8/31/2012 5:09:00 PM
Surr: Toluene-d8	99.0	78.5-126		%REC	1	8/31/2012 5:09:00 PM
Total Metals by EPA Method 6020				Batch ID: 3075		Analyst: SG
Lead	2.41	0.163		mg/Kg-dry	1	8/29/2012 3:48:38 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1208159**
Date Reported: **9/14/2012**

Client: Fulcrum Environmental
Collection Date: 8/22/2012 6:00:00 PM
Project: Sportland
Lab ID: 1208159-045
Matrix: Soil
Client Sample ID: 082212.11.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R5494		Analyst: AO
Percent Moisture	9.80			wt%	1	8/27/2012 9:35:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *9/14/2012*

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-3055**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **8/27/2012**			RunNo: **5507**		
Client ID: **MBLKS**	Batch ID: **3055**					Analysis Date: **8/28/2012**			SeqNo: **108142**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.200									

Sample ID: **LCS-3055**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **8/27/2012**			RunNo: **5507**		
Client ID: **LCSS**	Batch ID: **3055**					Analysis Date: **8/28/2012**			SeqNo: **108143**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	58.6	0.200	56.70	0	103	65.26	134.56790				

Sample ID: **1208159-002CDUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **8/27/2012**			RunNo: **5507**		
Client ID: **082012.01.15**	Batch ID: **3055**					Analysis Date: **8/28/2012**			SeqNo: **108145**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.87	0.168						3.228	11.6	30	

Sample ID: **1208159-002CMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **8/27/2012**			RunNo: **5507**		
Client ID: **082012.01.15**	Batch ID: **3055**					Analysis Date: **8/28/2012**			SeqNo: **108147**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	24.0	0.174	21.80	3.228	95.3	75	125				

Sample ID: **1208159-002CMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **8/27/2012**			RunNo: **5507**		
Client ID: **082012.01.15**	Batch ID: **3055**					Analysis Date: **8/28/2012**			SeqNo: **108148**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	21.0	0.161	20.06	3.228	88.8	75	125	24.00	13.1	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *9/14/2012*

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1208159-038CDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **8/28/2012**	RunNo: **5507**
Client ID: **082212.14.20**	Batch ID: **3075**		Analysis Date: **8/29/2012**	SeqNo: **108288**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.94	0.170						2.380	21.0	30	

Sample ID: **1208159-038CMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **8/28/2012**	RunNo: **5507**
Client ID: **082212.14.20**	Batch ID: **3075**		Analysis Date: **8/29/2012**	SeqNo: **108292**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	22.7	0.181	22.56	2.380	90.0	75	125				

Sample ID: **1208159-038CMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **8/28/2012**	RunNo: **5507**
Client ID: **082212.14.20**	Batch ID: **3075**		Analysis Date: **8/29/2012**	SeqNo: **108293**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	21.5	0.172	21.54	2.380	88.8	75	125	22.69	5.31	30	

Sample ID: **MB-3075**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **8/28/2012**	RunNo: **5507**
Client ID: **MBLKS**	Batch ID: **3075**		Analysis Date: **8/29/2012**	SeqNo: **108303**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.200									

Sample ID: **LCS-3075**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **8/28/2012**	RunNo: **5507**
Client ID: **LCSS**	Batch ID: **3075**		Analysis Date: **8/29/2012**	SeqNo: **108305**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	56.6	0.200	56.70	0	99.9	65.26	134.56790				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *9/14/2012*

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-3149**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **9/10/2012**	RunNo: **5671**
Client ID: **MBLKS**	Batch ID: **3149**		Analysis Date: **9/12/2012**	SeqNo: **111512**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.200									

Sample ID: **LCS-3149**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **9/10/2012**	RunNo: **5671**
Client ID: **LCSS**	Batch ID: **3149**		Analysis Date: **9/12/2012**	SeqNo: **111513**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	59.2	0.200	56.70	0	104	65.26	134.57				

Sample ID: **1208159-026CDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **9/10/2012**	RunNo: **5671**
Client ID: **082112.07.05**	Batch ID: **3149**		Analysis Date: **9/12/2012**	SeqNo: **111520**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.48	0.136						3.282	30.8	30	R

NOTES:
R - High RPD due to sample matrix. The method is in control as indicated by the laboratory control sample (LCS).

Sample ID: **1208159-026CMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **9/10/2012**	RunNo: **5671**
Client ID: **082112.07.05**	Batch ID: **3149**		Analysis Date: **9/12/2012**	SeqNo: **111522**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	19.5	0.141	17.60	3.282	92.0	75	125				

Sample ID: **1208159-026CMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **9/10/2012**	RunNo: **5671**
Client ID: **082112.07.05**	Batch ID: **3149**		Analysis Date: **9/12/2012**	SeqNo: **111523**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	22.8	0.162	20.27	3.282	96.2	75	125	19.48	15.6	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *9/14/2012*

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1208159-026CMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **9/10/2012** RunNo: **5671**
Client ID: **082112.07.05** Batch ID: **3149** Analysis Date: **9/12/2012** SeqNo: **111523**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1208159-045CDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **8/28/2012**	RunNo: **5533**
Client ID: **082212.11.17.5**	Batch ID: **3070**		Analysis Date: **8/29/2012**	SeqNo: **108695**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.8						0	0	30	
Heavy Oil	ND	52.1						0	0	30	
Surr: 2-Fluorobiphenyl	21.6		20.84		103	50	150		0		
Surr: o-Terphenyl	21.0		20.84		101	50	150		0		

Sample ID: **LCS-3070**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **8/28/2012**	RunNo: **5533**
Client ID: **LCSS**	Batch ID: **3070**		Analysis Date: **8/28/2012**	SeqNo: **108707**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	515	20.0	500.0	0	103	65	135				
Surr: 2-Fluorobiphenyl	21.4		20.00		107	50	150				
Surr: o-Terphenyl	20.6		20.00		103	50	150				

Sample ID: **MB-3070**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **8/28/2012**	RunNo: **5533**
Client ID: **MBLKS**	Batch ID: **3070**		Analysis Date: **8/28/2012**	SeqNo: **108708**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	22.0		20.00		110	50	150				
Surr: o-Terphenyl	20.9		20.00		105	50	150				

Sample ID: **1208159-017CDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **8/28/2012**	RunNo: **5551**
Client ID: **082112.05.15**	Batch ID: **3063**		Analysis Date: **8/29/2012**	SeqNo: **109140**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.5						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1208159-017CDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **8/28/2012**	RunNo: **5551**
Client ID: **082112.05.15**	Batch ID: **3063**		Analysis Date: **8/29/2012**	SeqNo: **109140**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Heavy Oil	ND	51.1						0	0	30	
Surr: 2-Fluorobiphenyl	25.5		20.46		124	50	150		0		
Surr: o-Terphenyl	24.6		20.46		120	50	150		0		

Sample ID: **LCS-3063**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **8/28/2012**	RunNo: **5551**
Client ID: **LCSS**	Batch ID: **3063**		Analysis Date: **8/29/2012**	SeqNo: **109160**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	523	20.0	500.0	0	105	65	135				
Surr: 2-Fluorobiphenyl	21.5		20.00		107	50	150				
Surr: o-Terphenyl	20.6		20.00		103	50	150				

Sample ID: **MB-3063**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **8/28/2012**	RunNo: **5551**
Client ID: **MBLKS**	Batch ID: **3063**		Analysis Date: **8/29/2012**	SeqNo: **109161**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	20.2		20.00		101	50	150				
Surr: o-Terphenyl	19.4		20.00		96.9	50	150				

Sample ID: **1208159-003CDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **9/1/2012**	RunNo: **5675**
Client ID: **082012.01.20**	Batch ID: **3151**		Analysis Date: **9/10/2012**	SeqNo: **111624**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.1						0	0	30	
Heavy Oil	ND	50.2						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1208159-003CDUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **9/1/2012**		RunNo: **5675**		
Client ID: **082012.01.20**	Batch ID: **3151**					Analysis Date: **9/10/2012**		SeqNo: **111624**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	21.0		20.10		104	50	150		0		
Surr: o-Terphenyl	21.4		20.10		107	50	150		0		

Sample ID: **MB-3151**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **9/10/2012**		RunNo: **5675**		
Client ID: **MBLKS**	Batch ID: **3151**					Analysis Date: **9/10/2012**		SeqNo: **111634**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	21.9		20.00		109	50	150				
Surr: o-Terphenyl	22.6		20.00		113	50	150				

Sample ID: **1209030-008ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **9/10/2012**		RunNo: **5675**			
Client ID: **BATCH**	Batch ID: **3151**					Analysis Date: **9/12/2012**		SeqNo: **111941**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0						0	0	30	
Heavy Oil	208	50.1						123.5	51.2	30	R
Surr: 2-Fluorobiphenyl	23.4		20.05		117	50	150		0		
Surr: o-Terphenyl	21.8		20.05		109	50	150		0		

NOTES:
R - High RPD due to sample matrix. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCS-3156A** SampType: **LCS** Units: **mg/Kg** Prep Date: **9/10/2012** RunNo: **5703**
Client ID: **LCSS** Batch ID: **3156** Analysis Date: **9/13/2012** SeqNo: **112267**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	15.1	5.00	20.00	0	75.4	70	130				
Aliphatic Hydrocarbon (C10-C12)	7.67	5.00	10.00	0	76.7	70	130				
Aliphatic Hydrocarbon (C12-C16)	7.60	5.00	10.00	0	76.0	70	130				
Aliphatic Hydrocarbon (C16-C21)	8.31	5.00	10.00	0	83.1	70	130				
Aliphatic Hydrocarbon (C21-C34)	8.30	5.00	10.00	0	83.0	70	130				
Surr: 1-Chlorooctadecane	3.37		4.000		84.2	65	140				

Sample ID: **LCS-3156B** SampType: **LCS** Units: **mg/Kg** Prep Date: **9/10/2012** RunNo: **5703**
Client ID: **LCSS** Batch ID: **3156** Analysis Date: **9/13/2012** SeqNo: **112268**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	10.8	5.00	20.00	0	54.0	70	130				S
Aromatic Hydrocarbon (C10-C12)	8.58	5.00	10.00	0	85.8	70	130				
Aromatic Hydrocarbon (C12-C16)	9.72	5.00	10.00	0	97.2	70	130				
Aromatic Hydrocarbon (C16-C21)	10.2	5.00	10.00	0	102	70	130				
Aromatic Hydrocarbon (C21-C34)	10.2	5.00	10.00	0	102	70	130				
Surr: o-Terphenyl	3.56		4.000		89.1	65	140				

NOTES:
S - Low LCS spike recovery for Aromatic Hydrocarbon (C8-C10). Corresponding data is marked with a *. Please see Aromatic Hydrocarbon (C8-C10) on NWVPH.

Sample ID: **LCSD-3156A** SampType: **LCSD** Units: **mg/Kg** Prep Date: **9/10/2012** RunNo: **5703**
Client ID: **LCSS02** Batch ID: **3156** Analysis Date: **9/13/2012** SeqNo: **112269**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	15.8	5.00	20.00	0	79.2	70	130	15.09	4.84	20	
Aliphatic Hydrocarbon (C10-C12)	7.99	5.00	10.00	0	79.9	70	130	7.675	4.06	20	
Aliphatic Hydrocarbon (C12-C16)	7.94	5.00	10.00	0	79.4	70	130	7.599	4.43	20	
Aliphatic Hydrocarbon (C16-C21)	8.24	5.00	10.00	0	82.4	70	130	8.315	0.906	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCSD-3156A**	SampType: **LCSD**			Units: **mg/Kg**		Prep Date: **9/10/2012**		RunNo: **5703**			
Client ID: **LCSS02**	Batch ID: **3156**					Analysis Date: **9/13/2012**		SeqNo: **112269**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C21-C34)	8.24	5.00	10.00	0	82.4	70	130	8.301	0.706	20	
Surr: 1-Chlorooctadecane	3.29		4.000		82.2	65	140		0		

Sample ID: **LCSD-3156B**	SampType: **LCSD**			Units: **mg/Kg**		Prep Date: **9/10/2012**		RunNo: **5703**			
Client ID: **LCSS02**	Batch ID: **3156**					Analysis Date: **9/13/2012**		SeqNo: **112270**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	10.3	5.00	20.00	0	51.7	70	130	10.79	4.35	20	S
Aromatic Hydrocarbon (C10-C12)	8.00	5.00	10.00	0	80.0	70	130	8.577	6.93	20	
Aromatic Hydrocarbon (C12-C16)	8.83	5.00	10.00	0	88.3	70	130	9.716	9.53	20	
Aromatic Hydrocarbon (C16-C21)	9.38	5.00	10.00	0	93.8	70	130	10.19	8.25	20	
Aromatic Hydrocarbon (C21-C34)	9.38	5.00	10.00	0	93.8	70	130	10.18	8.14	20	
Surr: o-Terphenyl	3.22		4.000		80.6	65	140		0		

NOTES:
S - Low LCS spike recovery for Aromatic Hydrocarbon (C8-C10). Corresponding data is marked with a *. Please see Aromatic Hydrocarbon (C8-C10) on NWVPH.

Sample ID: **MB-3156A**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **9/10/2012**		RunNo: **5703**			
Client ID: **MBLKS**	Batch ID: **3156**					Analysis Date: **9/13/2012**		SeqNo: **112271**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	5.00									
Aliphatic Hydrocarbon (C10-C12)	ND	5.00									
Aliphatic Hydrocarbon (C12-C16)	ND	5.00									
Aliphatic Hydrocarbon (C16-C21)	ND	5.00									
Aliphatic Hydrocarbon (C21-C34)	ND	5.00									
Surr: 1-Chlorooctadecane	1.90		4.000		47.6	65	140				S

NOTES:
S - Low surrogate recovery was observed.

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *9/14/2012*

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-3156B** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/10/2012** RunNo: **5703**
Client ID: **MBLKS** Batch ID: **3156** Analysis Date: **9/13/2012** SeqNo: **112272**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	5.00									
Aromatic Hydrocarbon (C10-C12)	ND	5.00									
Aromatic Hydrocarbon (C12-C16)	ND	5.00									
Aromatic Hydrocarbon (C16-C21)	ND	5.00									
Aromatic Hydrocarbon (C21-C34)	ND	5.00									
Surr: o-Terphenyl	3.30		4.000		82.5	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Ethanol by SW8015

Sample ID: **MBLK-A-3067**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date:	RunNo: **5561**
Client ID: **MBLKS**	Batch ID: **3067**		Analysis Date: **8/28/2012**	SeqNo: **109455**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	1.00									
Surr: Methanol	111		100.0		111	65	135				

Sample ID: **1208159-037BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **8/27/2012**	RunNo: **5561**
Client ID: **082212.09B.20**	Batch ID: **3067**		Analysis Date: **8/28/2012**	SeqNo: **109463**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	0.959						0	0	0	
Surr: Methanol	124		95.95		129	65	135		0	0	

Sample ID: **MBLK-B-3068**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date:	RunNo: **5561**
Client ID: **MBLKS**	Batch ID: **3068**		Analysis Date: **8/28/2012**	SeqNo: **109464**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	1.00									
Surr: Methanol	104		100.0		104	65	135				

Sample ID: **LCS-B-3068**	SampType: **LCS**	Units: **mg/Kg**	Prep Date:	RunNo: **5561**
Client ID: **LCSS**	Batch ID: **3068**		Analysis Date: **8/28/2012**	SeqNo: **109465**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	59.1	1.00	50.00	0	118	65	135				
Surr: Methanol	73.6		100.0		73.6	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *9/14/2012*

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Ethanol by SW8015

Sample ID: **LCS-A-3067**	SampType: **LCS**			Units: **mg/Kg**	Prep Date:		RunNo: **5561**			
Client ID: **LCSS**	Batch ID: **3067**				Analysis Date: **8/28/2012**		SeqNo: **109466**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	63.1	1.00	50.00	0	126	65	135				
Surr: Methanol	78.5		100.0		78.5	65	135				

Sample ID: **1208159-038BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**	Prep Date: **8/27/2012**		RunNo: **5561**			
Client ID: **082212.14.20**	Batch ID: **3068**				Analysis Date: **8/28/2012**		SeqNo: **109468**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	1.06						0	0	0	
Surr: Methanol	129		106.5		121	65	135		0	0	

Sample ID: **1208159-038BMS**	SampType: **MS**			Units: **mg/Kg-dry**	Prep Date: **8/27/2012**		RunNo: **5561**			
Client ID: **082212.14.20**	Batch ID: **3068**				Analysis Date: **8/28/2012**		SeqNo: **109469**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	55.3	1.02	51.04	0	108	65	135				
Surr: Methanol	90.1		102.1		88.2	65	135				

Sample ID: **1208159-038BMSD**	SampType: **MSD**			Units: **mg/Kg-dry**	Prep Date: **8/27/2012**		RunNo: **5561**			
Client ID: **082212.14.20**	Batch ID: **3068**				Analysis Date: **8/28/2012**		SeqNo: **109470**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	57.0	1.05	52.36	0	109	65	135	55.26	3.11	30	
Surr: Methanol	95.9		104.7		91.6	65	135		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Ethanol by SW8015

Sample ID: **1208159-002BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **8/27/2012**	RunNo: **5561**
Client ID: **082012.01.15**	Batch ID: **3067**		Analysis Date: **8/28/2012**	SeqNo: **109475**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	0.925						0	0	0	
Surr: Methanol	93.3		92.45		101	65	135		0	0	

Sample ID: **1208159-002BMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **8/27/2012**	RunNo: **5561**
Client ID: **082012.01.15**	Batch ID: **3067**		Analysis Date: **8/28/2012**	SeqNo: **109476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	48.5	0.889	44.45	0	109	65	135				
Surr: Methanol	119		88.89		133	65	135				

Sample ID: **1208159-002BMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **8/27/2012**	RunNo: **5561**
Client ID: **082012.01.15**	Batch ID: **3067**		Analysis Date: **8/28/2012**	SeqNo: **109477**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	48.7	0.931	46.54	0	105	65	135	48.53	0.422	30	
Surr: Methanol	111		93.07		119	65	135		0	0	

Sample ID: **MB-3157**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **9/1/2012**	RunNo: **5651**
Client ID: **MBLKS**	Batch ID: **3157**		Analysis Date: **9/10/2012**	SeqNo: **111282**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	1.00									
Surr: Methanol	103		100.0		103	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Ethanol by SW8015

Sample ID: **LCS-3157**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **9/1/2012**	RunNo: **5651**
Client ID: **LCSS**	Batch ID: **3157**		Analysis Date: **9/10/2012**	SeqNo: **111283**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	56.1	1.00	50.00	0	112	65	135				
Surr: Methanol	83.8		75.00		112	65	135				

Sample ID: **1208159-003BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **9/1/2012**	RunNo: **5651**
Client ID: **082012.01.20**	Batch ID: **3157**		Analysis Date: **9/10/2012**	SeqNo: **111285**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	0.942						0	0	0	
Surr: Methanol	90.0		94.16		95.6	65	135		0	0	

Sample ID: **1208159-014BMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **9/1/2012**	RunNo: **5651**
Client ID: **082012.03.20**	Batch ID: **3157**		Analysis Date: **9/10/2012**	SeqNo: **111287**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	60.7	1.03	51.54	0	118	65	135				
Surr: Methanol	83.3		77.31		108	65	135				

Sample ID: **1208159-014BMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **9/1/2012**	RunNo: **5651**
Client ID: **082012.03.20**	Batch ID: **3157**		Analysis Date: **9/10/2012**	SeqNo: **111288**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	63.4	1.04	52.12	0	122	65	135	60.73	4.28	30	
Surr: Methanol	82.8		78.18		106	65	135		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **LCS-R5549**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **8/30/2012**	RunNo: **5549**
Client ID: **LCSS**	Batch ID: **3096**		Analysis Date: **8/31/2012**	SeqNo: **109109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	18.6	5.00	25.00	0	74.3	65	135				
Surr: 1,2-Dichloroethane-d4	0.434		0.5000		86.7	65	135				
Surr: Fluorobenzene	0.382		0.5000		76.3	65	135				

Sample ID: **MB-R5549**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **8/30/2012**	RunNo: **5549**
Client ID: **MBLKS**	Batch ID: **3096**		Analysis Date: **8/31/2012**	SeqNo: **109110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,2-Dichloroethane-d4	0.455		0.5000		91.0	65	135				
Surr: Fluorobenzene	0.400		0.5000		80.1	65	135				

Sample ID: **1208159-009ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **8/30/2012**	RunNo: **5549**
Client ID: **082012.15.20**	Batch ID: **3096**		Analysis Date: **8/31/2012**	SeqNo: **109207**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.15						0	0	30	
Surr: 1,2-Dichloroethane-d4	0.361		0.4149		86.9	65	135		0		
Surr: Fluorobenzene	0.324		0.4149		78.1	65	135		0		

Sample ID: **1208159-011ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **8/30/2012**	RunNo: **5556**
Client ID: **082012.03.10**	Batch ID: **R5556**		Analysis Date: **8/31/2012**	SeqNo: **109293**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.87						0	0	30	
Surr: 1,2-Dichloroethane-d4	0.645		0.4868		132	65	135		0		
Surr: Fluorobenzene	0.524		0.4868		108	65	135		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *9/14/2012*

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **1208159-011ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **8/30/2012**	RunNo: **5556**
Client ID: **082012.03.10**	Batch ID: **R5556**		Analysis Date: **8/31/2012**	SeqNo: **109293**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: **MB-R5556**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **8/30/2012**	RunNo: **5556**
Client ID: **MBLKS**	Batch ID: **R5556**		Analysis Date: **8/31/2012**	SeqNo: **109307**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,2-Dichloroethane-d4	0.669		0.5000		134	65	135				
Surr: Fluorobenzene	0.546		0.5000		109	65	135				

Sample ID: **LCS-R5556**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **8/30/2012**	RunNo: **5556**
Client ID: **LCSS**	Batch ID: **R5556**		Analysis Date: **8/31/2012**	SeqNo: **109308**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	17.6	5.00	25.00	0	70.5	65	135				
Surr: 1,2-Dichloroethane-d4	0.672		0.5000		134	65	135				
Surr: Fluorobenzene	0.554		0.5000		111	65	135				

Sample ID: **1208159-033ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **9/1/2012**	RunNo: **5646**
Client ID: **082212.08.17.5**	Batch ID: **R5646**		Analysis Date: **9/1/2012**	SeqNo: **111129**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.58						0	0	30	
Surr: 1,2-Dichloroethane-d4	0.491		0.5579		88.1	65	135		0		
Surr: Fluorobenzene	0.369		0.5579		66.1	65	135		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *9/14/2012*

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **LCS-R5646**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **9/1/2012**		RunNo: **5646**			
Client ID: **LCSS**	Batch ID: **R5646**					Analysis Date: **9/1/2012**		SeqNo: **111132**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	22.5	5.00	25.00	0	90.0	65	135				
Surr: 1,2-Dichloroethane-d4	0.478		0.5000		95.5	65	135				
Surr: Fluorobenzene	0.356		0.5000		71.2	65	135				

Sample ID: **MB-R5646**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **9/1/2012**		RunNo: **5646**			
Client ID: **MBLKS**	Batch ID: **R5646**					Analysis Date: **9/1/2012**		SeqNo: **111133**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,2-Dichloroethane-d4	0.462		0.5000		92.4	65	135				
Surr: Fluorobenzene	0.351		0.5000		70.2	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1208183-003AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/30/2012** RunNo: **5548**
Client ID: **BATCH** Batch ID: **3096** Analysis Date: **8/31/2012** SeqNo: **109099**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.31	0.0580	1.160	0	113	54.4	132				
1,2-Dichloroethane (EDC)	1.33	0.0348	1.160	0	115	51.3	139				
Benzene	1.37	0.0232	1.160	0	118	63.5	133				
Toluene	1.38	0.0232	1.160	0.01741	118	67.8	129				
1,2-Dibromoethane (EDB)	1.34	0.00580	1.160	0	116	50.4	136				
Ethylbenzene	1.34	0.0348	1.160	0	116	54.5	134				
m,p-Xylene	2.69	0.0232	2.321	0	116	53.1	132				
o-Xylene	1.35	0.0232	1.160	0	116	53.3	139				
Surr: 1-Bromo-4-fluorobenzene	0.534		0.5802		92.0	63.1	141				
Surr: Dibromofluoromethane	0.538		0.5802		92.8	67.6	119				
Surr: Toluene-d8	0.570		0.5802		98.3	78.5	126				

Sample ID: **LCS-3096** SampType: **LCS** Units: **mg/Kg** Prep Date: **8/30/2012** RunNo: **5548**
Client ID: **LCSS** Batch ID: **3096** Analysis Date: **8/31/2012** SeqNo: **109100**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.467	0.0500	0.5000	0	93.4	73.4	128				
1,2-Dichloroethane (EDC)	0.480	0.0300	0.5000	0	96.1	68.7	133				
Benzene	0.487	0.0200	0.5000	0	97.3	74.6	124				
Toluene	0.487	0.0200	0.5000	0	97.4	81.1	123				
1,2-Dibromoethane (EDB)	0.452	0.00500	0.5000	0	90.4	70	130				
Ethylbenzene	0.457	0.0300	0.5000	0	91.4	74	129				
m,p-Xylene	0.980	0.0200	1.000	0	98.0	79.8	128				
o-Xylene	0.478	0.0200	0.5000	0	95.6	77.3	128				
Surr: 1-Bromo-4-fluorobenzene	0.547		0.5000		109	63.1	141				
Surr: Dibromofluoromethane	0.505		0.5000		101	67.6	119				
Surr: Toluene-d8	0.520		0.5000		104	78.5	126				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-3096** SampType: **MBLK** Units: **mg/Kg** Prep Date: **8/30/2012** RunNo: **5548**
Client ID: **MBLKS** Batch ID: **3096** Analysis Date: **8/31/2012** SeqNo: **109101**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Toluene	ND	0.0200									
1,2-Dibromoethane (EDB)	ND	0.00500									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Surr: 1-Bromo-4-fluorobenzene	0.470		0.5000		93.9	63.1	141				
Surr: Dibromofluoromethane	0.488		0.5000		97.5	67.6	119				
Surr: Toluene-d8	0.478		0.5000		95.5	78.5	126				

Sample ID: **1208159-009ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/30/2012** RunNo: **5548**
Client ID: **082012.15.20** Batch ID: **3096** Analysis Date: **8/31/2012** SeqNo: **109212**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0415						0	0	30	
1,2-Dichloroethane (EDC)	ND	0.0249						0	0	30	
Benzene	ND	0.0166						0	0	30	
Toluene	ND	0.0166						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00415						0	0	30	
Ethylbenzene	ND	0.0249						0	0	30	
m,p-Xylene	0.0577	0.0166						0.05726	0.722	30	
o-Xylene	ND	0.0166						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	0.399		0.4149		96.2	63.1	141		0		
Surr: Dibromofluoromethane	0.380		0.4149		91.5	67.6	119		0		
Surr: Toluene-d8	0.411		0.4149		99.0	78.5	126		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1208159-011ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/30/2012** RunNo: **5555**
Client ID: **082012.03.10** Batch ID: **3099** Analysis Date: **8/31/2012** SeqNo: **109276**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0487						0	0	30	
1,2-Dichloroethane (EDC)	ND	0.0292						0	0	30	
Benzene	ND	0.0195						0	0	30	
Toluene	ND	0.0195						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00487						0	0	30	
Ethylbenzene	ND	0.0292						0	0	30	
m,p-Xylene	ND	0.0195						0	0	30	
o-Xylene	ND	0.0195						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	0.485		0.4868		99.7	63.1	141		0		
Surr: Dibromofluoromethane	0.489		0.4868		100	67.6	119		0		
Surr: Toluene-d8	0.493		0.4868		101	78.5	126		0		

Sample ID: **1208159-012AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/30/2012** RunNo: **5555**
Client ID: **082012.03.15** Batch ID: **3099** Analysis Date: **8/31/2012** SeqNo: **109278**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.38	0.0678	1.357	0	102	54.4	132				
1,2-Dichloroethane (EDC)	1.39	0.0407	1.357	0	102	51.3	139				
Benzene	1.38	0.0271	1.357	0	102	63.5	133				
Toluene	1.38	0.0271	1.357	0	102	67.8	129				
1,2-Dibromoethane (EDB)	1.34	0.00678	1.357	0	98.5	50.4	136				
Ethylbenzene	1.42	0.0407	1.357	0	105	54.5	134				
m,p-Xylene	2.82	0.0271	2.713	0	104	53.1	132				
o-Xylene	1.42	0.0271	1.357	0	105	53.3	139				
Surr: 1-Bromo-4-fluorobenzene	0.680		0.6783		100	63.1	141				
Surr: Dibromofluoromethane	0.664		0.6783		97.9	67.6	119				
Surr: Toluene-d8	0.673		0.6783		99.2	78.5	126				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-3099** SampType: **LCS** Units: **mg/Kg** Prep Date: **8/30/2012** RunNo: **5555**
Client ID: **LCSS** Batch ID: **3099** Analysis Date: **8/31/2012** SeqNo: **109290**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.502	0.0500	0.5000	0	100	73.4	128				
1,2-Dichloroethane (EDC)	0.490	0.0300	0.5000	0	98.0	68.7	133				
Benzene	0.506	0.0200	0.5000	0	101	74.6	124				
Toluene	0.503	0.0200	0.5000	0	101	81.1	123				
1,2-Dibromoethane (EDB)	0.471	0.00500	0.5000	0	94.2	70	130				
Ethylbenzene	0.508	0.0300	0.5000	0	102	74	129				
m,p-Xylene	1.01	0.0200	1.000	0	101	79.8	128				
o-Xylene	0.503	0.0200	0.5000	0	101	77.3	128				
Surr: 1-Bromo-4-fluorobenzene	0.506		0.5000		101	63.1	141				
Surr: Dibromofluoromethane	0.499		0.5000		99.8	67.6	119				
Surr: Toluene-d8	0.498		0.5000		99.6	78.5	126				

Sample ID: **MB-3099** SampType: **MBLK** Units: **mg/Kg** Prep Date: **8/30/2012** RunNo: **5555**
Client ID: **MBLKS** Batch ID: **3099** Analysis Date: **8/31/2012** SeqNo: **109291**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Toluene	ND	0.0200									
1,2-Dibromoethane (EDB)	ND	0.00500									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Surr: 1-Bromo-4-fluorobenzene	0.498		0.5000		99.6	63.1	141				
Surr: Dibromofluoromethane	0.498		0.5000		99.5	67.6	119				
Surr: Toluene-d8	0.492		0.5000		98.5	78.5	126				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1208159-033ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/1/2012** RunNo: **5647**
Client ID: **082212.08.17.5** Batch ID: **3127** Analysis Date: **9/1/2012** SeqNo: **111142**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0558						0	0	30	
1,2-Dichloroethane (EDC)	ND	0.0335						0	0	30	
Benzene	ND	0.0223						0	0	30	
Toluene	ND	0.0223						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00558						0	0	30	
Ethylbenzene	ND	0.0335						0	0	30	
m,p-Xylene	ND	0.0223						0	0	30	
o-Xylene	ND	0.0223						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	0.466		0.5579		83.5	63.1	141		0		
Surr: Dibromofluoromethane	0.575		0.5579		103	67.6	119		0		
Surr: Toluene-d8	0.577		0.5579		104	78.5	126		0		

Sample ID: **1208159-042AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **9/1/2012** RunNo: **5647**
Client ID: **082212.10.20** Batch ID: **3127** Analysis Date: **9/1/2012** SeqNo: **111144**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.21	0.0529	1.058	0	115	54.4	132				
1,2-Dichloroethane (EDC)	1.17	0.0317	1.058	0	110	51.3	139				
Benzene	1.18	0.0212	1.058	0	112	63.5	133				
Toluene	1.09	0.0212	1.058	0	103	67.8	129				
1,2-Dibromoethane (EDB)	0.995	0.00529	1.058	0	94.0	50.4	136				
Ethylbenzene	0.932	0.0317	1.058	0	88.1	54.5	134				
m,p-Xylene	1.92	0.0212	2.116	0	90.6	53.1	132				
o-Xylene	0.945	0.0212	1.058	0	89.3	53.3	139				
Surr: 1-Bromo-4-fluorobenzene	0.453		0.5289		85.6	63.1	141				
Surr: Dibromofluoromethane	0.531		0.5289		100	67.6	119				
Surr: Toluene-d8	0.515		0.5289		97.4	78.5	126				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-3127** SampType: **LCS** Units: **mg/Kg** Prep Date: **9/1/2012** RunNo: **5647**
Client ID: **LCSS** Batch ID: **3127** Analysis Date: **9/1/2012** SeqNo: **111146**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.12	0.0500	1.000	0	112	73.4	128				
1,2-Dichloroethane (EDC)	1.12	0.0300	1.000	0	112	68.7	133				
Benzene	1.11	0.0200	1.000	0	111	74.6	124				
Toluene	1.01	0.0200	1.000	0	101	81.1	123				
1,2-Dibromoethane (EDB)	0.982	0.00500	1.000	0	98.2	70	130				
Ethylbenzene	0.909	0.0300	1.000	0	90.9	74	129				
m,p-Xylene	1.79	0.0200	2.000	0	89.6	79.8	128				
o-Xylene	0.906	0.0200	1.000	0	90.6	77.3	128				
Surr: 1-Bromo-4-fluorobenzene	0.455		0.5000		91.0	63.1	141				
Surr: Dibromofluoromethane	0.526		0.5000		105	67.6	119				
Surr: Toluene-d8	0.494		0.5000		98.8	78.5	126				

Sample ID: **MB-3127** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/1/2012** RunNo: **5647**
Client ID: **MBLKS** Batch ID: **3127** Analysis Date: **9/1/2012** SeqNo: **111147**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Toluene	ND	0.0200									
1,2-Dibromoethane (EDB)	ND	0.00500									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Surr: 1-Bromo-4-fluorobenzene	0.435		0.5000		87.0	63.1	141				
Surr: Dibromofluoromethane	0.517		0.5000		103	67.6	119				
Surr: Toluene-d8	0.490		0.5000		98.0	78.5	126				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1208185-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/31/2012** RunNo: **5612**
Client ID: **BATCH** Batch ID: **3138** Analysis Date: **9/2/2012** SeqNo: **110330**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	32.6	0.433	34.66	0	94.1	70	130				
Aliphatic Hydrocarbon (C6-C8)	17.7	0.433	17.33	0.4441	99.6	70	130				
Aliphatic Hydrocarbon (C8-C10)	20.8	0.433	17.33	2.312	107	70	130				
Aliphatic Hydrocarbon (C10-C12)	18.5	0.433	17.33	0.4069	104	70	130				
Aromatic Hydrocarbon (C8-C10)	94.9	0.433	86.64	5.799	103	70	130				
Aromatic Hydrocarbon (C10-C12)	22.2	0.433	17.33	4.920	99.7	70	130				
Aromatic Hydrocarbon (C12-C13)	18.8	0.433	17.33	0.1743	108	70	130				
Surr: Bromofluorobenzene	0.440		0.4332		102	65	140				
Surr: Trifluorotoluene	0.376		0.4332		86.8	65	140				

Sample ID: **LCS-3138** SampType: **LCS** Units: **mg/Kg** Prep Date: **8/31/2012** RunNo: **5612**
Client ID: **LCSS** Batch ID: **3138** Analysis Date: **9/1/2012** SeqNo: **110332**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	40.6	0.500	40.00	0	101	70	130				
Aliphatic Hydrocarbon (C6-C8)	24.8	0.500	20.00	0	124	70	130				
Aliphatic Hydrocarbon (C8-C10)	22.7	0.500	20.00	0	114	70	130				
Aliphatic Hydrocarbon (C10-C12)	19.3	0.500	20.00	0	96.4	70	130				
Aromatic Hydrocarbon (C8-C10)	105	0.500	100.0	0	105	70	130				
Aromatic Hydrocarbon (C10-C12)	17.0	0.500	20.00	0	84.8	70	130				
Aromatic Hydrocarbon (C12-C13)	17.8	0.500	20.00	0	89.0	70	130				
Surr: Bromofluorobenzene	0.425		0.5000		85.1	65	140				
Surr: Trifluorotoluene	0.464		0.5000		92.8	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCSD-3138**	SampType: **LCSD**	Units: **mg/Kg**	Prep Date: **8/31/2012**	RunNo: **5612**
Client ID: **LCSS02**	Batch ID: **3138**		Analysis Date: **9/1/2012**	SeqNo: **110333**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	40.1	0.500	40.00	0	100	70	130	40.60	1.16	20	
Aliphatic Hydrocarbon (C6-C8)	21.7	0.500	20.00	0	109	70	130	24.83	13.3	20	
Aliphatic Hydrocarbon (C8-C10)	23.2	0.500	20.00	0	116	70	130	22.73	1.88	20	
Aliphatic Hydrocarbon (C10-C12)	21.7	0.500	20.00	0	108	70	130	19.27	11.8	20	
Aromatic Hydrocarbon (C8-C10)	104	0.500	100.0	0	104	70	130	105.0	0.980	20	
Aromatic Hydrocarbon (C10-C12)	17.9	0.500	20.00	0	89.3	70	130	16.96	5.14	20	
Aromatic Hydrocarbon (C12-C13)	16.9	0.500	20.00	0	84.4	70	130	17.79	5.22	20	
Surr: Bromofluorobenzene	0.399		0.5000		79.8	65	140		0		
Surr: Trifluorotoluene	0.494		0.5000		98.7	65	140		0		

Sample ID: **MB-3138**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **8/31/2012**	RunNo: **5612**
Client ID: **MBLKS**	Batch ID: **3138**		Analysis Date: **9/1/2012**	SeqNo: **110334**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	0.500		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	0.500		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	0.500		0	0						
Aromatic Hydrocarbon (C12-C13)	ND	0.500		0	0						
Surr: Bromofluorobenzene	0.591		0.5000		118	65	140				
Surr: Trifluorotoluene	0.412		0.5000		82.4	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1208159
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1208159-029BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/31/2012** RunNo: **5612**
Client ID: **082112.07.20** Batch ID: **3138** Analysis Date: **9/3/2012** SeqNo: **111300**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	23.2	0.553		0	0			21.37	8.28	25	
Aliphatic Hydrocarbon (C6-C8)	73.5	0.553		0	0			68.09	7.66	25	E
Aliphatic Hydrocarbon (C8-C10)	69.6	0.553		0	0			66.34	4.73	25	E
Aliphatic Hydrocarbon (C10-C12)	47.6	0.553		0	0			49.82	4.51	25	E
Aromatic Hydrocarbon (C8-C10)	146	0.553		0	0			157.1	7.05	25	E
Aromatic Hydrocarbon (C10-C12)	62.7	0.553		0	0			60.89	2.86	25	E
Aromatic Hydrocarbon (C12-C13)	ND	0.553		0	0			0	0	25	
Surr: Bromofluorobenzene	4.10		0.5528		742	65	140		0		S
Surr: Trifluorotoluene	0.647		0.5528		117	65	140		0		

NOTES:
S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Sample Log-In Check List

Client Name: **FE**	Work Order Number: **1208159**
Logged by: **Troy Zehr**	Date Received: **8/21/2012 9:45:00 AM**

Chain of Custody

1.	Were custodial seals present?	Yes	☑	No	☐	Not Required	☐
2.	Is Chain of Custody complete?	Yes	☑	No	☐	Not Present	☐
3.	How was the sample delivered?	UPS					

Log In

4.	Coolers are present?	Yes	☑	No	☐	NA	☐
5.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA	☐
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes	☑	No	☐	NA	☐
7.	Sample(s) in proper container(s)?	Yes	☑	No	☐		
8.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐		
9.	Are samples properly preserved?	Yes	☑	No	☐		
10.	Was preservative added to bottles?	Yes	☐	No	☑	NA	☐
11.	Is there headspace present in VOA vials?	Yes	☐	No	☐	NA	☑
12.	Did all sample containers arrive in good condition?(unbroken)	Yes	☑	No	☐		
13.	Does paperwork match bottle labels?	Yes	☑	No	☐		
14.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐		
15.	Is it clear what analyses were requested?	Yes	☑	No	☐		
16.	Were all holding times able to be met?	Yes	☑	No	☐		

Special Handling (if applicable)

17.	Was client notified of all discrepancies with this order?	Yes	☑	No	☐	NA	☐

Person Notified:	Jeremy Lynn	Date:	8/22/2012
By Whom:	Mike Ridgeway	Via:	☐ eMail ☑ Phone ☐ Fax ☐ In Person
Regarding:	Sample 082112-13 Not on COC, please add on hold.		
Client Instructions:			

18. Additional remarks/Disrepancies

Item Information

Item #	Temp ºC	Condition
Cooler 1	4.1	Good
Cooler 2	4.8	Good
Cooler 3	4.3	Good

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Chain of Custody Record

3311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 8/20/12

Laboratory Project No (internal): 1208159
Page: 2 of 2

Client: Fulcrum
Address: 406 N. 2nd St.
City, State, Zip: Yakima, WA 98901 Tel: 509-574-0839
Reports To (PM): Fax: 575-8453
Project Name: Sportland
Location: Cle Elum
Collected by: J. Lynn
Email: JLynn@efulcrum.net
Project No: 12698

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SVOC (EPA 8270)	PAH (EPA 8270 SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals (6020/200.8)	Total (T) / Dissolved (D)	Anions (IC)**	MTBE, EDB, EDC	Ethanol	Lead		Comments/Depth
1 82012.01.00	8/20/12	9:45	soil		✓	✓		✓									✓	✓	✓		HOLD
2 82012.01.15	↓	10:10	↓		↓	↓		↓									↓	↓	↓		
3 82012.01.20	↓	10:45	↓		↓	↓		↓									↓	↓	↓		HOLD
4 82012.02.05	↓	11:56	↓		↓	↓		↓									↓	↓	↓		HOLD
5 82012.02.10	↓	12:30	↓		↓	↓		↓									↓	↓	↓		HOLD
6 82012.02.12.5	↓	12:50	↓		↓	↓		↓									↓	↓	↓		HOLD
7 82012.02.15	↓	1:05	↓		↓	↓		↓									↓	↓	↓		
8 82012.02.20	↓	2:00	↓		↓	↓		↓									↓	↓	↓		
9 82012.15.20	↓	1:00	↓		↓	↓		↓									↓	↓	↓		
10 82012.03.05	↓	3:25	↓		↓	↓		↓									↓	↓	↓		HOLD

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	8/20/12 4:40	x [signature]	8/21/12 9:45
Relinquished x	Date/Time	Received x	Date/Time

TAT: Next Day 2 Day 3 Day (STD)

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

Date: 8/20/12

Laboratory Project No (internal):

Page: ~~1~~ 2 of 2

Client: Fulcrum
Address: 406 N. 2nd st.
City, State, Zip: Yakima, WA
Tel: 509-574-0839
Fax: 575-5453

Project Name: Sportland
Location: Cle Elum
Collected by: J. Lynn

Report To (PM):
Email: JLynn@efulcrum.net
Project No: 12698

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260 / EPA 8021B)	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SIM VOC (EPA 8270)	PAH (EPA 8270-SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	N Pesticides (EPA 8151A)	Metals* (6020/200.8)	Total (T) / Dissolved (D)	Anions (IC)**	MTBE, EDB, EDC	Ethanol;	Lead		Comments/Depth
1 82012.03.10	8/20/12	3:45	Soil		✓	✓		✓									✓	✓	✓		
2 82012.03.15	↓	4:05	↓		↓	↓		↓									↓	↓	↓		
3 82012.12.15	↓	4:08	↓		↓	↓		↓									↓	↓	↓		
4 82012.03.20	↓	4:30	↓		↓	↓		↓									↓	↓	↓		HOLD
5																					
6																					
7																					
8																					
9																					
10																					

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sn Sr Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	8/20/12 4:40	x [signature]	8/21/12 9:45
Relinquished x	Date/Time	Received x	Date/Time

TAT → Same Day 1 Day 2 Day 3 Day (STD)

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

Laboratory Project No (internal):

Date: 8/21/12 Page: 1 of: 2

Client: Fulcrum Environmental Consulting, Inc. Project Name: Sportland

Address: 406 N. 2nd Street Location: Cle Elum

City, State, Zip: Yakima, WA 98901 Tel: 509.574.[illegible] Collected by: J. Lynn

Reports To (PM): J. Lynn Fax: 509.574.[illegible] Email: JLynn@fulcrum.net Project No: 12698

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260 / EPA 8021)	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SVOC (EPA 8270)	PAH (EPA 8270 SIM)	PCB (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (Cold / 7470)	Total (T) / Dissolved (D)	Anions (IC)**	EDC, EDB, MTBE	Ethanol	Pb		Comments/Depth
1 82112.05.05	8/21/12	9:50	Soil		x	2		x									x	c	c		HOLD
2 82112.05.10	↓	[illegible]:45	↓																		HOLD
3 82112.05.15		10:30			X	X		X									X	X	X		
4 82112.05.17.5		10:55																			HOLD
5 82112.06.05		12:00																			HOLD
6 82112.06.10		12:10			X	X		X									X	X	X		
7 82112.06.15		12:30			X	X		X									X	X	X		
8 82112.06.17.5		1:00			X	X		X									X	X	X		
9 82112.04.05		7:50																			HOLD
10 82112.04.10	↓	8:10	↓		X	X		X									X	X	X		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	8/22/12 17:00	x [signature]	8/22/12 10:40
Relinquished x	Date/Time	Received x	Date/Time

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Date: 8/21/12

Laboratory Project No (internal):
Page: ~~1~~ 2 of 2

Client: Fulcrum Environmental Consulting, Inc.
Address: 406 N. 2nd St.
City, State, Zip: Yakima, WA
Tel:
Reports To (PM):
Fax:
Email: JLynn@efulcrum.net

Project Name: Sportland
Location: Cle Elum
Collected by: J. Lynn
Project No: 12698

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOCs (EPA 8260)	BTEX EPA 8260 / EPA 8021B	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SVOCs (EPA 8270)	PAH (EPA 8270 SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020/200.8)	TCLP (T) / Dissolved (D)	Anions (IC)**	EDB EDC	EPH/	PK		Comments/Depth
1	82112.04.17.5	8-21-12	8:50	Soil		(X)	(✓)		(✓)									(✓)	(✓)	(✓)		~~Hold~~ Analyze
2	82112.07.05	↓	2:40	↓																		HOLD
3	82112.07.10	↓	3:00	↓		X	X		X									X	X	X		Analyze
4	82112.07.15	↓	3:35	↓		X	X		X									X	X	X		↓
5	82112.07.20	↓	4:00	↓		X	X		X									X	X	X		↓
6																						
7																						
8																						
9																						
10																						

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x		x [signature]	8/22/12 10:??
x		x	

TAT: Next Day 1 Day 3 Day (STD)

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Chain of Custody Record

Date: 8/22/12

Laboratory Project No (internal):
Page 1 of 2

Client: Fulcrum Environmental Consulting, INC.
Address: 406 N. 2nd St.
City, State Zip: Yakima, WA 98901
Tel: 509-574-0839
Project Name: Sportland
Location: Cle Elum
Collected by: J. Lynn
Reports To (PM): Jeremy Lynn
Fax: 509-575-8453
Email: JLynn@efulcrum.net
Project No: 12698

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX EPA 8260 EPA 8021B	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020/200.8)	TCLP / Dissolved (D)	Anions (IC)**	EDB EDC	Ethanol	Lead		Comments/Depth
1 82212.08.05	8-22-12	7:45	soil																		HOLD
2 82212.08.10	↓	8:00	↓																		HOLD
3 82212.08.15	↓	8:20	↓	X	X			X									X	X	X		
4 82212.08.17.5	↓	8:40	↓																		HOLD
5 82212.09.7.5	↓	10:10	↓																		HOLD
6 82212.09.10	↓	10:18	↓	X	X			X									X	X	X		↓
7 82212.09.15	↓	10:30	↓	X	X			X									X	X	X		↓
8 82212.098.20	↓	1:20	↓	X	X			X									X	X	X		↓
9 82212.14.20	↓	1:10	↓	X	X			X									X	X	X		↓
10 82212.10.05	↓	2:45	↓	[illegible]																	HOLD

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	8/23 12:45	x [signature]	8/23 12:45
x		x	

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 8/22/12

Laboratory Project No (internal):

Page: 2 of: 2

Client: Fulcrum Environmental Consulting, Inc.
Address: 406 N. 2nd St.
City, State, Zip: Yakima, WA 98901 Tel: 509-574-0839
Reports To (PM): Jeremy Lynn Fax: 509-575-2453 Email: JLynn@efulcrum.net

Project Name: Sportland
Location: Cle Elum
Collected by: J. Lynn
Project No: 12695

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)		VOC (EPA 8260)	BTEX (EPA 8260 • EPA 8021B)	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SVOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCB (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	TCLP (Dissolved to)	Anions (IC)**	MTBE 8260 SIX	Ethanol	Lead		Comments/Depth
1	82212.10.12.5	8/22/12	3:15	Soil																			~~Hold~~ HOLD
2	82212.10.15	↓	3:30	↓			X	X		X									X	X	X		↓
3	82212.10.20		4:00																				HOLD
4	82212.11.05		5:15																				HOLD
5	82212.11.10		5:27				X	X		X									X	X	X		
6	82212.11.17.5	↓	6:00	↓			X	X		X									X	X	X		
7																							
8																							
9																							
10																							

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x		x [signature]	8/23/12 12:45
x		x	

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont Analytical

3611 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Add'l Analysis

Chain of Custody Record

1208159

Date: 9/1/2012

Laboratory Project No (internal): ~~1208062~~

Page 1 of 2

Client: Falcon Envir. Cons.
Address: 406 N. 2nd Street
City, State, Zip: Yakima, WA 98901
Tel: 509-574-3833
Reports To (PM): J. Lynn
Fax: 509-575-8453
Email: [illegible]

Project Name: Sportland
Location: Cle Elum
Collected by: J. Lynn
Project No: 12678

#	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	Gasoline Range Organics	Diesel Range Organics	MTBE, EDB, EDC	Diesel	Lead	EDB ... Naphthalene	Comments/Depth
1	83012-01.20	8/30	10:45	Soil	X	X		X	X	X	X		
2	83012-03.20	↓	16:50	↓	↓	↓		↓	↓	↓	↓		
3	83112-05.17.5	8/31	10:35		↓	↓		↓	↓	↓	↓		
4	83112-06.05	↓	12:00		↓	↓		↓	↓	↓	↓		
5	83112-06.15	↓	12:30									X	
6	83112-07.05	↓	14:40		X	X		X	X	X	X		
7	83112-07.15	↓	15:35									X	
8	83112-07.20	↓	16:00	↓								X	
9	82212-08.10	8/22	8:00		X	X		X	X	X	X		
10	82212-08.17.5		8:??	↓	X	X		X	X	X	X		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished: [signature] Date/Time: 9/1/2012 10:30
Received: [signature] Date/Time: 9/4/12 10:00
Relinquished: Date/Time:
Received: Date/Time:

Special Remarks:

TAT → Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

3321 N 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/1/2012
Laboratory Project No (internal):
Page: 2 of 2

Client: Fulcrum Env. Cons.
Address:
City, State, Zip:
Tel:
Project Name: Sporthead
Location:
Collected by:
Reports To (PM):
Fax:
Email:
Project No:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	NW-TPH-Dx	BTEX	Gasoline Range Organics	Diesel Range Organics	Volatile Organics	Semi-Volatile Organics	PAH	PCBs	Pesticides	Herbicides	Metals*	Total / Dissolved	Anions**		Ethanol / Lead	Comments/Depth
1	82212-18	9/1/12	11:45	Soil	X	X	X												X	
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x		x [signature]	9/1/12 10:30
x		x	

TAT -> Next Day 2 Day 3 Day STD

1311 N. 35th St.
Seattle, WA 98103
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info@fremontanalytical.com

Fulcrum Environmental
Kendra Williams
406 N. 2nd Street
Yakima, Washington 98901

RE: Sportland
Lab ID: 1211043

November 26, 2012

Attention Kendra Williams:

Fremont Analytical, Inc. received 4 sample(s) on 11/7/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Ethanol by SW8015
Extractable Petroleum Hydrocarbons by NWEPH
Gasoline by NWTPH-Gx
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *11/26/2012*

CLIENT: Fulcrum Environmental
Project: Sportland
Lab Order: 1211043

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1211043-001	110612-MW09.15	11/06/2012 8:10 AM	11/07/2012 9:30 AM
1211043-002	110612-MW09.16.5	11/06/2012 8:25 AM	11/07/2012 9:30 AM
1211043-003	110612-MW09.17.5	11/06/2012 8:40 AM	11/07/2012 9:30 AM
1211043-004	110612-MW09.18	11/06/2012 8:45 AM	11/07/2012 9:30 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1211043**

Date: **11/26/2012**

CLIENT: Fulcrum Environmental
Project: Sportland

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1211043**

Date Reported: **11/26/2012**

Client: Fulcrum Environmental **Collection Date:** 11/6/2012 8:40:00 AM

Project: Sportland

Lab ID: 1211043-003 **Matrix:** Soil

Client Sample ID: 110612-MW09.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3592		Analyst: BR
Diesel (Fuel Oil)	ND	21.6		mg/Kg-dry	1	11/8/2012 10:12:00 AM
Diesel Range Organics (C12-C24)	320	21.6		mg/Kg-dry	1	11/8/2012 10:12:00 AM
Heavy Oil	ND	54.1		mg/Kg-dry	1	11/8/2012 10:12:00 AM
Surr: 2-Fluorobiphenyl	99.3	50-150		%REC	1	11/8/2012 10:12:00 AM
Surr: o-Terphenyl	101	50-150		%REC	1	11/8/2012 10:12:00 AM
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 3648		Analyst: BR
Aliphatic Hydrocarbon (C8-C10)	14.8	4.75	*	mg/Kg-dry	1	11/17/2012 12:34:00 PM
Aliphatic Hydrocarbon (C10-C12)	10.1	4.75		mg/Kg-dry	1	11/17/2012 12:34:00 PM
Aliphatic Hydrocarbon (C12-C16)	7.41	4.75		mg/Kg-dry	1	11/17/2012 12:34:00 PM
Aliphatic Hydrocarbon (C16-C21)	ND	4.75		mg/Kg-dry	1	11/17/2012 12:34:00 PM
Aliphatic Hydrocarbon (C21-C34)	ND	4.75		mg/Kg-dry	1	11/17/2012 12:34:00 PM
Aromatic Hydrocarbon (C8-C10)	27.2	4.75	*	mg/Kg-dry	1	11/17/2012 7:51:00 PM
Aromatic Hydrocarbon (C10-C12)	25.3	4.75		mg/Kg-dry	1	11/17/2012 7:51:00 PM
Aromatic Hydrocarbon (C12-C16)	17.1	4.75		mg/Kg-dry	1	11/17/2012 7:51:00 PM
Aromatic Hydrocarbon (C16-C21)	ND	4.75		mg/Kg-dry	1	11/17/2012 7:51:00 PM
Aromatic Hydrocarbon (C21-C34)	ND	4.75		mg/Kg-dry	1	11/17/2012 7:51:00 PM
Surr: 1-Chlorooctadecane	94.4	65-140		%REC	1	11/17/2012 12:34:00 PM
Surr: o-Terphenyl	87.3	65-140		%REC	1	11/17/2012 7:51:00 PM
Ethanol by SW8015				Batch ID: 3618		Analyst: BR
Ethanol	ND	1.01		mg/Kg-dry	1	11/12/2012 7:23:00 PM
Surr: Methanol	76.4	65-135		%REC	1	11/12/2012 7:23:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6507		Analyst: EM
Gasoline	2,150	510	D	mg/Kg-dry	100	11/12/2012 8:41:00 AM
Surr: 1,2-Dichloroethane-d4	123	65-135		%REC	1	11/10/2012 11:52:00 AM
Surr: Fluorobenzene	107	65-135		%REC	1	11/10/2012 11:52:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3612		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	0.0510		mg/Kg-dry	1	11/10/2012 11:52:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211043**

Date Reported: **11/26/2012**

Client: Fulcrum Environmental **Collection Date:** 11/6/2012 8:40:00 AM

Project: Sportland

Lab ID: 1211043-003 **Matrix:** Soil

Client Sample ID: 110612-MW09.17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3612		Analyst: EM
1,2-Dichloroethane (EDC)	ND	0.0306		mg/Kg-dry	1	11/10/2012 11:52:00 AM
Benzene	ND	0.0204		mg/Kg-dry	1	11/10/2012 11:52:00 AM
Toluene	10.6	0.204	D	mg/Kg-dry	10	11/10/2012 11:21:00 AM
1,2-Dibromoethane (EDB)	ND	0.00510		mg/Kg-dry	1	11/10/2012 11:52:00 AM
Ethylbenzene	22.6	3.06	D	mg/Kg-dry	100	11/12/2012 8:41:00 AM
m,p-Xylene	98.7	2.04	D	mg/Kg-dry	100	11/12/2012 8:41:00 AM
o-Xylene	30.3	2.04	D	mg/Kg-dry	100	11/12/2012 8:41:00 AM
Naphthalene	10.4	0.306	D	mg/Kg-dry	10	11/10/2012 11:21:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	11/10/2012 11:52:00 AM
Surr: Dibromofluoromethane	93.7	67.6-119		%REC	1	11/10/2012 11:52:00 AM
Surr: Toluene-d8	96.6	78.5-126		%REC	1	11/10/2012 11:52:00 AM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 3620		Analyst: EM
Aliphatic Hydrocarbon (C5-C6)	ND	0.510		mg/Kg-dry	1	11/13/2012 12:04:00 AM
Aliphatic Hydrocarbon (C6-C8)	120	5.10	D	mg/Kg-dry	10	11/12/2012 10:18:00 PM
Aliphatic Hydrocarbon (C8-C10)	160	5.10	D	mg/Kg-dry	10	11/12/2012 10:18:00 PM
Aliphatic Hydrocarbon (C10-C12)	117	5.10	D	mg/Kg-dry	10	11/12/2012 10:18:00 PM
Aromatic Hydrocarbon (C8-C10)	242	5.10	D	mg/Kg-dry	10	11/12/2012 10:18:00 PM
Aromatic Hydrocarbon (C10-C12)	220	5.10	D	mg/Kg-dry	10	11/12/2012 10:18:00 PM
Aromatic Hydrocarbon (C12-C13)	1.35	0.510		mg/Kg-dry	1	11/13/2012 12:04:00 AM
Surr: Bromofluorobenzene	110	65-140	D	%REC	10	11/12/2012 10:18:00 PM
Surr: Trifluorotoluene	79.5	65-140		%REC	1	11/13/2012 12:04:00 AM
Total Metals by EPA Method 6020				Batch ID: 3599		Analyst: SG
Lead	2.37	0.174		mg/Kg-dry	1	11/9/2012 4:05:06 AM
Sample Moisture (Percent Moisture)				Batch ID: R6502		Analyst: AO
Percent Moisture	9.64			wt%	1	11/9/2012 3:35:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *11/26/2012*

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-3599**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **11/8/2012**			RunNo: **6490**		
Client ID: **MBLKS**	Batch ID: **3599**					Analysis Date: **11/9/2012**			SeqNo: **129154**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.200									

Sample ID: **LCS-3599**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **11/8/2012**			RunNo: **6490**		
Client ID: **LCSS**	Batch ID: **3599**					Analysis Date: **11/9/2012**			SeqNo: **129155**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	75.5	0.200	72.10	0	105	68.1	131.9				

Sample ID: **1211055-001ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **11/8/2012**			RunNo: **6490**		
Client ID: **BATCH**	Batch ID: **3599**					Analysis Date: **11/9/2012**			SeqNo: **129157**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	304	0.208						305.7	0.625	30	

Sample ID: **1211055-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **11/8/2012**			RunNo: **6490**		
Client ID: **BATCH**	Batch ID: **3599**					Analysis Date: **11/9/2012**			SeqNo: **129159**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	300	0.178	22.30	305.7	-23.8	75	125				S

NOTES:
S - Outlying spike recovery observed. Analyte concentration was too high for accurate spike recovery.

Sample ID: **1211055-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **11/8/2012**			RunNo: **6490**		
Client ID: **BATCH**	Batch ID: **3599**					Analysis Date: **11/9/2012**			SeqNo: **129160**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	339	0.201	25.11	305.7	131	75	125	300.4	11.9	30	S

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1211055-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **11/8/2012**		RunNo: **6490**			
Client ID: **BATCH**	Batch ID: **3599**					Analysis Date: **11/9/2012**		SeqNo: **129160**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recoveries observed. Analyte concentration was too high for accurate spike recoveries.

Sample ID: **1211055-001APDS**	SampType: **PDS**			Units: **mg/Kg-dry**		Prep Date: **11/8/2012**		RunNo: **6490**			
Client ID: **BATCH**	Batch ID: **3599**					Analysis Date: **11/9/2012**		SeqNo: **129161**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	317	0.206	25.8	306	43.6	75	125				S

NOTES:
S - Outlying Lead spike recovery observed. Analyte concentration was too high for accurate spike recovery.

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *11/26/2012*

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1211039-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/7/2012**	RunNo: **6472**
Client ID: **BATCH**	Batch ID: **3592**		Analysis Date: **11/8/2012**	SeqNo: **128548**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	10,500	21.1						10,840	2.85	30	
Heavy Oil	ND	52.8						0	0	30	
Surr: 2-Fluorobiphenyl	27.7		21.14		131	50	150		0		
Surr: o-Terphenyl	23.4		21.14		111	50	150		0		

Sample ID: **LCS-3592**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/7/2012**	RunNo: **6472**
Client ID: **LCSS**	Batch ID: **3592**		Analysis Date: **11/8/2012**	SeqNo: **128566**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	395	20.0	500.0	0	79.1	65	135				
Surr: 2-Fluorobiphenyl	19.5		20.00		97.4	50	150				
Surr: o-Terphenyl	19.8		20.00		99.2	50	150				

Sample ID: **MB-3592**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/7/2012**	RunNo: **6472**
Client ID: **MBLKS**	Batch ID: **3592**		Analysis Date: **11/8/2012**	SeqNo: **128567**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.8		20.00		99.2	50	150				
Surr: o-Terphenyl	20.2		20.00		101	50	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **1211109-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/15/2012** RunNo: **6634**
Client ID: **BATCH** Batch ID: **3648** Analysis Date: **11/17/2012** SeqNo: **132081**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	49.9						0	0	30	*H
Aliphatic Hydrocarbon (C10-C12)	ND	49.9						0	0	30	H
Aliphatic Hydrocarbon (C12-C16)	ND	49.9						0	0	30	H
Aliphatic Hydrocarbon (C16-C21)	ND	49.9						0	0	30	RH
Aliphatic Hydrocarbon (C21-C34)	344	49.9						391.0	12.8	30	H
Surr: 1-Chlorooctadecane	42.6		39.89		107	65	140		0		H

NOTES:
R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: **1211109-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/15/2012** RunNo: **6634**
Client ID: **BATCH** Batch ID: **3648** Analysis Date: **11/17/2012** SeqNo: **132082**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	49.9						0	0	30	*H
Aromatic Hydrocarbon (C10-C12)	ND	49.9						0	0	30	H
Aromatic Hydrocarbon (C12-C16)	ND	49.9						0	0	30	H
Aromatic Hydrocarbon (C16-C21)	ND	49.9						0	0	30	RH
Aromatic Hydrocarbon (C21-C34)	376	49.9						466.2	21.5	30	H
Surr: o-Terphenyl	39.0		39.89		97.7	65	140		0		H

NOTES:
R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: **LCS-3648** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/15/2012** RunNo: **6634**
Client ID: **LCSS** Batch ID: **3648** Analysis Date: **11/17/2012** SeqNo: **132091**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	12.0	5.00	20.00	0	60.1	70	130				S
Aliphatic Hydrocarbon (C10-C12)	7.64	5.00	10.00	0	76.4	70	130				
Aliphatic Hydrocarbon (C12-C16)	7.72	5.00	10.00	0	77.2	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCS-3648** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/15/2012** RunNo: **6634**
Client ID: **LCSS** Batch ID: **3648** Analysis Date: **11/17/2012** SeqNo: **132091**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C16-C21)	9.76	5.00	10.00	0	97.6	70	130				
Aliphatic Hydrocarbon (C21-C34)	9.63	5.00	10.00	0	96.3	70	130				
Surr: 1-Chlorooctadecane	3.81		4.000		95.3	65	140				

NOTES:
S - Outlying (C8-C10) spike recovery observed. CCV recovery is in range. Samples have been qualified with an "*"

Sample ID: **LCS-3648** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/15/2012** RunNo: **6634**
Client ID: **LCSS** Batch ID: **3648** Analysis Date: **11/17/2012** SeqNo: **132092**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	9.02	5.00	20.00	0	45.1	70	130				S
Aromatic Hydrocarbon (C10-C12)	7.59	5.00	10.00	0	75.9	70	130				
Aromatic Hydrocarbon (C12-C16)	7.78	5.00	10.00	0	77.8	70	130				
Aromatic Hydrocarbon (C16-C21)	8.41	5.00	10.00	0	84.0	70	130				
Aromatic Hydrocarbon (C21-C34)	8.13	5.00	10.00	0	81.3	70	130				
Surr: o-Terphenyl	3.71		4.000		92.8	65	140				

NOTES:
S - Outlying (C8-C10) spike recovery observed. CCV recovery is in range. . Samples have been qualified with an "*"

Sample ID: **MB-3648 ALI** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/15/2012** RunNo: **6634**
Client ID: **MBLKS** Batch ID: **3648** Analysis Date: **11/17/2012** SeqNo: **132093**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	5.00									*
Aliphatic Hydrocarbon (C10-C12)	ND	5.00									
Aliphatic Hydrocarbon (C12-C16)	ND	5.00									
Aliphatic Hydrocarbon (C16-C21)	ND	5.00									
Aliphatic Hydrocarbon (C21-C34)	ND	5.00									
Surr: 1-Chlorooctadecane	4.54		4.000		113	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-3648 ALI**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **11/15/2012**		RunNo: **6634**		
Client ID: **MBLKS**	Batch ID: **3648**					Analysis Date: **11/17/2012**		SeqNo: **132093**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: **MB-3648 ARO**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **11/15/2012**		RunNo: **6634**		
Client ID: **MBLKS**	Batch ID: **3648**					Analysis Date: **11/17/2012**		SeqNo: **132094**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	5.00									*
Aromatic Hydrocarbon (C10-C12)	ND	5.00									
Aromatic Hydrocarbon (C12-C16)	ND	5.00									
Aromatic Hydrocarbon (C16-C21)	ND	5.00									
Aromatic Hydrocarbon (C21-C34)	ND	5.00									
Surr: o-Terphenyl	3.93		4.000		98.2	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Ethanol by SW8015

Sample ID: **1211043-003BREP**	SampType: **REP**	Units: **mg/Kg-dry**	Prep Date: **11/12/2012**	RunNo: **6530**
Client ID: **110612-MW09.17.5**	Batch ID: **3618**		Analysis Date: **11/12/2012**	SeqNo: **130011**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	1.01						0	0	30	
Surr: Methanol	77.2		100.8		76.6	65	135		0	0	

Sample ID: **1211043-003BMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/12/2012**	RunNo: **6530**
Client ID: **110612-MW09.17.5**	Batch ID: **3618**		Analysis Date: **11/12/2012**	SeqNo: **130012**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	53.2	1.01	50.40	0	106	65	135				
Surr: Methanol	64.3		100.8		63.8	65	135				S

NOTES:
S - Outlying surrogate recovery observed. All other field and laboratory samples were within range.

Sample ID: **LCS-3618**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/12/2012**	RunNo: **6530**
Client ID: **LCSS**	Batch ID: **3618**		Analysis Date: **11/12/2012**	SeqNo: **130015**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	52.5	1.00	50.00	0	105	65	135				
Surr: Methanol	85.9		100.0		85.9	65	135				

Sample ID: **MB-3618**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/12/2012**	RunNo: **6530**
Client ID: **MBLKS**	Batch ID: **3618**		Analysis Date: **11/12/2012**	SeqNo: **130016**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	1.00									
Surr: Methanol	71.1		100.0		71.1	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **1211070-002ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/9/2012**	RunNo: **6507**
Client ID: **BATCH**	Batch ID: **R6507**		Analysis Date: **11/10/2012**	SeqNo: **129539**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.33						0	0	30	
Gasoline Range Organics C6-C12	28.6	5.33						25.68	10.6	30	
Surr: 1,2-Dichloroethane-d4	0.650		0.5330		122	65	135		0		
Surr: Fluorobenzene	0.560		0.5330		105	65	135		0		

NOTES:
GRO - Indicates the presence of unresolved compounds eluting from toluene to dodecane (~C7->C12).

Sample ID: **LCS-R6507**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/9/2012**	RunNo: **6507**
Client ID: **LCSS**	Batch ID: **R6507**		Analysis Date: **11/9/2012**	SeqNo: **129543**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	21.9	5.00	25.00	0	87.6	65	135				
Surr: 1,2-Dichloroethane-d4	0.610		0.5000		122	65	135				
Surr: Fluorobenzene	0.521		0.5000		104	65	135				

Sample ID: **MB-R6507**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/9/2012**	RunNo: **6507**
Client ID: **MBLKS**	Batch ID: **R6507**		Analysis Date: **11/9/2012**	SeqNo: **129544**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,2-Dichloroethane-d4	0.602		0.5000		120	65	135				
Surr: Fluorobenzene	0.533		0.5000		107	65	135				

Sample ID: **CCV-R6507D**	SampType: **CCV**	Units: **mg/Kg**	Prep Date: **11/9/2012**	RunNo: **6507**
Client ID: **CCV**	Batch ID: **R6507**		Analysis Date: **11/12/2012**	SeqNo: **129578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	526	5.00	500.0	0	105	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **CCV-R6507D** SampType: **CCV** Units: **mg/Kg** Prep Date: **11/9/2012** RunNo: **6507**
Client ID: **CCV** Batch ID: **R6507** Analysis Date: **11/12/2012** SeqNo: **129578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	11.9		10.00		119	65	135				
Surr: Fluorobenzene	10.4		10.00		104	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1211052-002AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/9/2012** RunNo: **6508**
Client ID: **BATCH** Batch ID: **3612** Analysis Date: **11/9/2012** SeqNo: **129551**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.06	0.0494	0.9871	0	107	54.4	132				
1,2-Dichloroethane (EDC)	1.05	0.0296	0.9871	0	106	51.3	139				
Benzene	1.14	0.0197	0.9871	0	116	63.5	133				
Toluene	1.05	0.0197	0.9871	0	106	67.8	129				
1,2-Dibromoethane (EDB)	0.974	0.00494	0.9871	0	98.7	50.4	136				
Ethylbenzene	1.10	0.0296	0.9871	0	112	54.5	134				
m,p-Xylene	2.08	0.0197	1.974	0	105	53.1	132				
o-Xylene	1.03	0.0197	0.9871	0	104	53.3	139				
Naphthalene	0.892	0.0296	0.9871	0	90.4	52.3	124				
Surr: 1-Bromo-4-fluorobenzene	0.509		0.4935		103	63.1	141				
Surr: Dibromofluoromethane	0.488		0.4935		98.8	67.6	119				
Surr: Toluene-d8	0.493		0.4935		99.9	78.5	126				

Sample ID: **1211070-002ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/9/2012** RunNo: **6508**
Client ID: **BATCH** Batch ID: **3612** Analysis Date: **11/10/2012** SeqNo: **129567**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0533						0	0	30	
1,2-Dichloroethane (EDC)	ND	0.0320						0	0	30	
Benzene	ND	0.0213						0	0	30	
Toluene	ND	0.0213						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00533						0	0	30	
Ethylbenzene	ND	0.0320						0	0	30	
m,p-Xylene	ND	0.0213						0	0	30	
o-Xylene	ND	0.0213						0	0	30	
Naphthalene	ND	0.0320						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	0.554		0.5330		104	63.1	141		0		
Surr: Dibromofluoromethane	0.529		0.5330		99.2	67.6	119		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1211070-002ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **11/9/2012**		RunNo: **6508**		
Client ID: **BATCH**	Batch ID: **3612**					Analysis Date: **11/10/2012**		SeqNo: **129567**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	0.537		0.5330		101	78.5	126		0		

Sample ID: **LCS-3612**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **11/9/2012**		RunNo: **6508**		
Client ID: **LCSS**	Batch ID: **3612**					Analysis Date: **11/9/2012**		SeqNo: **129570**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.14	0.0500	1.000	0	114	73.4	128				
1,2-Dichloroethane (EDC)	1.08	0.0300	1.000	0	108	68.7	133				
Benzene	1.12	0.0200	1.000	0	112	74.6	124				
Toluene	1.04	0.0200	1.000	0	104	81.1	123				
1,2-Dibromoethane (EDB)	1.04	0.00500	1.000	0	104	70	130				
Ethylbenzene	1.08	0.0300	1.000	0	108	74	129				
m,p-Xylene	2.02	0.0200	2.000	0	101	79.8	128				
o-Xylene	1.04	0.0200	1.000	0	104	77.3	128				
Naphthalene	0.919	0.0300	1.000	0	91.9	64	130				
Surr: 1-Bromo-4-fluorobenzene	0.512		0.5000		102	63.1	141				
Surr: Dibromofluoromethane	0.492		0.5000		98.3	67.6	119				
Surr: Toluene-d8	0.499		0.5000		99.8	78.5	126				

Sample ID: **MB-3612**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **11/9/2012**		RunNo: **6508**		
Client ID: **MBLKS**	Batch ID: **3612**					Analysis Date: **11/9/2012**		SeqNo: **129571**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Toluene	ND	0.0200									
1,2-Dibromoethane (EDB)	ND	0.00500									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-3612**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/9/2012**	RunNo: **6508**
Client ID: **MBLKS**	Batch ID: **3612**		Analysis Date: **11/9/2012**	SeqNo: **129571**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Naphthalene	ND	0.0300									
Surr: 1-Bromo-4-fluorobenzene	0.510		0.5000		102	63.1	141				
Surr: Dibromofluoromethane	0.490		0.5000		98.0	67.6	119				
Surr: Toluene-d8	0.501		0.5000		100	78.5	126				

Sample ID: **CCV-3612**	SampType: **CCV**	Units: **mg/Kg**	Prep Date: **11/9/2012**	RunNo: **6508**
Client ID: **CCV**	Batch ID: **3612**		Analysis Date: **11/12/2012**	SeqNo: **129848**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	21.9	0.0300	20.00	0	110	80	120				
m,p-Xylene	42.9	0.0200	40.00	0	107	80	120				
o-Xylene	21.4	0.0200	20.00	0	107	80	120				
Surr: 1-Bromo-4-fluorobenzene	10.5		10.00		105	63.1	141				
Surr: Dibromofluoromethane	9.76		10.00		97.6	67.6	119				
Surr: Toluene-d8	9.92		10.00		99.2	78.5	126				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1211043-003ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/12/2012** RunNo: **6548**
Client ID: **110612-MW09.17.5** Batch ID: **3620** Analysis Date: **11/13/2012** SeqNo: **130337**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	0.510		0	0			0	0	25	
Aliphatic Hydrocarbon (C6-C8)	106	0.510		0	0			133.3	22.5	25	E
Aliphatic Hydrocarbon (C8-C10)	157	0.510		0	0			163.4	4.08	25	E
Aliphatic Hydrocarbon (C10-C12)	125	0.510		0	0			114.2	8.73	25	E
Aromatic Hydrocarbon (C8-C10)	238	0.510		0	0			230.5	3.11	25	E
Aromatic Hydrocarbon (C10-C12)	36.2	0.510		0	0			37.00	2.23	25	E
Aromatic Hydrocarbon (C12-C13)	1.68	0.510		0	0			1.351	21.8	25	
Surr: Bromofluorobenzene	5.45		1.021		533	65	140		0		S
Surr: Trifluorotoluene	0.819		1.021		80.2	65	140		0		

NOTES:
S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Sample ID: **LCS-3620** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/12/2012** RunNo: **6548**
Client ID: **LCSS** Batch ID: **3620** Analysis Date: **11/12/2012** SeqNo: **130340**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	44.6	0.500	40.00	0	111	70	130				
Aliphatic Hydrocarbon (C6-C8)	15.5	0.500	20.00	0	77.5	70	130				
Aliphatic Hydrocarbon (C8-C10)	18.4	0.500	20.00	0	92.0	70	130				
Aliphatic Hydrocarbon (C10-C12)	19.2	0.500	20.00	0	95.9	70	130				
Aromatic Hydrocarbon (C8-C10)	79.2	0.500	100.0	0	79.2	70	130				
Aromatic Hydrocarbon (C10-C12)	18.6	0.500	20.00	0	92.8	70	130				
Aromatic Hydrocarbon (C12-C13)	16.1	0.500	20.00	0	80.5	70	130				
Surr: Bromofluorobenzene	0.726		1.000		72.6	65	140				
Surr: Trifluorotoluene	0.886		1.000		88.6	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211043
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCSD-3620** SampType: **LCSD** Units: **mg/Kg** Prep Date: **11/12/2012** RunNo: **6548**
Client ID: **LCSS02** Batch ID: **3620** Analysis Date: **11/12/2012** SeqNo: **130341**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	42.7	0.500	40.00	0	107	70	130	44.60	4.31	20	
Aliphatic Hydrocarbon (C6-C8)	15.9	0.500	20.00	0	79.4	70	130	15.50	2.45	20	
Aliphatic Hydrocarbon (C8-C10)	19.0	0.500	20.00	0	95.2	70	130	18.39	3.50	20	
Aliphatic Hydrocarbon (C10-C12)	17.5	0.500	20.00	0	87.3	70	130	19.17	9.36	20	
Aromatic Hydrocarbon (C8-C10)	84.7	0.500	100.0	0	84.7	70	130	79.25	6.68	20	
Aromatic Hydrocarbon (C10-C12)	18.1	0.500	20.00	0	90.6	70	130	18.57	2.43	20	
Aromatic Hydrocarbon (C12-C13)	17.3	0.500	20.00	0	86.5	70	130	16.09	7.19	20	
Surr: Bromofluorobenzene	1.02		1.000		102	65	140		0		
Surr: Trifluorotoluene	0.832		1.000		83.2	65	140		0		

NOTES:
An LCS Duplicate was performed instead of an MS/MSD due to the incompatibility of the matrix with the analytical process.

Sample ID: **MB-3620** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/12/2012** RunNo: **6548**
Client ID: **MBLKS** Batch ID: **3620** Analysis Date: **11/12/2012** SeqNo: **130342**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	0.500		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	0.500		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	0.500		0	0						
Aromatic Hydrocarbon (C12-C13)	ND	0.500		0	0						
Surr: Bromofluorobenzene	0.929		1.000		92.9	65	140				
Surr: Trifluorotoluene	0.694		1.000		69.4	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name: **FE**	Work Order Number: **1211043**
Logged by: **Clare Griggs**	Date Received: **11/7/2012 9:30:00 AM**

Chain of Custody

1.	Were custodial seals present?	Yes	☑	No	☐	Not Required	☐
2.	Is Chain of Custody complete?	Yes	☑	No	☐	Not Present	☐
3.	How was the sample delivered?	UPS					

Log In

4.	Coolers are present?	Yes	☑	No	☐	NA	☐
5.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA	☐
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes	☑	No	☐	NA	☐
7.	Sample(s) in proper container(s)?	Yes	☑	No	☐		
8.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐		
9.	Are samples properly preserved?	Yes	☑	No	☐		
10.	Was preservative added to bottles?	Yes	☐	No	☑	NA	☐
11.	Is there headspace present in VOA vials?	Yes	☐	No	☐	NA	☑
12.	Did all sample containers arrive in good condition?(unbroken)	Yes	☑	No	☐		
13.	Does paperwork match bottle labels?	Yes	☑	No	☐		
14.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐		
15.	Is it clear what analyses were requested?	Yes	☑	No	☐		
16.	Were all holding times able to be met?	Yes	☑	No	☐		

Special Handling (if applicable)

17.	Was client notified of all discrepancies with this order?	Yes	☐	No	☐	NA	☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

18. Additional remarks/Disrepancies

Item Information

Item #	Temp ºC	Condition
Cooler	8.1	Good

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1211043

Date: 11/6/12 Page: 1 of 1

Client: Fulcrum Environmental Consulting Inc
Address: 401 N. 2nd St.
City, State, Zip: Yakima, WA 98901 Tel: 509-454-4839
Reports To (PM): Kendra Williams Fax: Email: kwilliams@fulcrumnw.com

Project Name: Sportsman
Location: Cle Elum
Collected by: K. Williams
Project No: 12678

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	PAH (EPA 8270)	Diesel/Heavy Oil Range Organics	Gasoline Range Organics	Hydrocarbon Identification (HCID)	SVOC (EPA 8270)	PCB's (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	EPH / VPH	MTBE, EDB, EDC	Reserved	Lead	Comments/Depth
1	110612-MW09_15	~~11/6/12~~ 5/10	8:10															✓	✓	✓	✓	hold
2	110612-MW09_16.5	1	8:25																			hold
3	110612-MW09_17.5		8:40																			~~hold~~, analyze
4	110612-MW09_18		8:45																			hold
5																						
6																						
7																						
8																						
9																						
10																						

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Co Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sn Sr Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide o-Phosphate Fluoride Nitrate/Nitrite

Sample Disposal: Return to Client: Disposal by Lab (A charge may be assessed if samples are retained over 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
a	11/6/12 3:45		11/7/12 9:20
b	Date/Time	Received	Date/Time

TAT: 24hr 2Day 3Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Table F.2: Groundwater Sample Laboratory Analytical Results Summary – November 20, 2012 Event

Analyte	Sample Results[1]										MTCA Method A Cleanup Level	MTCA Method B Published Cleanup Level
	MW-01	MW-01B	MW-02	MW-03	MW-04	MW-05	MW-06	MW-07	MW-08	MW-09	MW-10	
Petroleum Range Hydrocarbons												
Gasoline	–	410	–	**10,400**	ND	–	ND	–	ND	**2,740**	**18,400**	500	–
Diesel (Fuel Oil)		ND		ND	ND		ND		ND	ND	ND	1,000	–
Diesel Range Organics (C12-C24)[2]		81.0		**2,790**	–		–		–	**1,160**	**3,590**	1,000	–
Heavy Oil		499		ND	**2,070**		ND		ND	389	ND	500	–
Gasoline Additives and Components												
Benzene	MW-01 Decommissioned	ND	MW-02 Dry During Sampling Event	**8.54**	ND	MW-05 Decommissioned	ND	MW-07 Dry During Sampling Event	ND	4.58	**81.0**	5	–
Toluene		ND		29.3	ND		ND		ND	39.7	210	1,000	–
Ethylbenzene		5.92		128	ND		ND		ND	36.6	345	700	–
m,p-Xylene		15.4		469	ND		ND		ND	183	**1,450**	1,000[3]	–
o-Xylene		1.21		48	ND		ND		ND	32.1	**210**		–
Ethanol		ND		ND	ND		ND		ND	ND	ND	NE	NE
Methyl tert-butyl ether		ND		ND	ND		ND		ND	ND	ND	20	–
1,2-Dichloroethane		ND		ND	ND		ND		ND	ND	ND	5	–
1,2-Dibromoethane		ND		ND	ND		ND		ND	ND	ND	0.01	–
Hexane		5.68		195	ND		ND		ND	6.80	131	480	–
Lead – dissolved		ND		ND	ND		ND		ND	1.38	ND	15[4]	–
Lead – total		ND		ND	ND		2.81		1.63	NA	1.25		–
Groundwater Chemistry													
Manganese – dissolved	–	913	–	1,660	15.4	–	174	–	13.4	NA	**2,560**	2,200[4]	–
Manganese – total		961		2,060	19.8		670		182	**2,210**	**2,980**		–
Total Alkalinity		79.0		139	92.3		86.9		58.0	NA	116	NE	NE
Nitrate		0.449		ND	0.651		1.08		0.845	NA	ND	NE	NE
Sulfate		7.17		1.58	5.54		5.48		11.8	NA	7.13	NE	NE
Methane		0.0161		0.274	ND		ND		ND	ND	0.118	NE	NE

ND Concentrations below the laboratory method reporting limit.
NA Analysis not completed due to insufficient water volume present in the well and available for sample collection.
NE Not established by Ecology.
1 Sample results and associated cleanup levels are presented in micrograms per Liter (µg/L) which is equivalent to parts per billion (ppb).
2 The laboratory has identified the diesel range organics present between carbon fraction range C12 to C24 to be associated with the identified gasoline range organics and not a diesel fuel product.
3 MTCA Method A cleanup levels for Xylenes are established for the summation of m,p-Xylenes and o-Xylenes.
4 MTCA Method A cleanup levels for metals are established for total concentrations and are the summation of dissolved and non-dissolved concentrations. For comparative purposes against MTCA Method A cleanup levels, total metal concentrations should be utilized.

1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Fulcrum Environmental
Kendra Williams
406 N. 2nd Street
Yakima, Washington 98901

RE: Sportland
Lab ID: 1211165

December 03, 2012

Attention Kendra Williams:

Fremont Analytical, Inc. received 8 sample(s) on 11/21/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Dissolved Gases by RSK-175
Dissolved Metals by EPA Method 200.8
Ethanol by SW8015
Gasoline by NWTPH-Gx
Ion Chromatography by EPA Method 300.0
Total Metals by EPA Method 200.8
Total Alkalinity by SM 2320B
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *12/03/2012*

CLIENT: Fulcrum Environmental
Project: Sportland
Lab Order: 1211165

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1211165-001	112012-01B	11/20/2012 9:00 AM	11/21/2012 6:00 PM
1211165-002	112012-03	11/20/2012 11:00 AM	11/21/2012 6:00 PM
1211165-003	112012-04	11/20/2012 12:00 PM	11/21/2012 6:00 PM
1211165-004	112012-11	11/20/2012 12:00 PM	11/21/2012 6:00 PM
1211165-005	112112-08	11/21/2012 11:30 AM	11/21/2012 6:00 PM
1211165-006	112112-06	11/21/2012 11:30 AM	11/21/2012 6:00 PM
1211165-007	112112-10	11/21/2012 2:15 PM	11/21/2012 6:00 PM
1211165-008	112112-09	11/21/2012 2:00 PM	11/21/2012 6:00 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1211165**
Date: **12/3/2012**

CLIENT: Fulcrum Environmental
Project: Sportland

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/20/2012 9:00:00 AM
Project: Sportland
Lab ID: 1211165-001
Matrix: Water
Client Sample ID: 112012-01B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3704		Analyst: BR
Diesel (Fuel Oil)	ND	50.0		µg/L	1	11/28/2012 9:10:00 PM
Diesel Range Organics (C12-C24)	81.0	50.0		µg/L	1	11/28/2012 9:10:00 PM
Heavy Oil	499	100		µg/L	1	11/28/2012 9:10:00 PM
Surr: 2-Fluorobiphenyl	57.4	50-150		%REC	1	11/28/2012 9:10:00 PM
Surr: o-Terphenyl	59.6	50-150		%REC	1	11/28/2012 9:10:00 PM
NOTES: DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).						
Ethanol by SW8015				Batch ID: 3707		Analyst: BR
Ethanol	ND	1.00		µg/L	1	11/30/2012 4:09:00 PM
Surr: Methanol	97.7	65-135		%REC	1	11/30/2012 4:09:00 PM
Dissolved Gases by RSK-175				Batch ID: R6714		Analyst: BR
Methane	0.0161	0.00500		mg/L	1	11/30/2012 2:10:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6727		Analyst: EM
Gasoline	410	50.0		µg/L	1	11/27/2012 1:27:00 AM
Surr: 1,2-Dichloroethane-d4	106	65-135		%REC	1	11/27/2012 1:27:00 AM
Surr: Fluorobenzene	90.4	65-135		%REC	1	11/27/2012 1:27:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/27/2012 1:27:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	11/27/2012 1:27:00 AM
Benzene	ND	1.00		µg/L	1	11/27/2012 1:27:00 AM
Toluene	ND	1.00		µg/L	1	11/27/2012 1:27:00 AM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	11/27/2012 1:27:00 AM
Ethylbenzene	5.92	1.00		µg/L	1	11/27/2012 1:27:00 AM
m,p-Xylene	15.4	1.00		µg/L	1	11/27/2012 1:27:00 AM
o-Xylene	1.21	1.00		µg/L	1	11/27/2012 1:27:00 AM
Hexane	5.68	1.00		µg/L	1	11/27/2012 1:27:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.2	79.2-120		%REC	1	11/27/2012 1:27:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/20/2012 9:00:00 AM
Project: Sportland
Lab ID: 1211165-001
Matrix: Water
Client Sample ID: 112012-01B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Surr: Dibromofluoromethane	97.6	76-114		%REC	1	11/27/2012 1:27:00 AM
Surr: Toluene-d8	101	86.8-119		%REC	1	11/27/2012 1:27:00 AM
Dissolved Metals by EPA Method 200.8				Batch ID: 3697		Analyst: SG
Lead	ND	1.00		µg/L	1	11/30/2012 7:46:36 AM
Manganese	813	2.00		µg/L	1	11/30/2012 7:46:36 AM
Total Metals by EPA Method 200.8				Batch ID: 3699		Analyst: SG
Lead	ND	1.00		µg/L	1	11/30/2012 4:03:18 PM
Manganese	961	2.00		µg/L	1	11/30/2012 4:03:18 PM
Total Alkalinity by SM 2320B				Batch ID: R6735		Analyst: MC
Alkalinity, Total (As CaCO3)	79.0	5.00		mg/L	1	12/3/2012 11:32:43 AM
Ion Chromatography by EPA Method 300.0				Batch ID: R6670		Analyst: MC
Nitrate	0.449	0.100	H	mg/L	1	11/26/2012 3:18:00 PM
Sulfate	7.17	0.300		mg/L	1	11/26/2012 3:18:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/20/2012 11:00:00 AM
Project: Sportland
Lab ID: 1211165-002
Matrix: Water
Client Sample ID: 112012-03

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3704		Analyst: BR
Diesel (Fuel Oil)	ND	50.0		µg/L	1	11/28/2012 9:37:00 PM
Diesel Range Organics (C12-C24)	2,790	50.0		µg/L	1	11/28/2012 9:37:00 PM
Heavy Oil	ND	100		µg/L	1	11/28/2012 9:37:00 PM
Surr: 2-Fluorobiphenyl	76.2	50-150		%REC	1	11/28/2012 9:37:00 PM
Surr: o-Terphenyl	72.0	50-150		%REC	1	11/28/2012 9:37:00 PM
NOTES: DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).						
Ethanol by SW8015				Batch ID: 3707		Analyst: BR
Ethanol	ND	1.00		µg/L	1	11/30/2012 4:20:00 PM
Surr: Methanol	72.8	65-135		%REC	1	11/30/2012 4:20:00 PM
Dissolved Gases by RSK-175				Batch ID: R6714		Analyst: BR
Methane	0.274	0.0500	D	mg/L	10	11/30/2012 2:42:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6727		Analyst: EM
Gasoline	10,400	1,000	D	µg/L	20	11/29/2012 1:15:00 PM
Surr: 1,2-Dichloroethane-d4	108	65-135		%REC	1	11/27/2012 2:31:00 AM
Surr: Fluorobenzene	89.0	65-135		%REC	1	11/27/2012 2:31:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/27/2012 2:31:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	11/27/2012 2:31:00 AM
Benzene	8.54	1.00		µg/L	1	11/27/2012 2:31:00 AM
Toluene	29.3	1.00		µg/L	1	11/27/2012 2:31:00 AM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	11/27/2012 2:31:00 AM
Ethylbenzene	128	20.0	D	µg/L	20	11/29/2012 1:15:00 PM
m,p-Xylene	469	20.0	D	µg/L	20	11/29/2012 1:15:00 PM
o-Xylene	48.0	20.0	D	µg/L	20	11/29/2012 1:15:00 PM
Hexane	195	20.0	D	µg/L	20	11/29/2012 1:15:00 PM
Surr: 1-Bromo-4-fluorobenzene	102	79.2-120		%REC	1	11/27/2012 2:31:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/20/2012 11:00:00 AM
Project: Sportland
Lab ID: 1211165-002
Matrix: Water
Client Sample ID: 112012-03

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Surr: Dibromofluoromethane	97.7	76-114		%REC	1	11/27/2012 2:31:00 AM
Surr: Toluene-d8	101	86.8-119		%REC	1	11/27/2012 2:31:00 AM
Dissolved Metals by EPA Method 200.8				Batch ID: 3697		Analyst: SG
Lead	ND	1.00		µg/L	1	11/30/2012 8:25:41 AM
Manganese	1,660	2.00		µg/L	1	11/30/2012 8:25:41 AM
Total Metals by EPA Method 200.8				Batch ID: 3699		Analyst: SG
Lead	ND	1.00		µg/L	1	11/30/2012 4:33:40 PM
Manganese	2,060	2.00		µg/L	1	11/30/2012 4:33:40 PM
Total Alkalinity by SM 2320B				Batch ID: R6735		Analyst: MC
Alkalinity, Total (As CaCO3)	139	5.00		mg/L	1	12/3/2012 12:12:43 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R6670		Analyst: MC
Nitrate	ND	0.100	H	mg/L	1	11/26/2012 5:00:00 PM
Sulfate	1.58	0.300		mg/L	1	11/26/2012 5:00:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/20/2012 12:00:00 PM
Project: Sportland
Lab ID: 1211165-003
Matrix: Water
Client Sample ID: 112012-04

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3704		Analyst: BR
Diesel (Fuel Oil)	ND	50.0		µg/L	1	11/28/2012 10:05:00 PM
Heavy Oil	2,070	100		µg/L	1	11/28/2012 10:05:00 PM
Surr: 2-Fluorobiphenyl	83.8	50-150		%REC	1	11/28/2012 10:05:00 PM
Surr: o-Terphenyl	87.7	50-150		%REC	1	11/28/2012 10:05:00 PM
Ethanol by SW8015				Batch ID: 3707		Analyst: BR
Ethanol	ND	1.00		µg/L	1	11/30/2012 4:31:00 PM
Surr: Methanol	86.5	65-135		%REC	1	11/30/2012 4:31:00 PM
Dissolved Gases by RSK-175				Batch ID: R6714		Analyst: BR
Methane	ND	0.00500		mg/L	1	11/30/2012 2:19:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6727		Analyst: EM
Gasoline	ND	50.0		µg/L	1	11/27/2012 4:04:00 AM
Surr: 1,2-Dichloroethane-d4	101	65-135		%REC	1	11/27/2012 4:04:00 AM
Surr: Fluorobenzene	91.8	65-135		%REC	1	11/27/2012 4:04:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/27/2012 4:04:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	11/27/2012 4:04:00 AM
Benzene	ND	1.00		µg/L	1	11/27/2012 4:04:00 AM
Toluene	ND	1.00		µg/L	1	11/27/2012 4:04:00 AM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	11/27/2012 4:04:00 AM
Ethylbenzene	ND	1.00		µg/L	1	11/27/2012 4:04:00 AM
m,p-Xylene	ND	1.00		µg/L	1	11/27/2012 4:04:00 AM
o-Xylene	ND	1.00		µg/L	1	11/27/2012 4:04:00 AM
Hexane	ND	1.00		µg/L	1	11/27/2012 4:04:00 AM
Surr: 1-Bromo-4-fluorobenzene	96.8	79.2-120		%REC	1	11/27/2012 4:04:00 AM
Surr: Dibromofluoromethane	95.8	76-114		%REC	1	11/27/2012 4:04:00 AM
Surr: Toluene-d8	101	86.8-119		%REC	1	11/27/2012 4:04:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/20/2012 12:00:00 PM
Project: Sportland
Lab ID: 1211165-003
Matrix: Water
Client Sample ID: 112012-04

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 3697		Analyst: SG
Lead	ND	1.00		µg/L	1	11/30/2012 8:35:27 AM
Manganese	15.4	2.00		µg/L	1	11/30/2012 8:35:27 AM
Total Metals by EPA Method 200.8				Batch ID: 3699		Analyst: SG
Lead	ND	1.00		µg/L	1	11/30/2012 4:41:15 PM
Manganese	19.8	2.00		µg/L	1	11/30/2012 4:41:15 PM
Total Alkalinity by SM 2320B				Batch ID: R6735		Analyst: MC
Alkalinity, Total (As CaCO3)	92.3	5.00		mg/L	1	12/3/2012 12:22:43 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R6670		Analyst: MC
Nitrate	0.651	0.100	H	mg/L	1	11/26/2012 5:17:00 PM
Sulfate	5.54	0.300		mg/L	1	11/26/2012 5:17:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/20/2012 12:00:00 PM
Project: Sportland
Lab ID: 1211165-004
Matrix: Water
Client Sample ID: 112012-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3704		Analyst: BR
Diesel (Fuel Oil)	ND	50.0		µg/L	1	11/29/2012 10:42:00 AM
Diesel Range Organics (C12-C24)	1,820	50.0		µg/L	1	11/29/2012 10:42:00 AM
Heavy Oil	146	100		µg/L	1	11/29/2012 10:42:00 AM
Surr: 2-Fluorobiphenyl	55.4	50-150		%REC	1	11/29/2012 10:42:00 AM
Surr: o-Terphenyl	57.4	50-150		%REC	1	11/29/2012 10:42:00 AM
Ethanol by SW8015				Batch ID: 3707		Analyst: BR
Ethanol	ND	1.00		µg/L	1	11/30/2012 4:36:00 PM
Surr: Methanol	70.9	65-135		%REC	1	11/30/2012 4:36:00 PM
Dissolved Gases by RSK-175				Batch ID: R6714		Analyst: BR
Methane	0.251	0.0500	D	mg/L	10	11/30/2012 2:46:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6727		Analyst: EM
Gasoline	10,700	1,000	D	µg/L	20	11/29/2012 1:47:00 PM
Surr: 1,2-Dichloroethane-d4	98.2	65-135		%REC	1	11/27/2012 4:36:00 AM
Surr: Fluorobenzene	87.3	65-135		%REC	1	11/27/2012 4:36:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/27/2012 4:36:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	11/27/2012 4:36:00 AM
Benzene	8.04	1.00		µg/L	1	11/27/2012 4:36:00 AM
Toluene	25.8	1.00		µg/L	1	11/27/2012 4:36:00 AM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	11/27/2012 4:36:00 AM
Ethylbenzene	121	20.0	D	µg/L	20	11/29/2012 1:47:00 PM
m,p-Xylene	435	20.0	D	µg/L	20	11/29/2012 1:47:00 PM
o-Xylene	42.6	20.0	D	µg/L	20	11/29/2012 1:47:00 PM
Hexane	236	20.0	D	µg/L	20	11/29/2012 1:47:00 PM
Surr: 1-Bromo-4-fluorobenzene	101	79.2-120		%REC	1	11/27/2012 4:36:00 AM
Surr: Dibromofluoromethane	96.5	76-114		%REC	1	11/27/2012 4:36:00 AM
Surr: Toluene-d8	104	86.8-119		%REC	1	11/27/2012 4:36:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/20/2012 12:00:00 PM
Project: Sportland
Lab ID: 1211165-004
Matrix: Water
Client Sample ID: 112012-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 3697		Analyst: SG
Lead	ND	1.00		µg/L	1	11/30/2012 8:45:13 AM
Manganese	1,790	2.00		µg/L	1	11/30/2012 8:45:13 AM
Total Metals by EPA Method 200.8				Batch ID: 3699		Analyst: SG
Lead	1.78	1.00		µg/L	1	11/30/2012 5:03:55 PM
Manganese	1,960	2.00		µg/L	1	11/30/2012 5:03:55 PM
Total Alkalinity by SM 2320B				Batch ID: R6735		Analyst: MC
Alkalinity, Total (As CaCO3)	136	5.00		mg/L	1	12/3/2012 12:32:43 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R6670		Analyst: MC
Nitrate	0.111	0.100	H	mg/L	1	11/26/2012 5:34:00 PM
Sulfate	2.00	0.300		mg/L	1	11/26/2012 5:34:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/21/2012 11:30:00 AM
Project: Sportland
Lab ID: 1211165-005
Matrix: Water
Client Sample ID: 112112-08

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3704		Analyst: BR
Diesel (Fuel Oil)	ND	50.0		µg/L	1	11/28/2012 11:27:00 PM
Heavy Oil	ND	100		µg/L	1	11/28/2012 11:27:00 PM
Surr: 2-Fluorobiphenyl	90.1	50-150		%REC	1	11/28/2012 11:27:00 PM
Surr: o-Terphenyl	92.6	50-150		%REC	1	11/28/2012 11:27:00 PM
Ethanol by SW8015				Batch ID: 3707		Analyst: BR
Ethanol	ND	1.00		µg/L	1	11/30/2012 4:42:00 PM
Surr: Methanol	91.0	65-135		%REC	1	11/30/2012 4:42:00 PM
Dissolved Gases by RSK-175				Batch ID: R6714		Analyst: BR
Methane	ND	0.00500		mg/L	1	11/30/2012 2:27:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6727		Analyst: EM
Gasoline	ND	50.0		µg/L	1	11/27/2012 5:07:00 AM
Surr: 1,2-Dichloroethane-d4	99.8	65-135		%REC	1	11/27/2012 5:07:00 AM
Surr: Fluorobenzene	92.2	65-135		%REC	1	11/27/2012 5:07:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/27/2012 5:07:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	11/27/2012 5:07:00 AM
Benzene	ND	1.00		µg/L	1	11/27/2012 5:07:00 AM
Toluene	ND	1.00		µg/L	1	11/27/2012 5:07:00 AM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	11/27/2012 5:07:00 AM
Ethylbenzene	ND	1.00		µg/L	1	11/27/2012 5:07:00 AM
m,p-Xylene	ND	1.00		µg/L	1	11/27/2012 5:07:00 AM
o-Xylene	ND	1.00		µg/L	1	11/27/2012 5:07:00 AM
Hexane	ND	1.00		µg/L	1	11/27/2012 5:07:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.4	79.2-120		%REC	1	11/27/2012 5:07:00 AM
Surr: Dibromofluoromethane	92.7	76-114		%REC	1	11/27/2012 5:07:00 AM
Surr: Toluene-d8	100	86.8-119		%REC	1	11/27/2012 5:07:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/21/2012 11:30:00 AM
Project: Sportland
Lab ID: 1211165-005
Matrix: Water
Client Sample ID: 112112-08

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 3697		Analyst: SG
Lead	ND	1.00		µg/L	1	11/30/2012 8:54:59 AM
Manganese	13.4	2.00		µg/L	1	11/30/2012 8:54:59 AM
Total Metals by EPA Method 200.8				Batch ID: 3699		Analyst: SG
Lead	1.63	1.00		µg/L	1	11/30/2012 5:11:30 PM
Manganese	182	2.00		µg/L	1	11/30/2012 5:11:30 PM
Total Alkalinity by SM 2320B				Batch ID: R6735		Analyst: MC
Alkalinity, Total (As CaCO3)	58.0	5.00		mg/L	1	12/3/2012 12:42:43 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R6670		Analyst: MC
Nitrate	0.845	0.100	H	mg/L	1	11/26/2012 5:51:00 PM
Sulfate	11.8	0.300		mg/L	1	11/26/2012 5:51:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/21/2012 11:30:00 AM
Project: Sportland
Lab ID: 1211165-006
Matrix: Water
Client Sample ID: 112112-06

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3704		Analyst: BR
Diesel (Fuel Oil)	ND	50.0		µg/L	1	11/28/2012 11:55:00 PM
Heavy Oil	ND	100		µg/L	1	11/28/2012 11:55:00 PM
Surr: 2-Fluorobiphenyl	92.3	50-150		%REC	1	11/28/2012 11:55:00 PM
Surr: o-Terphenyl	93.4	50-150		%REC	1	11/28/2012 11:55:00 PM
Ethanol by SW8015				Batch ID: 3707		Analyst: BR
Ethanol	ND	1.00		µg/L	1	11/30/2012 4:47:00 PM
Surr: Methanol	84.8	65-135		%REC	1	11/30/2012 4:47:00 PM
Dissolved Gases by RSK-175				Batch ID: R6714		Analyst: BR
Methane	ND	0.00500		mg/L	1	11/30/2012 2:48:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6727		Analyst: EM
Gasoline	ND	50.0		µg/L	1	11/27/2012 5:39:00 AM
Surr: 1,2-Dichloroethane-d4	101	65-135		%REC	1	11/27/2012 5:39:00 AM
Surr: Fluorobenzene	92.3	65-135		%REC	1	11/27/2012 5:39:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/27/2012 5:39:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	11/27/2012 5:39:00 AM
Benzene	ND	1.00		µg/L	1	11/27/2012 5:39:00 AM
Toluene	ND	1.00		µg/L	1	11/27/2012 5:39:00 AM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	11/27/2012 5:39:00 AM
Ethylbenzene	ND	1.00		µg/L	1	11/27/2012 5:39:00 AM
m,p-Xylene	ND	1.00		µg/L	1	11/27/2012 5:39:00 AM
o-Xylene	ND	1.00		µg/L	1	11/27/2012 5:39:00 AM
Hexane	ND	1.00		µg/L	1	11/27/2012 5:39:00 AM
Surr: 1-Bromo-4-fluorobenzene	97.8	79.2-120		%REC	1	11/27/2012 5:39:00 AM
Surr: Dibromofluoromethane	94.6	76-114		%REC	1	11/27/2012 5:39:00 AM
Surr: Toluene-d8	102	86.8-119		%REC	1	11/27/2012 5:39:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/21/2012 11:30:00 AM
Project: Sportland
Lab ID: 1211165-006
Matrix: Water
Client Sample ID: 112112-06

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 3697		Analyst: SG
Lead	ND	1.00		µg/L	1	11/30/2012 9:24:12 AM
Manganese	174	2.00		µg/L	1	11/30/2012 9:24:12 AM
Total Metals by EPA Method 200.8				Batch ID: 3699		Analyst: SG
Lead	2.81	1.00		µg/L	1	11/30/2012 5:19:06 PM
Manganese	670	2.00		µg/L	1	11/30/2012 5:19:06 PM
Total Alkalinity by SM 2320B				Batch ID: R6735		Analyst: MC
Alkalinity, Total (As CaCO3)	86.9	5.00		mg/L	1	12/3/2012 12:52:43 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R6670		Analyst: MC
Nitrate	1.08	0.100	H	mg/L	1	11/26/2012 6:08:00 PM
Sulfate	5.48	0.300		mg/L	1	11/26/2012 6:08:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/21/2012 2:15:00 PM
Project: Sportland
Lab ID: 1211165-007
Matrix: Water
Client Sample ID: 112112-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3704		Analyst: BR
Diesel (Fuel Oil)	ND	100		µg/L	1	11/30/2012 12:31:00 PM
Diesel Range Organics (C12-C24)	3,590	100		µg/L	1	11/30/2012 12:31:00 PM
Heavy Oil	ND	200		µg/L	1	11/30/2012 12:31:00 PM
Surr: 2-Fluorobiphenyl	100	50-150		%REC	1	11/30/2012 12:31:00 PM
Surr: o-Terphenyl	105	50-150		%REC	1	11/30/2012 12:31:00 PM
NOTES: DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).						
Ethanol by SW8015				Batch ID: 3707		Analyst: BR
Ethanol	ND	1.00		µg/L	1	11/30/2012 4:52:00 PM
Surr: Methanol	74.4	65-135		%REC	1	11/30/2012 4:52:00 PM
Dissolved Gases by RSK-175				Batch ID: R6714		Analyst: BR
Methane	0.118	0.00500		mg/L	1	11/30/2012 2:33:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6727		Analyst: EM
Gasoline	18,400	2,500	D	µg/L	50	11/29/2012 2:19:00 PM
Surr: 1,2-Dichloroethane-d4	101	65-135		%REC	1	11/27/2012 6:10:00 AM
Surr: Fluorobenzene	90.2	65-135		%REC	1	11/27/2012 6:10:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/27/2012 6:10:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	11/27/2012 6:10:00 AM
Benzene	81.0	50.0	D	µg/L	50	11/29/2012 2:19:00 PM
Toluene	210	50.0	D	µg/L	50	11/29/2012 2:19:00 PM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	11/27/2012 6:10:00 AM
Ethylbenzene	345	50.0	D	µg/L	50	11/29/2012 2:19:00 PM
m,p-Xylene	1,450	50.0	D	µg/L	50	11/29/2012 2:19:00 PM
o-Xylene	210	50.0	D	µg/L	50	11/29/2012 2:19:00 PM
Hexane	131	50.0	D	µg/L	50	11/29/2012 2:19:00 PM
Surr: 1-Bromo-4-fluorobenzene	95.9	79.2-120		%REC	1	11/27/2012 6:10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/21/2012 2:15:00 PM
Project: Sportland
Lab ID: 1211165-007
Matrix: Water
Client Sample ID: 112112-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Surr: Dibromofluoromethane	91.2	76-114		%REC	1	11/27/2012 6:10:00 AM
Surr: Toluene-d8	104	86.8-119		%REC	1	11/27/2012 6:10:00 AM
Dissolved Metals by EPA Method 200.8				Batch ID: 3697		Analyst: SG
Lead	ND	1.00		µg/L	1	11/30/2012 9:44:38 AM
Manganese	2,560	2.00		µg/L	1	11/30/2012 9:44:38 AM
Total Metals by EPA Method 200.8				Batch ID: 3699		Analyst: SG
Lead	1.25	1.00		µg/L	1	11/30/2012 5:26:41 PM
Manganese	2,980	2.00		µg/L	1	11/30/2012 5:26:41 PM
Total Alkalinity by SM 2320B				Batch ID: R6735		Analyst: MC
Alkalinity, Total (As CaCO3)	116	5.00		mg/L	1	12/3/2012 1:02:43 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R6670		Analyst: MC
Nitrate	ND	0.100	H	mg/L	1	11/26/2012 6:24:00 PM
Sulfate	7.13	0.300		mg/L	1	11/26/2012 6:24:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/21/2012 2:00:00 PM
Project: Sportland
Lab ID: 1211165-008
Matrix: Water
Client Sample ID: 112112-09

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3704		Analyst: BR
Diesel (Fuel Oil)	ND	67.3		µg/L	1	11/29/2012 12:50:00 AM
Diesel Range Organics (C12-C24)	1,160	67.3		µg/L	1	11/29/2012 12:50:00 AM
Heavy Oil	389	135		µg/L	1	11/29/2012 12:50:00 AM
Surr: 2-Fluorobiphenyl	84.2	50-150		%REC	1	11/29/2012 12:50:00 AM
Surr: o-Terphenyl	88.7	50-150		%REC	1	11/29/2012 12:50:00 AM
NOTES: DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).						
Ethanol by SW8015				Batch ID: 3707		Analyst: BR
Ethanol	ND	1.00		µg/L	1	11/30/2012 4:58:00 PM
Surr: Methanol	105	65-135		%REC	1	11/30/2012 4:58:00 PM
Dissolved Gases by RSK-175				Batch ID: R6714		Analyst: BR
Methane	ND	0.00500		mg/L	1	11/30/2012 2:35:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6727		Analyst: EM
Gasoline	2,740	500	D	µg/L	10	11/29/2012 12:43:00 PM
Surr: 1,2-Dichloroethane-d4	97.7	65-135		%REC	1	11/27/2012 6:42:00 AM
Surr: Fluorobenzene	90.1	65-135		%REC	1	11/27/2012 6:42:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	11/27/2012 6:42:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	11/27/2012 6:42:00 AM
Benzene	4.58	1.00		µg/L	1	11/27/2012 6:42:00 AM
Toluene	39.7	1.00		µg/L	1	11/27/2012 6:42:00 AM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	11/27/2012 6:42:00 AM
Ethylbenzene	36.6	1.00		µg/L	1	11/27/2012 6:42:00 AM
m,p-Xylene	183	10.0	D	µg/L	10	11/29/2012 12:43:00 PM
o-Xylene	62.1	10.0	D	µg/L	10	11/29/2012 12:43:00 PM
Hexane	6.80	1.00		µg/L	1	11/27/2012 6:42:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.0	79.2-120		%REC	1	11/27/2012 6:42:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1211165**
Date Reported: **12/3/2012**

Client: Fulcrum Environmental
Collection Date: 11/21/2012 2:00:00 PM
Project: Sportland
Lab ID: 1211165-008
Matrix: Water
Client Sample ID: 112112-09

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6728		Analyst: EM
Surr: Dibromofluoromethane	93.7	76-114		%REC	1	11/27/2012 6:42:00 AM
Surr: Toluene-d8	101	86.8-119		%REC	1	11/27/2012 6:42:00 AM
Total Metals by EPA Method 200.8				Batch ID: 3699		Analyst: SG
Lead	1.38	1.00		µg/L	1	11/30/2012 5:34:17 PM
Manganese	2,210	2.00		µg/L	1	11/30/2012 5:34:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Total Alkalinity by SM 2320B

Sample ID: **MB-R6735**	SampType: **MBLK**			Units: **mg/L**		Prep Date: **12/3/2012**		RunNo: **6735**			
Client ID: **MBLKW**	Batch ID: **R6735**					Analysis Date: **12/3/2012**		SeqNo: **134245**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.00									

Sample ID: **LCS-R6735**	SampType: **LCS**			Units: **mg/L**		Prep Date: **12/3/2012**		RunNo: **6735**			
Client ID: **LCSW**	Batch ID: **R6735**					Analysis Date: **12/3/2012**		SeqNo: **134246**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	107	5.00	100.0	0	107	80	120				

Sample ID: **1211165-001EDUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **12/3/2012**		RunNo: **6735**			
Client ID: **112012-01B**	Batch ID: **R6735**					Analysis Date: **12/3/2012**		SeqNo: **134248**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	76.8	5.00						79.00	2.82	20	

Sample ID: **1211165-001EMS**	SampType: **MS**			Units: **mg/L**		Prep Date: **12/3/2012**		RunNo: **6735**			
Client ID: **112012-01B**	Batch ID: **R6735**					Analysis Date: **12/3/2012**		SeqNo: **134249**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	175	5.00	100.0	79.00	95.8	80	120				

Sample ID: **1211165-001EMSD**	SampType: **MSD**			Units: **mg/L**		Prep Date: **12/3/2012**		RunNo: **6735**			
Client ID: **112012-01B**	Batch ID: **R6735**					Analysis Date: **12/3/2012**		SeqNo: **134250**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	175	5.00	100.0	79.00	95.8	80	120	174.8	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: **1211165-001EDUP** SampType: **DUP** Units: **mg/L** Prep Date: **11/26/2012** RunNo: **6670**
Client ID: **112012-01B** Batch ID: **R6670** Analysis Date: **11/26/2012** SeqNo: **132924**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate	0.438	0.100						0.4489	2.48	20	H
Sulfate	7.17	0.300						7.170	0.0265	20	

Sample ID: **1211165-001EMS** SampType: **MS** Units: **mg/L** Prep Date: **11/26/2012** RunNo: **6670**
Client ID: **112012-01B** Batch ID: **R6670** Analysis Date: **11/26/2012** SeqNo: **132925**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate	2.01	0.100	1.500	0.4489	104	80	120				H
Sulfate	15.0	0.300	7.500	7.170	104	80	120				

Sample ID: **1211165-001EMSD** SampType: **MSD** Units: **mg/L** Prep Date: **11/26/2012** RunNo: **6670**
Client ID: **112012-01B** Batch ID: **R6670** Analysis Date: **11/26/2012** SeqNo: **132926**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate	2.00	0.100	1.500	0.4489	103	80	120	2.005	0.395	20	H
Sulfate	14.7	0.300	7.500	7.170	101	80	120	14.98	1.80	20	

Sample ID: **LCS-R6670** SampType: **LCS** Units: **mg/L** Prep Date: **11/26/2012** RunNo: **6670**
Client ID: **LCSW** Batch ID: **R6670** Analysis Date: **11/26/2012** SeqNo: **132941**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate	1.51	0.100	1.500	0	100	90	110				
Sulfate	7.43	0.300	7.500	0	99.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: **MB-R6670** SampType: **MBLK** Units: **mg/L** Prep Date: **11/26/2012** RunNo: **6670**
Client ID: **MBLKW** Batch ID: **R6670** Analysis Date: **11/26/2012** SeqNo: **132942**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate	ND	0.100									
Sulfate	ND	0.300									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **MB-3697**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **11/28/2012**	RunNo: **6738**
Client ID: **MBLKW**	Batch ID: **3697**		Analysis Date: **11/30/2012**	SeqNo: **134281**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00									
Manganese	ND	2.00									

Sample ID: **LCS-3697**	SampType: **LCS**	Units: **µg/L**	Prep Date: **11/28/2012**	RunNo: **6738**
Client ID: **LCSW**	Batch ID: **3697**		Analysis Date: **11/30/2012**	SeqNo: **134282**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	46.1	1.00	50.00	0	92.2	85	115				
Manganese	86.5	2.00	100.0	0	86.5	85	115				

Sample ID: **1211165-001GDUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **11/28/2012**	RunNo: **6738**
Client ID: **112012-01B**	Batch ID: **3697**		Analysis Date: **11/30/2012**	SeqNo: **134284**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00						0	0	30	R
Manganese	795	2.00						812.7	2.18	30	

NOTES:
R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: **1211165-001GMS**	SampType: **MS**	Units: **µg/L**	Prep Date: **11/28/2012**	RunNo: **6738**
Client ID: **112012-01B**	Batch ID: **3697**		Analysis Date: **11/30/2012**	SeqNo: **134285**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	234	1.00	250.0	0.2510	93.4	70	130				
Manganese	1,210	2.00	500.0	812.7	79.9	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **1211165-001GMSD** SampType: **MSD** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **6738**
Client ID: **112012-01B** Batch ID: **3697** Analysis Date: **11/30/2012** SeqNo: **134286**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	229	1.00	250.0	0.2510	91.6	70	130	233.7	1.98	30	
Manganese	1,190	2.00	500.0	812.7	75.6	70	130	1,212	1.80	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Fremont Analytical

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID: **MB-3699** SampType: **MBLK** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **6732**
Client ID: **MBLKW** Batch ID: **3699** Analysis Date: **11/30/2012** SeqNo: **134176**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00									
Manganese	ND	2.00									

Sample ID: **LCS-3699** SampType: **LCS** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **6732**
Client ID: **LCSW** Batch ID: **3699** Analysis Date: **11/30/2012** SeqNo: **134177**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	48.5	1.00	50.00	0	97.1	85	115				
Manganese	94.6	2.00	100.0	0	94.6	85	115				

Sample ID: **1211165-001FDUP** SampType: **DUP** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **6732**
Client ID: **112012-01B** Batch ID: **3699** Analysis Date: **11/30/2012** SeqNo: **134179**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00						0	0	30	
Manganese	961	2.00						960.6	0.0852	30	

Sample ID: **1211165-001FMS** SampType: **MS** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **6732**
Client ID: **112012-01B** Batch ID: **3699** Analysis Date: **11/30/2012** SeqNo: **134180**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	238	1.00	250.0	0.1695	95.2	70	130				
Manganese	1,320	2.00	500.0	960.6	71.7	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID: **1211165-001FMSD** SampType: **MSD** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **6732**
Client ID: **112012-01B** Batch ID: **3699** Analysis Date: **11/30/2012** SeqNo: **134181**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	239	1.00	250.0	0.1695	95.6	70	130	238.2	0.450	30	
Manganese	1,330	2.00	500.0	960.6	73.8	70	130	1,319	0.786	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **CCV-3704C**	SampType: **CCV**			Units: **µg/L**		Prep Date: **11/28/2012**		RunNo: **6720**			
Client ID: **CCV**	Batch ID: **3704**					Analysis Date: **11/30/2012**		SeqNo: **133936**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	564	50.0	500.0	0	113	80	120				
Surr: 2-Fluorobiphenyl	21.1		20.00		105	50	150				
Surr: o-Terphenyl	21.5		20.00		107	50	150				

Sample ID: **LCS-3704**	SampType: **LCS**			Units: **µg/L**		Prep Date: **11/28/2012**		RunNo: **6720**			
Client ID: **LCSW**	Batch ID: **3704**					Analysis Date: **11/28/2012**		SeqNo: **133937**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,560	50.0	2,000	0	78.0	65	135				
Surr: 2-Fluorobiphenyl	120		160.0		74.7	50	150				
Surr: o-Terphenyl	132		160.0		82.6	50	150				

Sample ID: **MB-3704**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **11/28/2012**		RunNo: **6720**			
Client ID: **MBLKW**	Batch ID: **3704**					Analysis Date: **11/28/2012**		SeqNo: **133938**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Surr: 2-Fluorobiphenyl	161		160.0		101	50	150				
Surr: o-Terphenyl	163		160.0		102	50	150				

Sample ID: **1211165-004DDUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **11/28/2012**		RunNo: **6720**			
Client ID: **112012-11**	Batch ID: **3704**					Analysis Date: **11/28/2012**		SeqNo: **133952**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0						0	0	30	
Diesel Range Organics (C12-C24)	2,200	50.0						1,817	19.0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1211165-004DDUP** SampType: **DUP** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **6720**
Client ID: **112012-11** Batch ID: **3704** Analysis Date: **11/28/2012** SeqNo: **133952**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Heavy Oil	ND	100						146.3	200	30	R
Surr: 2-Fluorobiphenyl	98.9		160.0		61.8	50	150		0		
Surr: o-Terphenyl	96.2		160.0		60.1	50	150		0		

NOTES:
DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).
R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Ethanol by SW8015

Sample ID: **1211165-001CDUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **11/30/2012**	RunNo: **6736**
Client ID: **112012-01B**	Batch ID: **3707**		Analysis Date: **11/30/2012**	SeqNo: **134259**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	1.00						0	0	30	
Surr: Methanol	98.6		100.0		98.6	65	135		0	0	

Sample ID: **1211165-002CMS**	SampType: **MS**	Units: **µg/L**	Prep Date: **11/30/2012**	RunNo: **6736**
Client ID: **112012-03**	Batch ID: **3707**		Analysis Date: **11/30/2012**	SeqNo: **134261**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	96.7	1.00	100.0	0	96.7	65	135				
Surr: Methanol	82.4		100.0		82.4	65	135				

Sample ID: **LCS-3707**	SampType: **LCS**	Units: **µg/L**	Prep Date: **11/30/2012**	RunNo: **6736**
Client ID: **LCSW**	Batch ID: **3707**		Analysis Date: **11/30/2012**	SeqNo: **134269**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	86.5	1.00	100.0	0	86.5	65	135				
Surr: Methanol	80.6		100.0		80.6	65	135				

Sample ID: **MB-3707**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **11/30/2012**	RunNo: **6736**
Client ID: **MBLKW**	Batch ID: **3707**		Analysis Date: **11/30/2012**	SeqNo: **134270**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	1.00									
Surr: Methanol	67.9		100.0		67.9	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Dissolved Gases by RSK-175

Sample ID: **1211165-008BDUP**	SampType: **DUP**			Units: **mg/L**	Prep Date:			RunNo: **6714**			
Client ID: **112112-09**	Batch ID: **R6714**				Analysis Date: **11/30/2012**			SeqNo: **133963**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane	ND	0.00500						0	0	30	

Sample ID: **LCS-R6714**	SampType: **LCS**			Units: **mg/L**	Prep Date:			RunNo: **6714**			
Client ID: **LCSW**	Batch ID: **R6714**				Analysis Date: **11/30/2012**			SeqNo: **133966**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane	0.499	0.00500	0.5000	0	99.8	80	120				

Sample ID: **MB-R6714**	SampType: **MBLK**			Units: **mg/L**	Prep Date:			RunNo: **6714**			
Client ID: **MBLKW**	Batch ID: **R6714**				Analysis Date: **11/30/2012**			SeqNo: **133967**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane	ND	0.00500									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **1211165-001ADUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **11/27/2012**	RunNo: **6727**
Client ID: **112012-01B**	Batch ID: **R6727**		Analysis Date: **11/27/2012**	SeqNo: **134073**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	387	50.0						409.8	5.62	30	
Surr: 1,2-Dichloroethane-d4	10.8		10.00		108	65	135		0		
Surr: Fluorobenzene	9.12		10.00		91.2	65	135		0		

Sample ID: **LCS-R6727**	SampType: **LCS**	Units: **µg/L**	Prep Date: **11/26/2012**	RunNo: **6727**
Client ID: **LCSW**	Batch ID: **R6727**		Analysis Date: **11/26/2012**	SeqNo: **134087**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	461	50.0	500.0	0	92.2	65	135				
Surr: 1,2-Dichloroethane-d4	10.8		10.00		108	65	135				
Surr: Fluorobenzene	9.20		10.00		92.0	65	135				

Sample ID: **MB-R6727**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **11/26/2012**	RunNo: **6727**
Client ID: **MBLKW**	Batch ID: **R6727**		Analysis Date: **11/26/2012**	SeqNo: **134088**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0									
Surr: 1,2-Dichloroethane-d4	10.6		10.00		106	65	135				
Surr: Fluorobenzene	9.16		10.00		91.6	65	135				

Sample ID: **CCV-R6727C**	SampType: **CCV**	Units: **µg/L**	Prep Date: **11/29/2012**	RunNo: **6727**
Client ID: **CCV**	Batch ID: **R6727**		Analysis Date: **11/29/2012**	SeqNo: **134111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	587	50.0	500.0	0	117	80	120				
Surr: 1,2-Dichloroethane-d4	12.1		10.00		121	65	135				
Surr: Fluorobenzene	10.6		10.00		106	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **CCV-R6727C** SampType: **CCV** Units: **µg/L** Prep Date: **11/29/2012** RunNo: **6727**
Client ID: **CCV** Batch ID: **R6727** Analysis Date: **11/29/2012** SeqNo: **134111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1211165-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **11/27/2012** RunNo: **6728**
Client ID: **112012-01B** Batch ID: **R6728** Analysis Date: **11/27/2012** SeqNo: **134090**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.00						0	0	30	
1,2-Dichloroethane	ND	1.00						0	0	30	
Benzene	ND	1.00						0	0	30	
Toluene	ND	1.00						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.0100						0	0	30	
Ethylbenzene	5.62	1.00						5.920	5.20	30	
m,p-Xylene	14.4	1.00						15.45	7.10	30	
o-Xylene	1.18	1.00						1.210	2.51	30	
Hexane	3.69	1.00						5.680	42.5	30	R
Surr: 1-Bromo-4-fluorobenzene	9.95		10.00		99.5	79.2	120		0		
Surr: Dibromofluoromethane	9.84		10.00		98.4	76	114		0		
Surr: Toluene-d8	10.1		10.00		101	86.8	119		0		

NOTES:
R - High RPD indicates possible matrix interference. The method is in control as indicated by the laboratory control sample (LCS). The sample and duplicate were taken from two separate vials.

Sample ID: **1211165-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **11/27/2012** RunNo: **6728**
Client ID: **112012-03** Batch ID: **R6728** Analysis Date: **11/27/2012** SeqNo: **134093**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	11.3	1.00	20.00	0	56.4	70	130				S
1,2-Dichloroethane	17.2	1.00	20.00	0	85.8	62.3	130				
Benzene	26.0	1.00	20.00	0	130	68.7	132				
Toluene	46.3	1.00	20.00	20.80	127	68.4	133				
1,2-Dibromoethane (EDB)	17.6	0.0100	20.00	0	88.0	68.9	124				
Ethylbenzene	165	1.00	20.00	128.2	185	67.3	135				SE
m,p-Xylene	582	1.00	40.00	469.2	282	63.3	135				SE
o-Xylene	70.3	1.00	20.00	48.00	112	67.8	131				E
Hexane	298	1.00	20.00	194.8	516	41.3	116				SE
Surr: 1-Bromo-4-fluorobenzene	9.66		10.00		96.6	79.2	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1211165-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **11/27/2012** RunNo: **6728**
Client ID: **112012-03** Batch ID: **R6728** Analysis Date: **11/27/2012** SeqNo: **134093**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	9.23		10.00		92.3	76	114				
Surr: Toluene-d8	10.1		10.00		101	86.8	119				

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.
S - Outlying QC recoveries were associated with this sample. The method is in control as indicated by the LCS.

Sample ID: **LCS-R6728** SampType: **LCS** Units: **µg/L** Prep Date: **11/26/2012** RunNo: **6728**
Client ID: **LCSW** Batch ID: **R6728** Analysis Date: **11/26/2012** SeqNo: **134106**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	20.6	1.00	20.00	0	103	75.4	123				
1,2-Dichloroethane	20.3	1.00	20.00	0	102	65.8	126				
Benzene	20.7	1.00	20.00	0	103	75.2	124				
Toluene	20.8	1.00	20.00	0	104	75.2	129				
1,2-Dibromoethane (EDB)	20.5	0.0100	20.00	0	103	71.2	129				
Ethylbenzene	20.6	1.00	20.00	0	103	78	127				
m,p-Xylene	41.2	1.00	40.00	0	103	77.5	130				
o-Xylene	20.3	1.00	20.00	0	101	77.6	126				
Hexane	20.7	1.00	20.00	0	103	41.6	159				
Surr: 1-Bromo-4-fluorobenzene	9.84		10.00		98.4	79.2	120				
Surr: Dibromofluoromethane	9.79		10.00		97.9	76	114				
Surr: Toluene-d8	10.2		10.00		102	86.8	119				

Sample ID: **MB-R6728** SampType: **MBLK** Units: **µg/L** Prep Date: **11/26/2012** RunNo: **6728**
Client ID: **MBLKW** Batch ID: **R6728** Analysis Date: **11/26/2012** SeqNo: **134107**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.00									
1,2-Dichloroethane	ND	1.00									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *12/3/2012*

Work Order: 1211165
CLIENT: Fulcrum Environmental
Project: Sportland

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R6728** SampType: **MBLK** Units: **µg/L** Prep Date: **11/26/2012** RunNo: **6728**
Client ID: **MBLKW** Batch ID: **R6728** Analysis Date: **11/26/2012** SeqNo: **134107**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Toluene	ND	1.00									
1,2-Dibromoethane (EDB)	ND	0.0100									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Hexane	ND	1.00									
Surr: 1-Bromo-4-fluorobenzene	9.73		10.00		97.3	79.2	120				
Surr: Dibromofluoromethane	9.83		10.00		98.3	76	114				
Surr: Toluene-d8	10.2		10.00		102	86.8	119				

Sample ID: **CCV-R6728** SampType: **CCV** Units: **µg/L** Prep Date: **11/29/2012** RunNo: **6728**
Client ID: **CCV** Batch ID: **R6728** Analysis Date: **11/29/2012** SeqNo: **134109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	16.2	1.00	20.00	0	80.9	80	120				
1,2-Dichloroethane	16.4	1.00	20.00	0	81.8	80	120				
Benzene	17.1	1.00	20.00	0	85.7	80	120				
Toluene	17.3	1.00	20.00	0	86.6	80	120				
1,2-Dibromoethane (EDB)	16.4	0.0100	20.00	0	82.0	80	120				
Ethylbenzene	19.0	1.00	20.00	0	95.1	80	120				
m,p-Xylene	38.8	1.00	40.00	0	96.9	80	120				
o-Xylene	18.9	1.00	20.00	0	94.6	80	120				
Hexane	19.4	1.00	20.00	0	97.0	80	120				
Surr: 1-Bromo-4-fluorobenzene	9.31		10.00		93.1	79.2	120				
Surr: Dibromofluoromethane	9.12		10.00		91.2	76	114				
Surr: Toluene-d8	9.57		10.00		95.7	86.8	119				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name: **FE**	Work Order Number: **1211165**
Logged by: **Clare Griggs**	Date Received: **11/21/2012 6:00:00 PM**

Chain of Custody

1.	Were custodial seals present?	Yes	☑	No	☐	Not Required	☐
2.	Is Chain of Custody complete?	Yes	☑	No	☐	Not Present	☐
3.	How was the sample delivered?	Courier					

Log In

4.	Coolers are present?	Yes	☑	No	☐	NA	☐
5.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA	☐
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes	☑	No	☐	NA	☐
7.	Sample(s) in proper container(s)?	Yes	☑	No	☐		
8.	Sufficient sample volume for indicated test(s)?	Yes	☐	No	☑		
9.	Are samples properly preserved?	Yes	☑	No	☐		
10.	Was preservative added to bottles?	Yes	☐	No	☑	NA	☐
11.	Is there headspace present in VOA vials?	Yes	☐	No	☐	NA	☑
12.	Did all sample containers arrive in good condition?(unbroken)	Yes	☑	No	☐		
13.	Does paperwork match bottle labels?	Yes	☐	No	☑		
14.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐		
15.	Is it clear what analyses were requested?	Yes	☑	No	☐		
16.	Were all holding times able to be met?	Yes	☐	No	☑		

Special Handling (if applicable)

17.	Was client notified of all discrepancies with this order?	Yes	☑	No	☐	NA	☐

Person Notified:	Kendra Williams	Date:	11/26/2012
By Whom:	Mike Ridgeway	Via:	☐ eMail ☑ Phone ☐ Fax ☐ In Person
Regarding:	COC and samples were not matching up.		
Client Instructions:	See below.		

18. Additional remarks/Disrepancies

Samples 112012-01B did not indicate which bottle was field filtered, pulled metals from extra volume. Samples 112112-06 & 112112-08, dissolved metals were not field filtered, pulled from extra volume. Samples 112112-09 & 112112-10 labels were switched.

Item Information

Item #	Temp ºC	Condition
Cooler 1	2.8	Good
Cooler 2	3.2	Good

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11-21-12

Laboratory Project No (internal): 1211165

Page: 1 of:

Client:	Fulcrum Environmental Consulting	Project Name:	Sportland
Address:	406 N. 2nd St.	Location:	Cle Elum
City, State, Zip	Yakima, WA 98901 Tel: 509-574-0839	Collected by:	K Williams
Reports To (PM):	K Williams Fax: 509-575-8453	Email:	kwilliams@efulcrum.net
		Project No:	12698

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260) *See 1, 5, 6	SX/BTEX by EPA 8021B	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 SIM)	PCB (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020/200.8)	Total (T) / Dissolved (D)	Anions (IC)**	Methane Ethane	Alkalinity		Comments/Depth
1 112012-01B	112012	9:00	water	✓			X		X						X	T/D	X	X	X		T/D = Total & Dissolved
2 112012-03	↓	11:00	↓	↓			↓		↓						↓	↓	↓	↓	↓		* BTEX, MTBE, EDB, EDC & n-Hexane
3 112012-04	↓	12:00	↓	↓			↓		↓						↓	↓	↓	↓	↓		
4 112012-11	↓	13:00	↓	↓			↓		↓						↓	↓	↓	↓	↓		- Gasoline & BTEX by
5 112112-08	112112	11:30	↓	↓			↓		↓						↓	↓	↓	↓	↓		NWTPH-Gx & 8260
6 112112-06	↓	#:30	↓	↓			↓		↓						↓	↓	↓	↓	↓		- Diesel & Heavy Oil
7 112112-10	↓	2:15	↓	↓			↓		↓						↓	↓	↓	↓	↓		by NWTPH-Dx ext
8 112112-09	↓	2:00	↓	↓			↓		↓						↓	↓	↓	↓	↓		f = filtered bottles
9																					
10																					

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg (Mn) Mo Na Ni (Pb) Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): (Nitrate) Nitrite Chloride (Sulfate) Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/21/12 - 4:00pm	x [signature]	11/21/12 6:06pm
x [signature]	11/21/12 - 6:06pm	x [signature]	11/21/12 6:06pm

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 121165 A

Date: 11-21-12

Page: 1 of 1

Client: Fulcrum Environmental Consulting
Address: 406 N. 2nd St
City, State, Zip: Yakima, WA 98901
Tel: 509-574-0839
Reports to (PM): K. Williams
Fax: 509-575-8953
Email: kwilliams@efulcrum.net
Project Name: Sportland
Location: Cle Elum
Collected by: K. Williams
Project No: 12698

#	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260) SIM 1,4	GX/BTEX by EPA 8021B	8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270-SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	N/P Pesticides	Metals* (6020/7000)	Total (T) / Dissolved (D)	Anions (IC)**	Alkalinity	Bicarbonate / Alkalinity		Comments/Depth
1	112012-01B	112012	9:00	water	X			X		X						X	T/D	X	X	X		T/D = Total & Dissolved
2	112012-03		11:00																			* BTEX, MTBE, EDB, EDC 3 M-Alkane
3	112012-04		13:00																			
4	112012-11	↓	12:00																			- Gasoline & BTEX by NWTPH-Gx & 8260
5	112112-08	112112	11:30																			
6	112112-06		8:30																			- Diesel & heavy oil by NWTPH-Dx ext
7	112112-10		9:15																			
8	112112-09	↓	2:00	↓	X			X		X						X	T/D	X	X	X		f = filtered bottles
9																						No anions, diss metals, alk for 112112-09 due to low volume - 112112 cg
10																						

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg (Mn) Mo Na Ni (Pb) Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): (Nitrate) Nitrite Chloride (Sulfate) Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/21/12 - 4:00pm	x [signature]	11/21/12 6:06pm
x [signature]	11/21/12 - 6:06 pm	x [signature]	11/21/12 6:06pm

TAT: Same Day Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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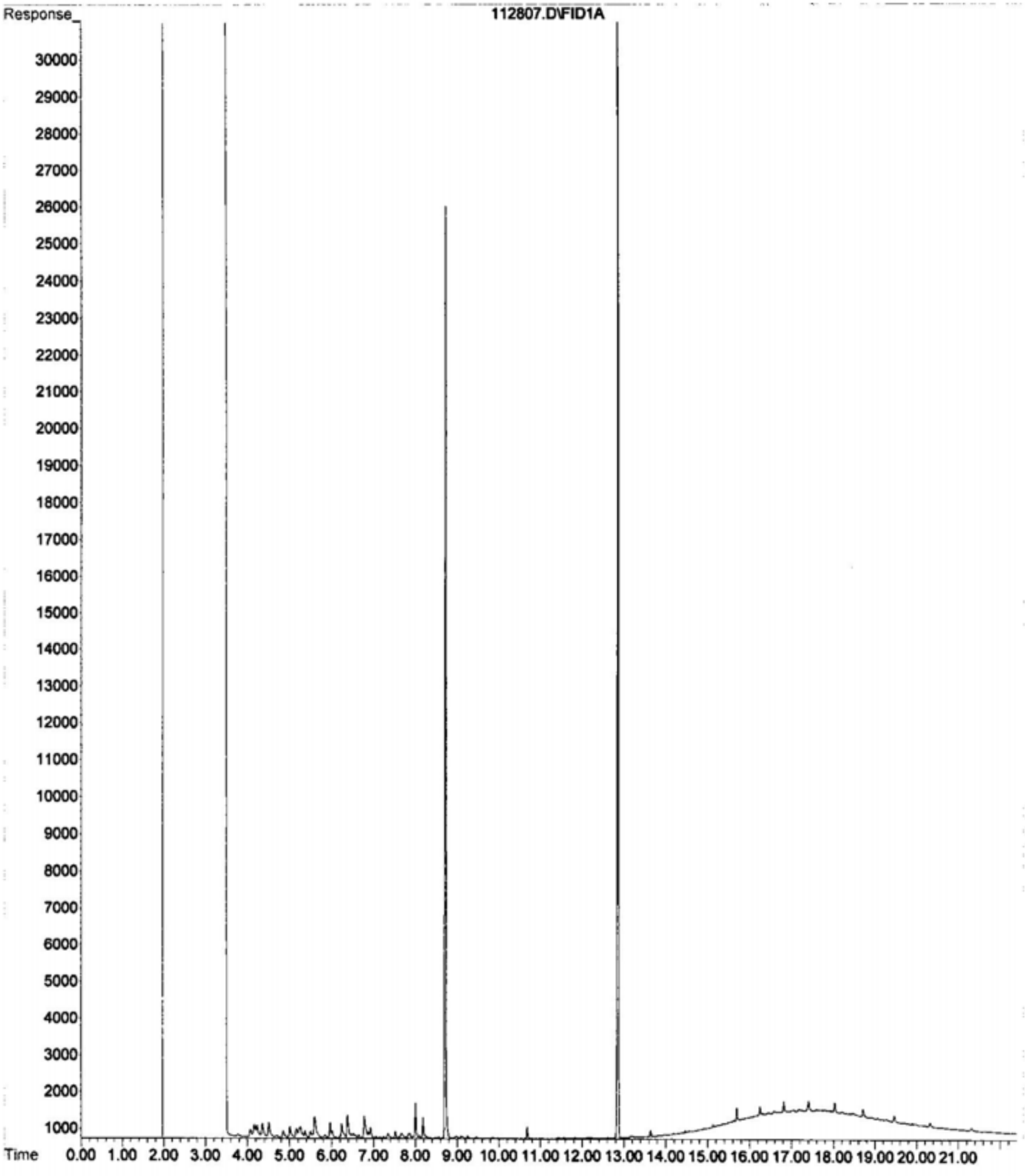
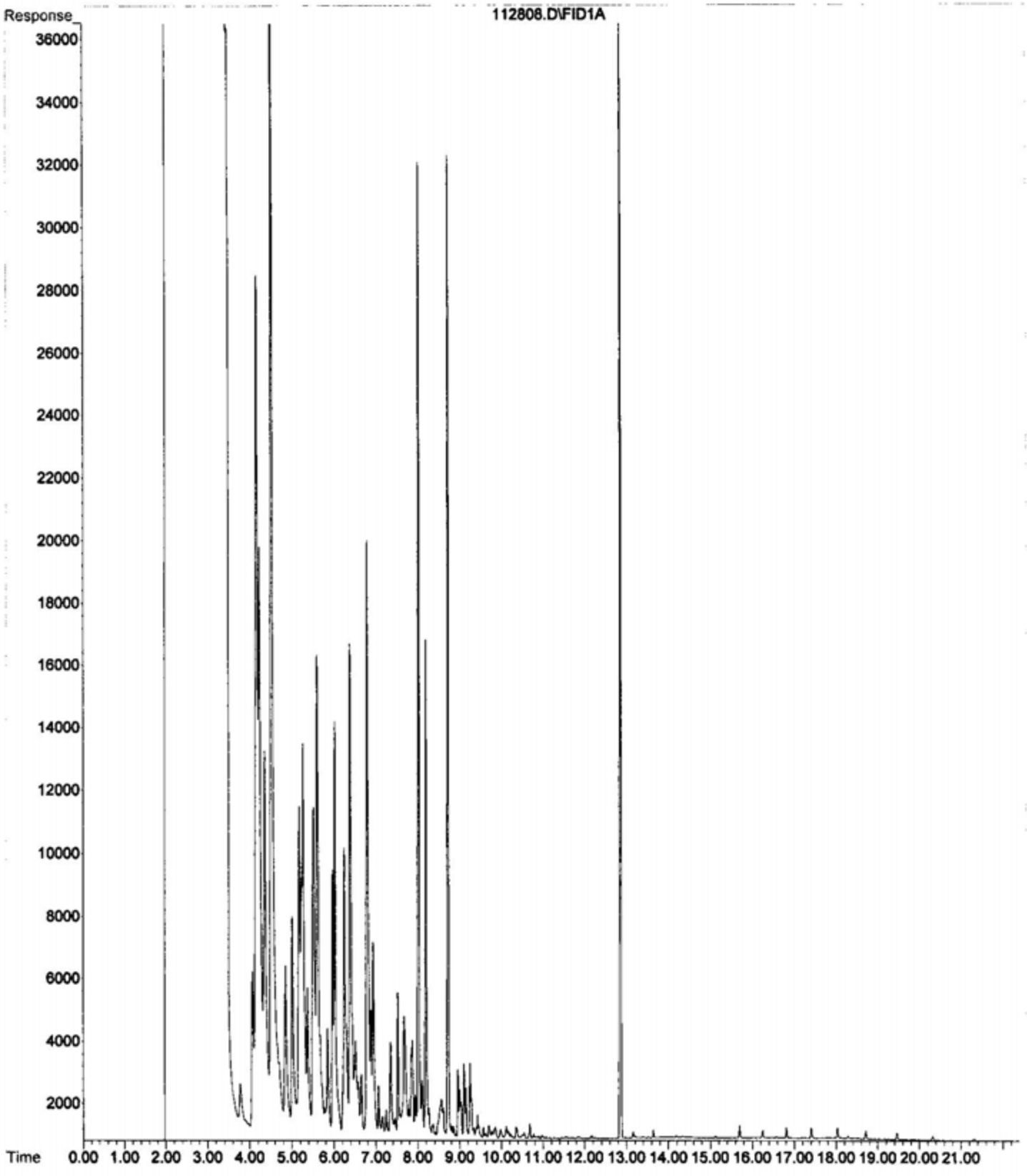
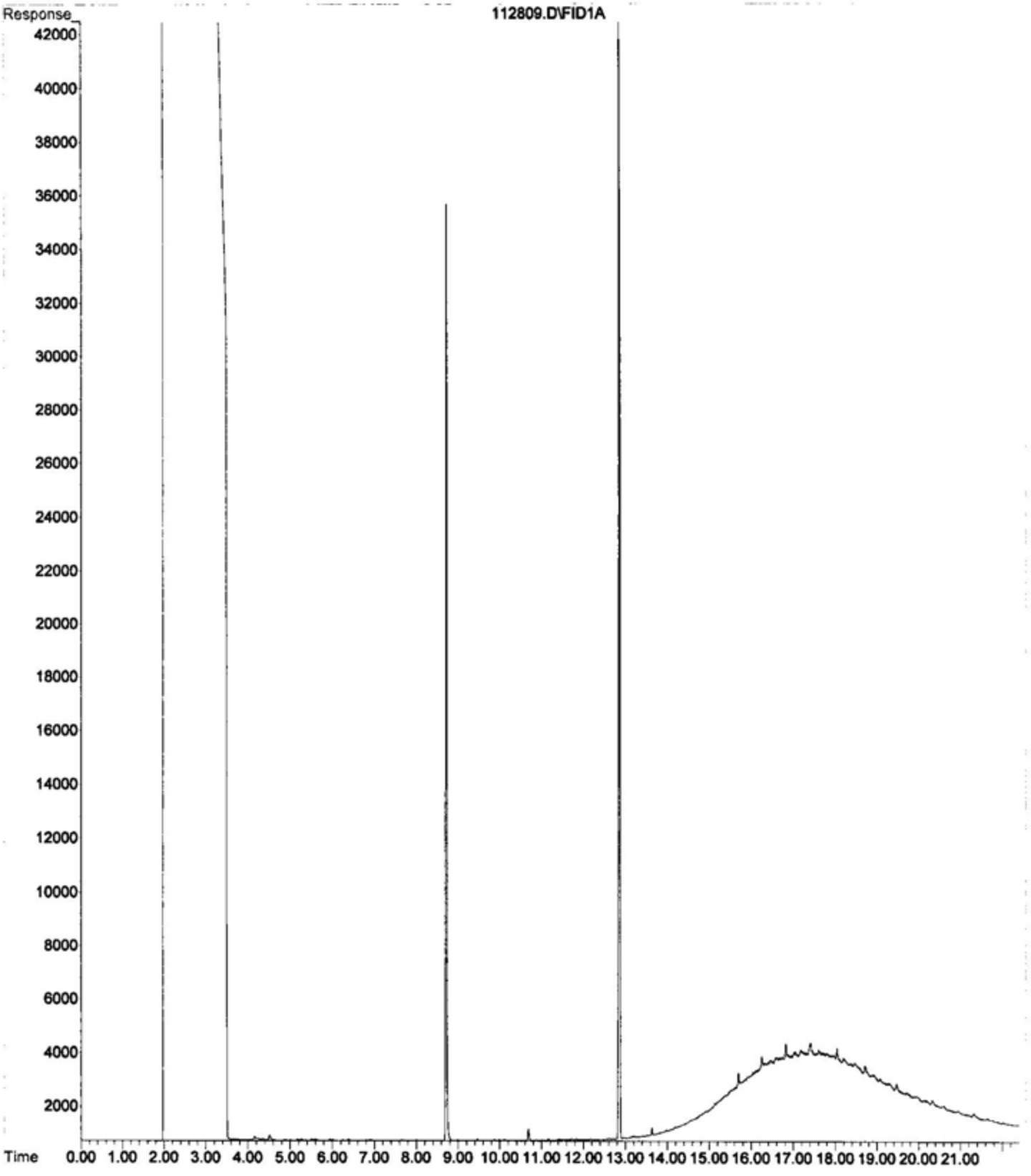
File : C:\HPCHEM\3\DATA\112812\112807.D
Operator : HP Demo
Acquired : 28 Nov 2012 9:10 pm using AcqMethod DX091912.M
Instrument : GC/MS Ins
Sample Name: 1211165-001D
Misc Info : SAMP O-DXEX-W
Vial Number: 5



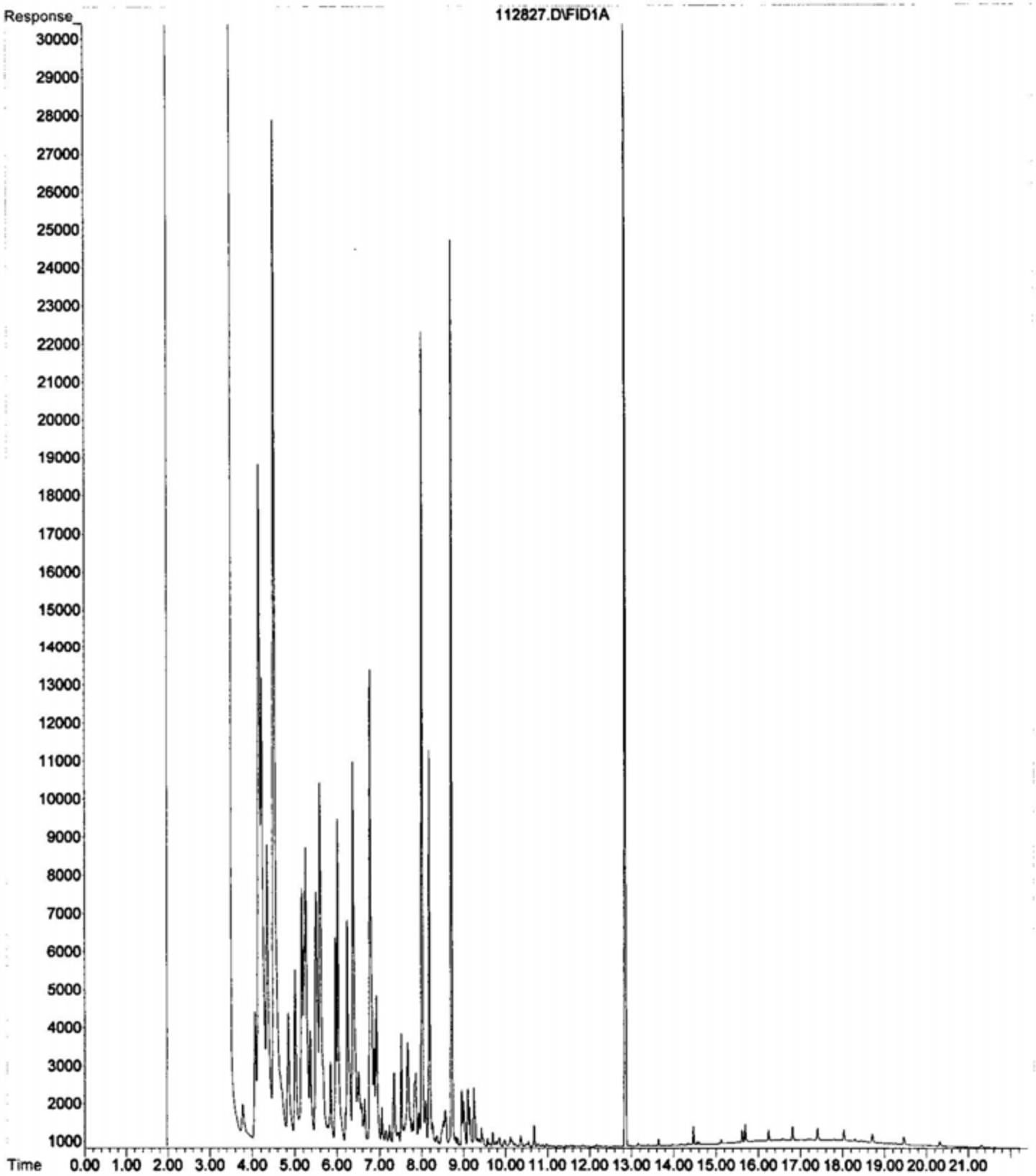
File : C:\HPCHEM\3\DATA\112812\112808.D
Operator : HP Demo
Acquired : 28 Nov 2012 9:37 pm using AcqMethod DX091912.M
Instrument : GC/MS Ins
Sample Name: 1211165-002D
Misc Info : SAMP O-DXEX-W
Vial Number: 6



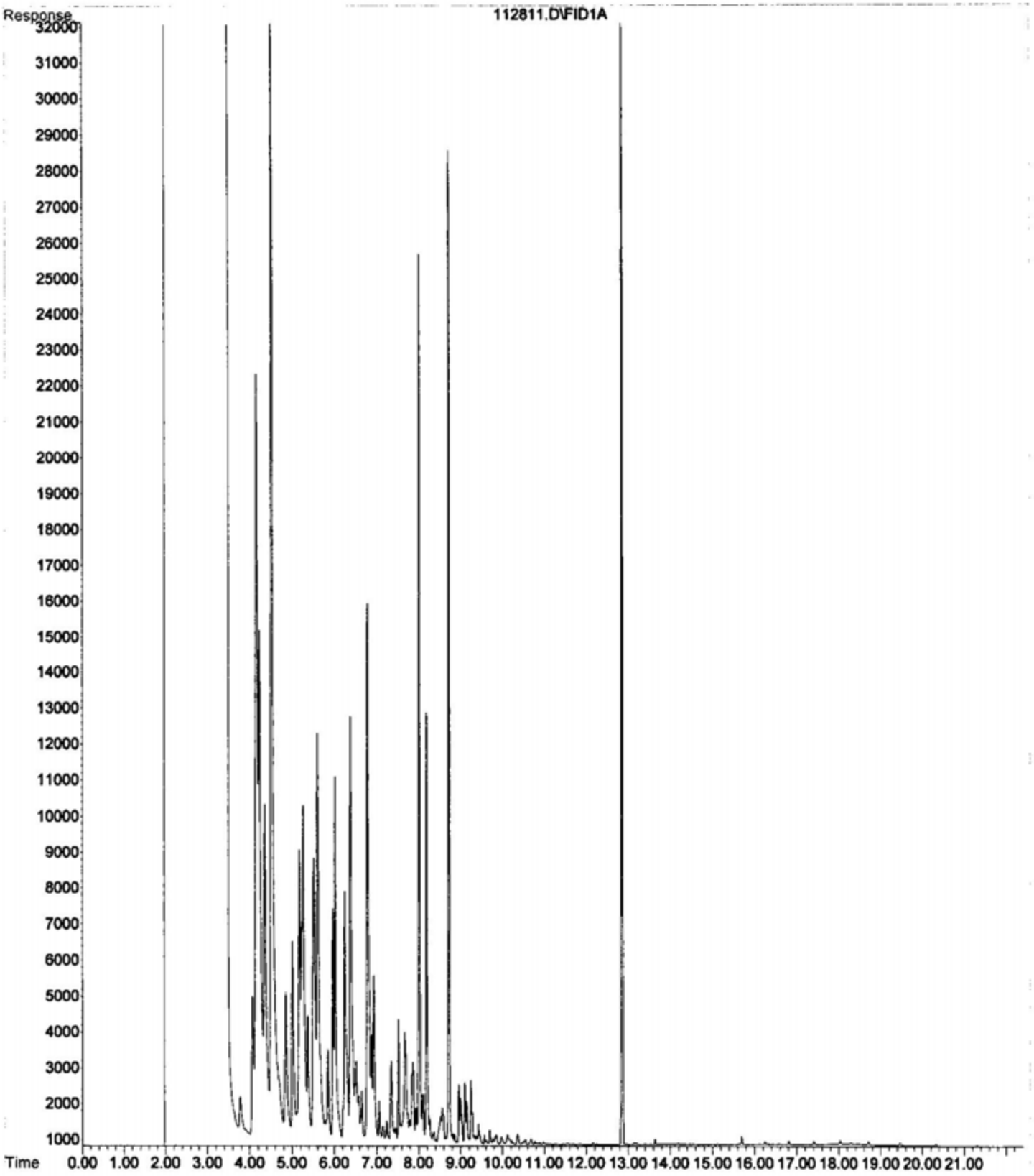
File : C:\HPCHEM\3\DATA\112812\112809.D
Operator : HP Demo
Acquired : 28 Nov 2012 10:05 pm using AcqMethod DX091912.M
Instrument : GC/MS Ins
Sample Name: 1211165-003D
Misc Info : SAMP O-DXEX-W
Vial Number: 7



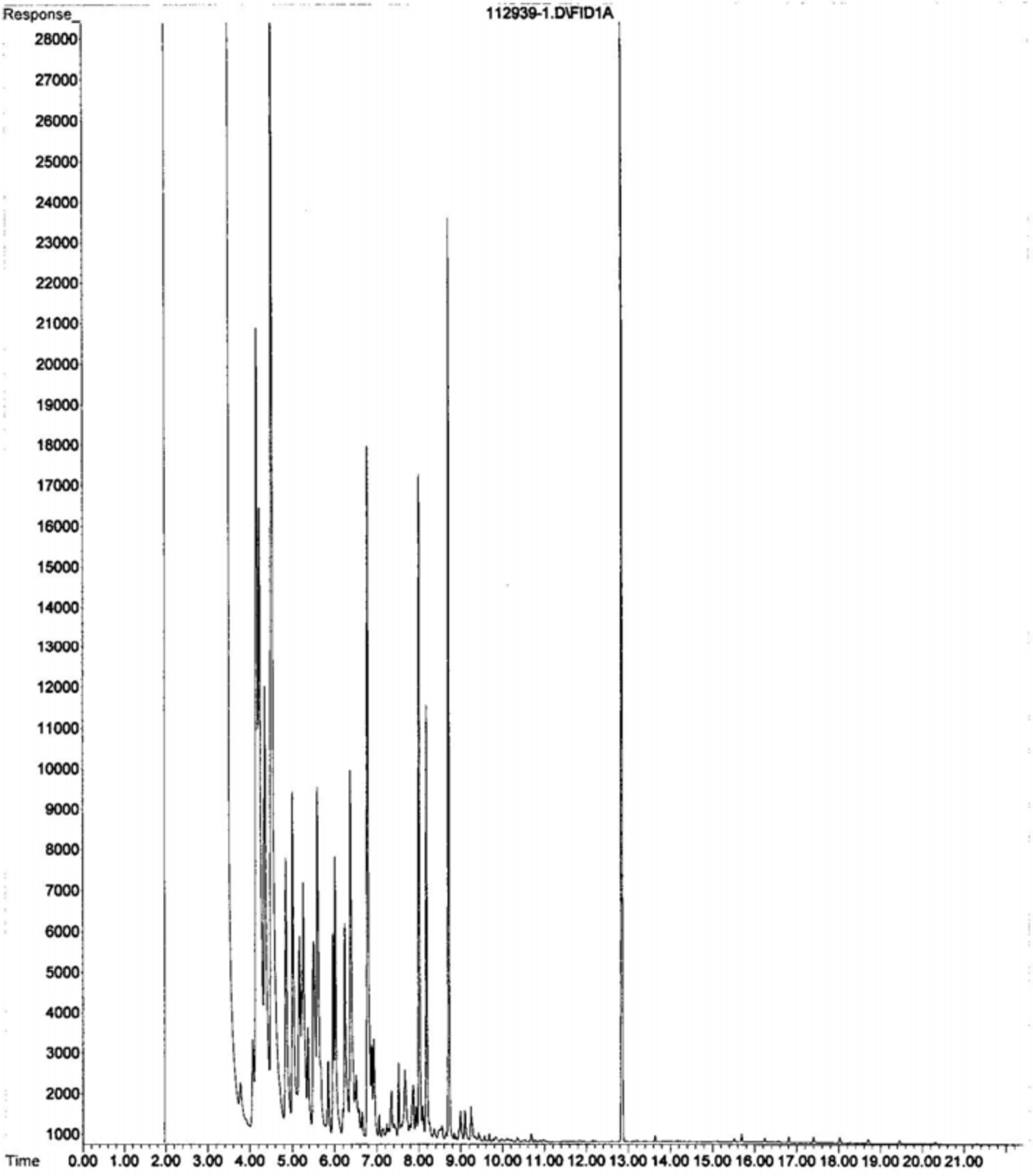
File : C:\HPCHEM\3\DATA\112812\112827.D
Operator : HP Demo
Acquired : 29 Nov 2012 10:42 am using AcqMethod DX091912.M
Instrument : GC/MS Ins
Sample Name: 1211165-004D
Misc Info : SAMP O-DXEX-W
Vial Number: 8



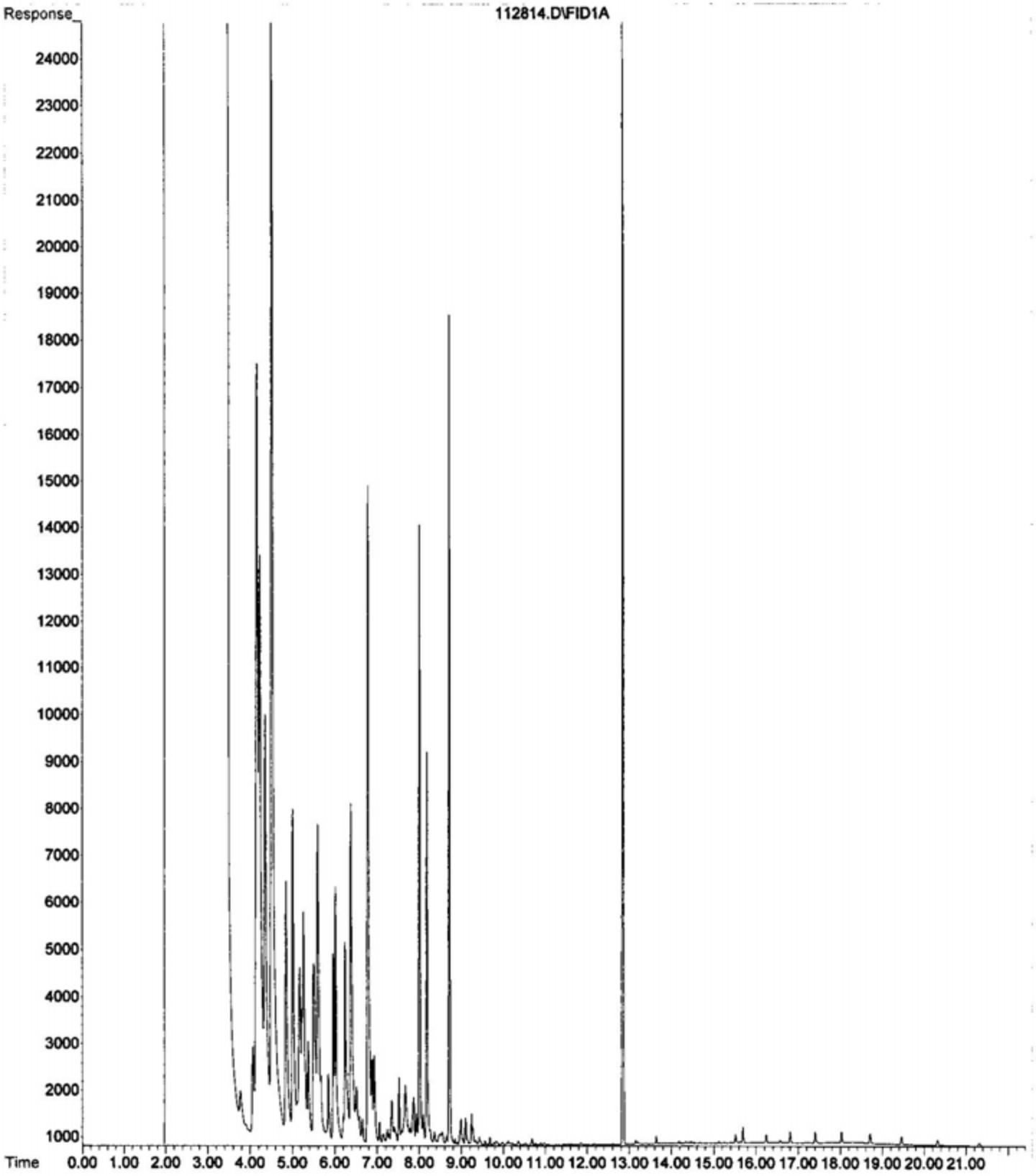
File : C:\HPCHEM\3\DATA\112812\112811.D
Operator : HP Demo
Acquired : 28 Nov 2012 11:00 pm using AcqMethod DX091912.M
Instrument : GC/MS Ins
Sample Name: 1211165-004DDUP
Misc Info : DUP O-DXEX-W
Vial Number: 9



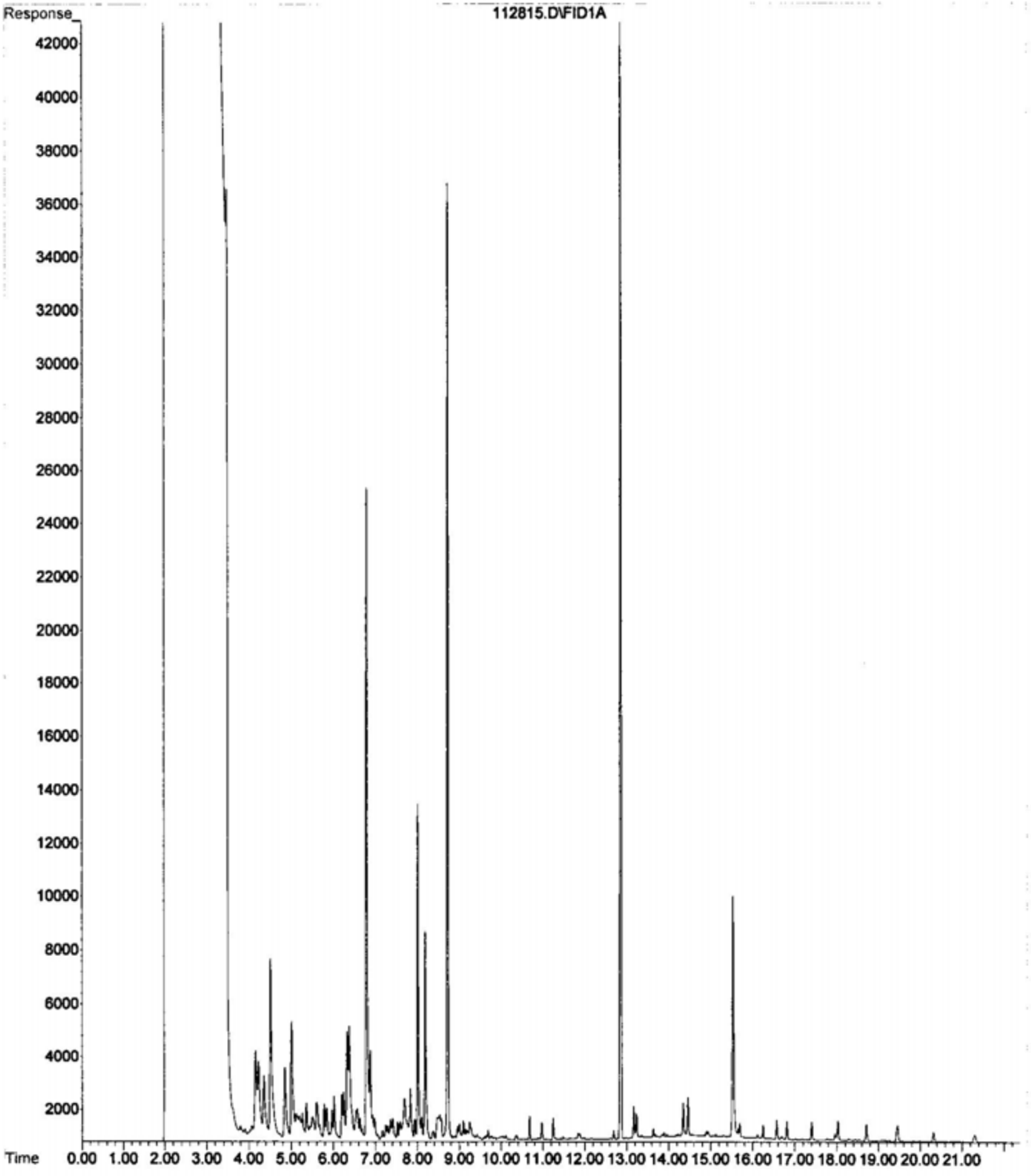
File : C:\HPCHEM\3\DATA\112912\112939-1.D
Operator : HP Demo
Acquired : 30 Nov 2012 12:31 pm using AcqMethod DX091912.M
Instrument : GC/MS Ins
Sample Name: 1211165-007D
Misc Info : SAMP O-DXEX-S
Vial Number: 100



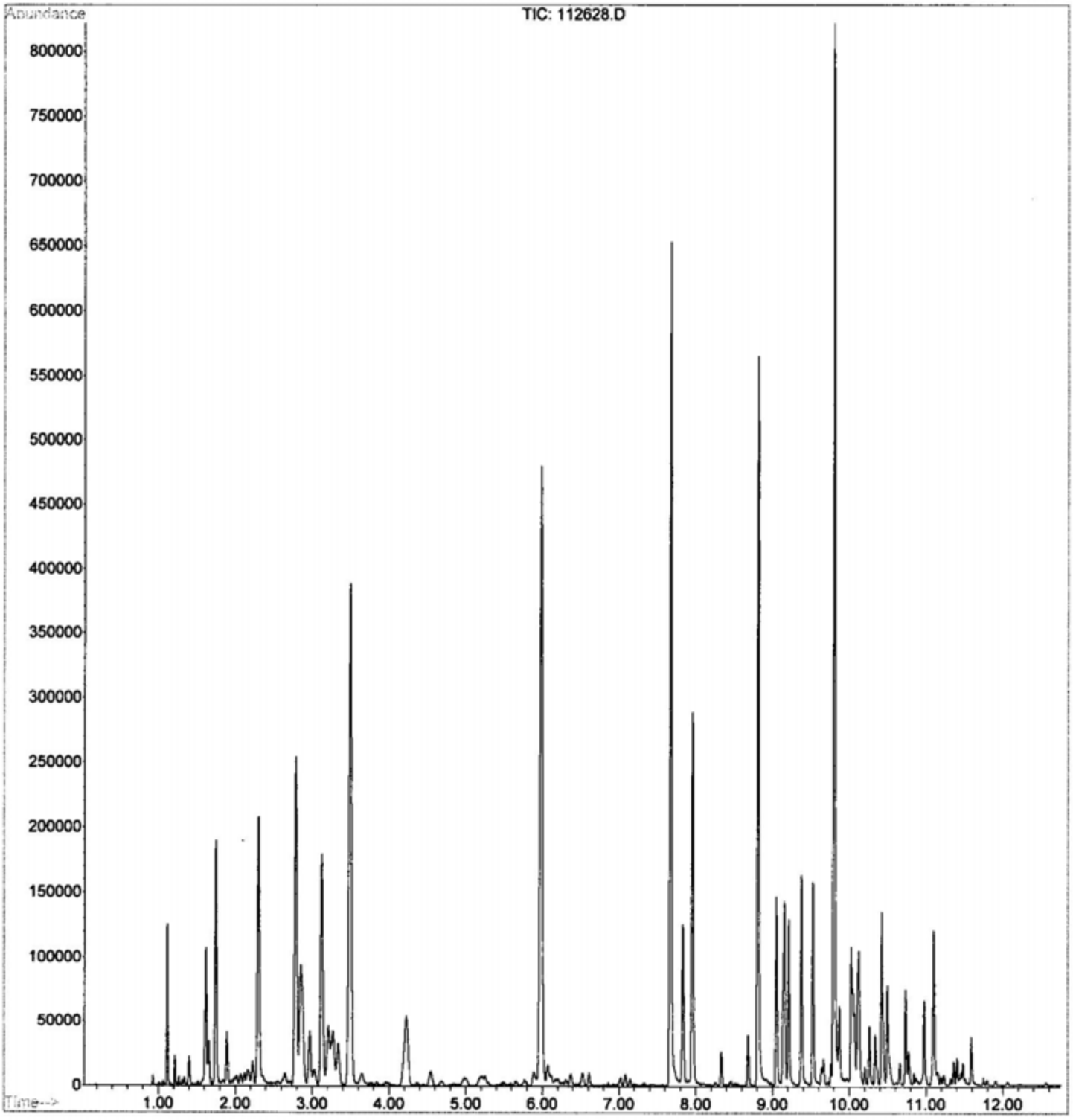
File : C:\HPCHEM\3\DATA\112812\112814.D
Operator : HP Demo
Acquired : 29 Nov 2012 12:22 am using AcqMethod DX091912.M
Instrument : GC/MS Ins
Sample Name: 1211165-007D
Misc Info : SAMP O-DXEX-W
Vial Number: 12



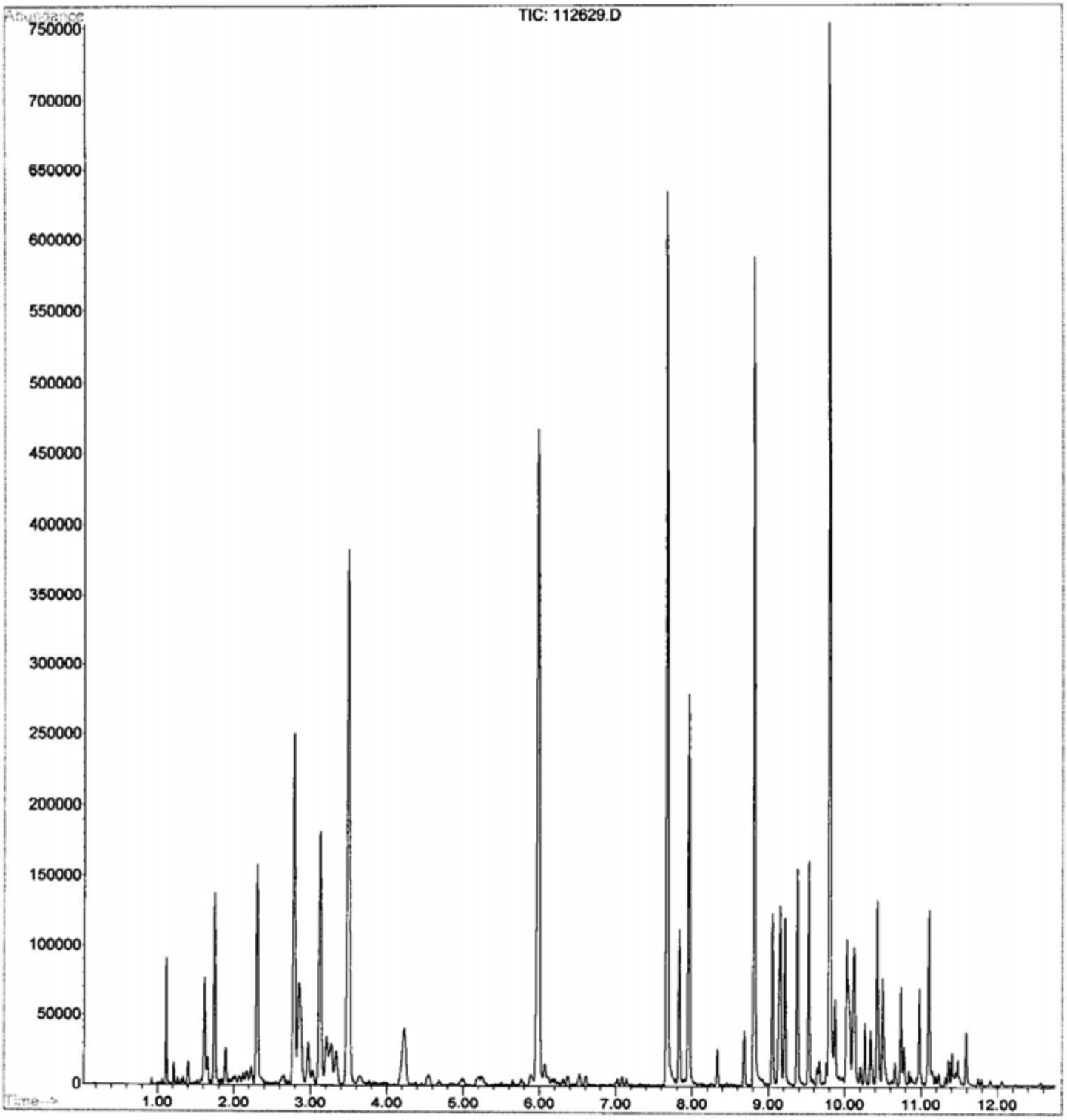
File : C:\HPCHEM\3\DATA\112812\112815.D
Operator : HP Demo
Acquired : 29 Nov 2012 12:50 am using AcqMethod DX091912.M
Instrument : GC/MS Ins
Sample Name: 1211165-008D
Misc Info : SAMP O-DXEX-W
Vial Number: 13



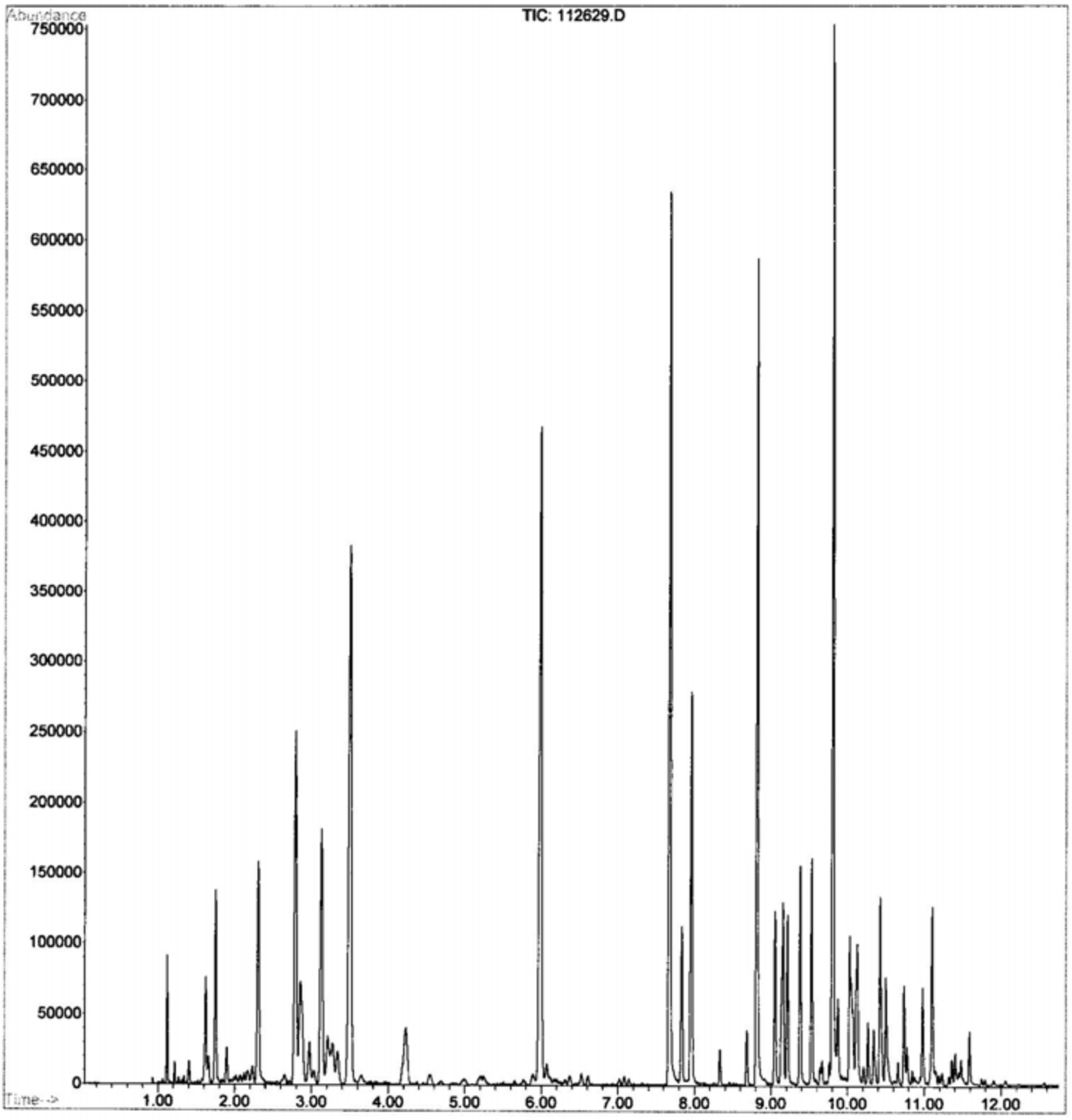
File : C:\HPCHEM\3\DATA\112612\112628.D
Operator :
Acquired : 27 Nov 2012 1:27 am using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-001A
Misc Info : SAMP O-VOC-W
Vial Number: 28



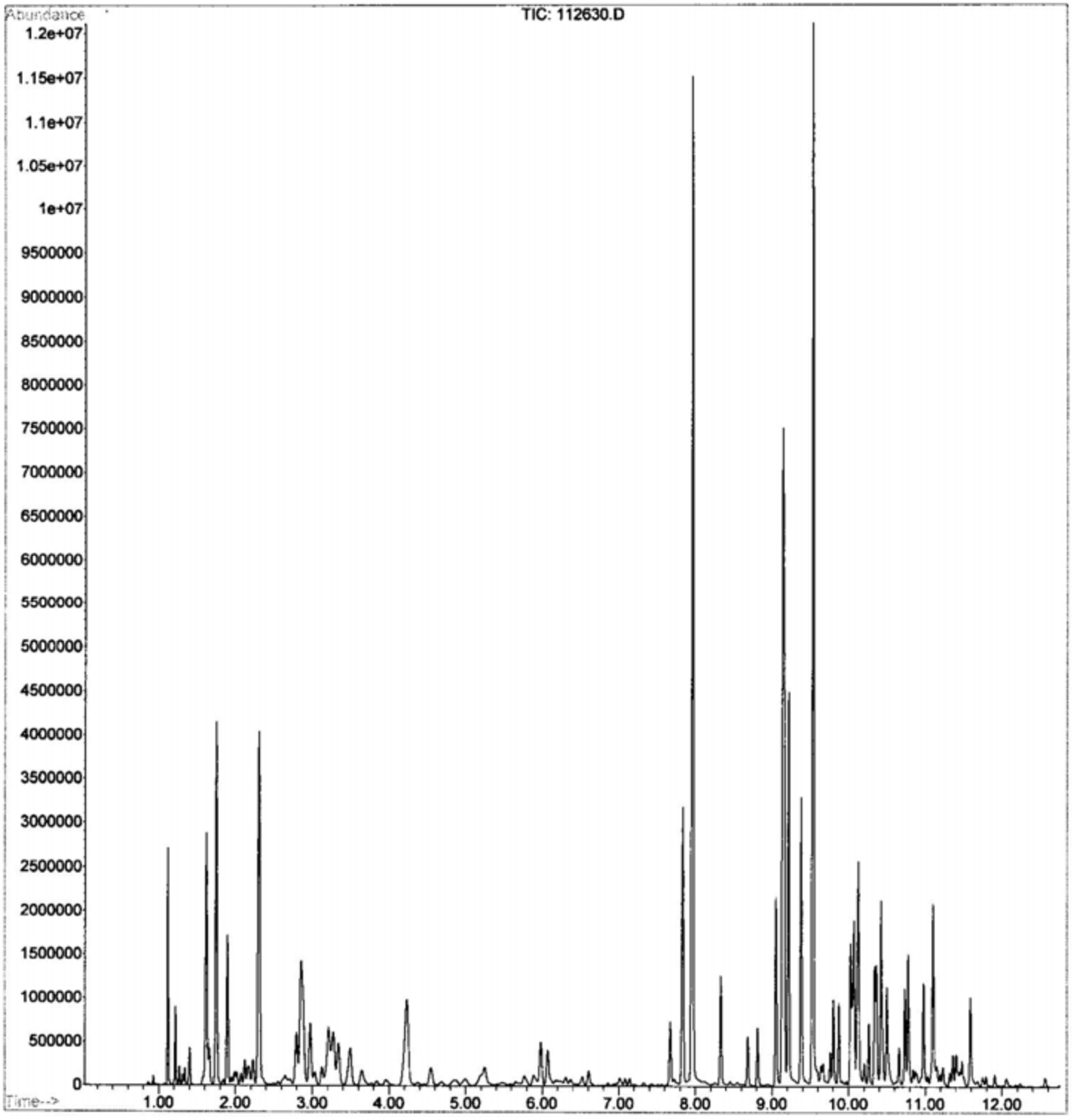
File : C:\HPCHEM\3\DATA\112612\112629.D
Operator :
Acquired : 27 Nov 2012 1:59 am using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-001ADUP
Misc Info : DUP O-VOC-W
Vial Number: 29



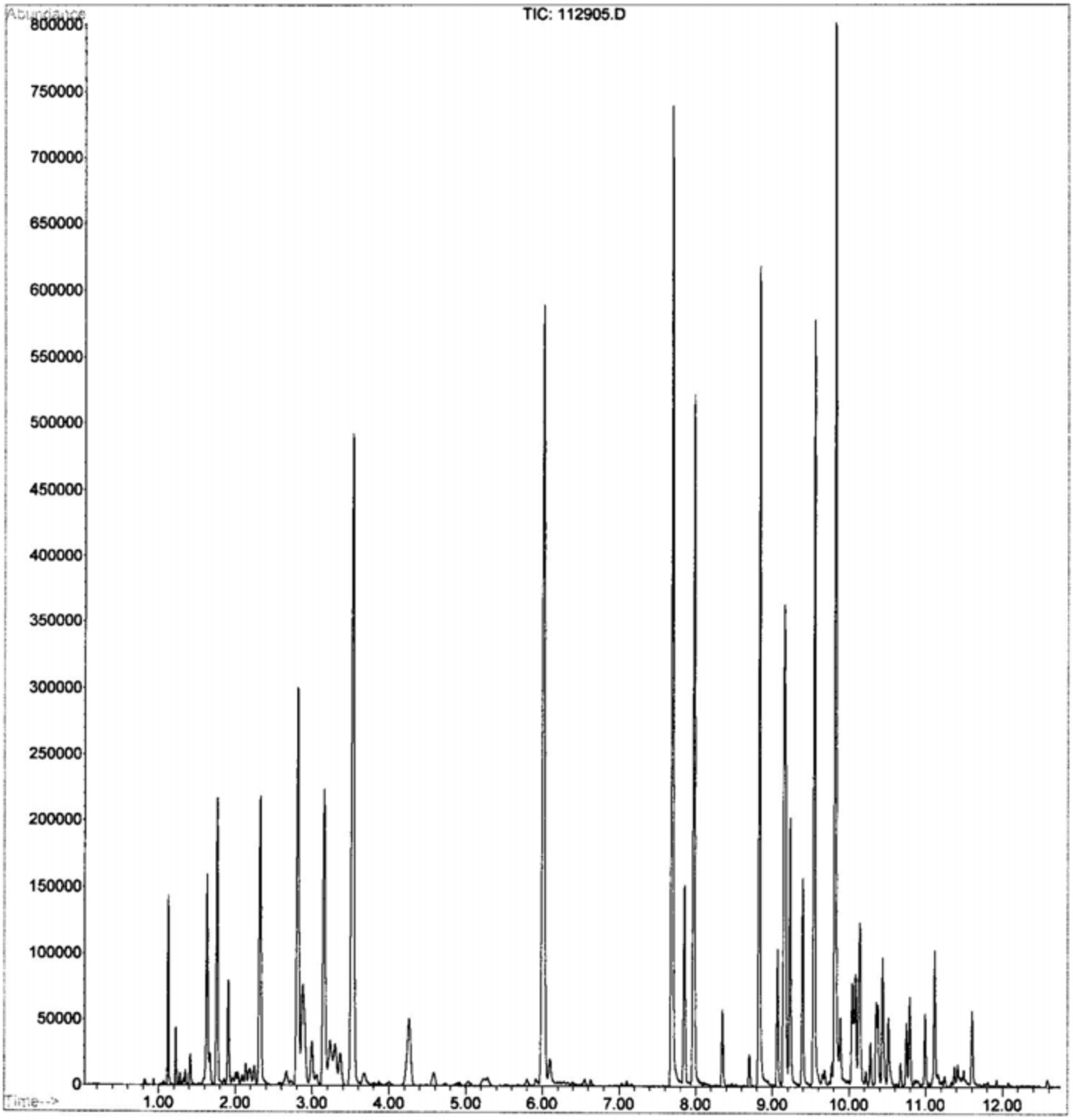
File : C:\HPCHEM\3\DATA\112612\112629.D
Operator :
Acquired : 27 Nov 2012 1:59 am using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-001ADUP
Misc Info : DUP O-VOC-W
Vial Number: 29



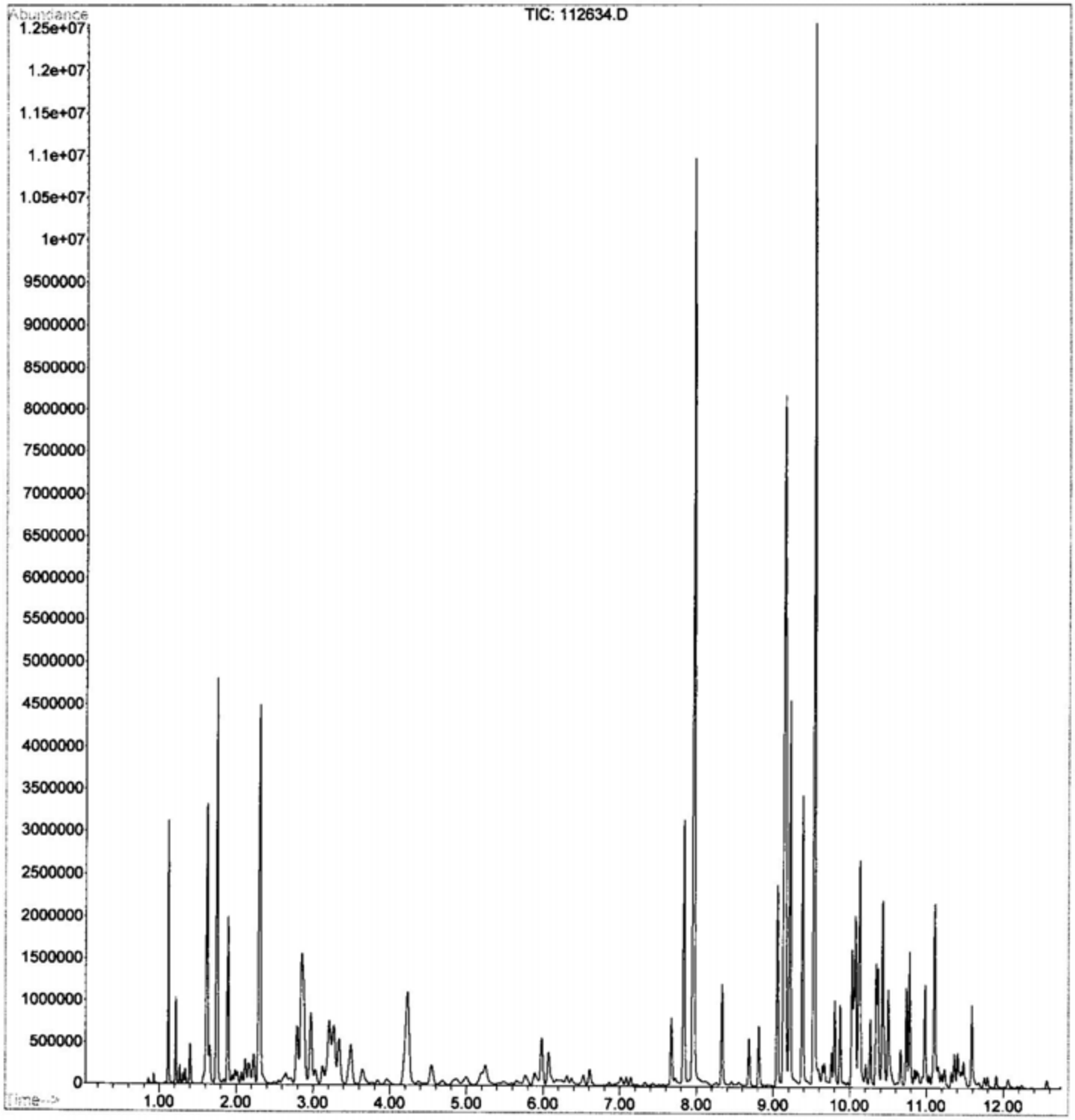
File : C:\HPCHEM\3\DATA\112612\112630.D
Operator :
Acquired : 27 Nov 2012 2:31 am using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-002A
Misc Info : SAMP O-VOC-W
Vial Number: 30



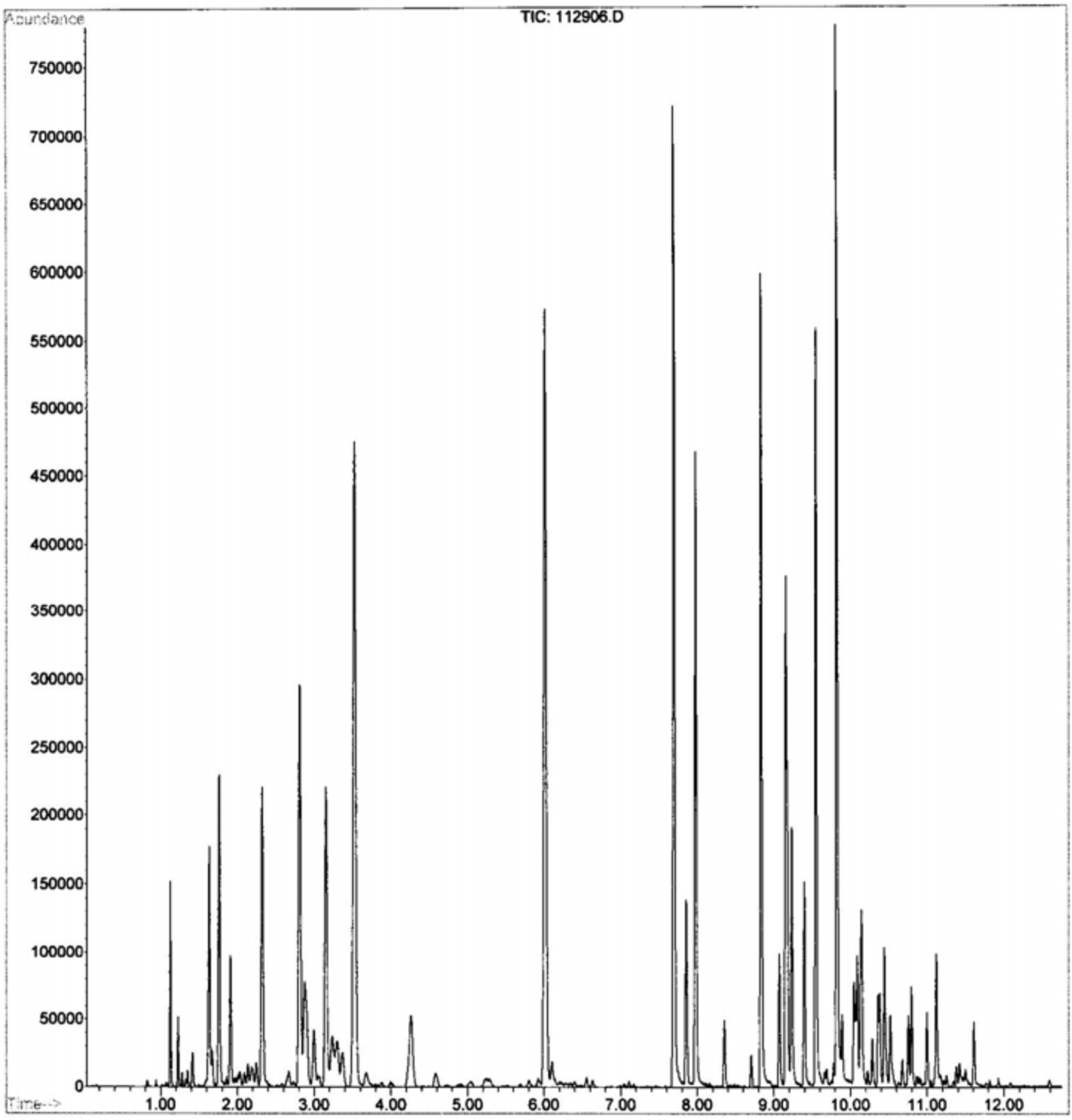
File : C:\HPCHEM\3\DATA\112912\112905.D
Operator :
Acquired : 29 Nov 2012 1:15 pm using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-002A 20X
Misc Info : SAMP O-VOC W
Vial Number: 5



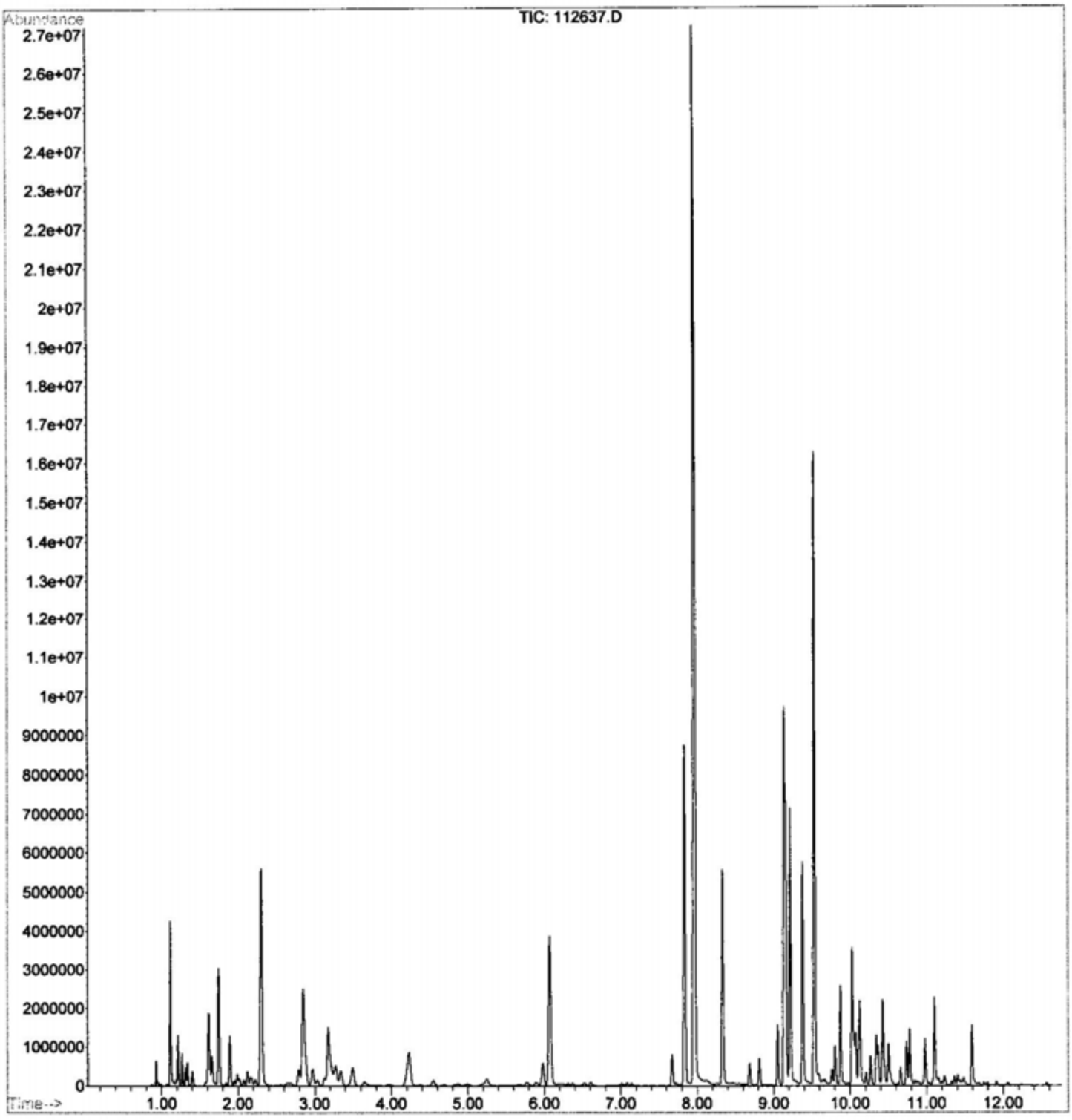
File : C:\HPCHEM\3\DATA\112612\112634.D
Operator :
Acquired : 27 Nov 2012 4:36 am using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-004A
Misc Info : SAMP O-VOC-W
Vial Number: 34



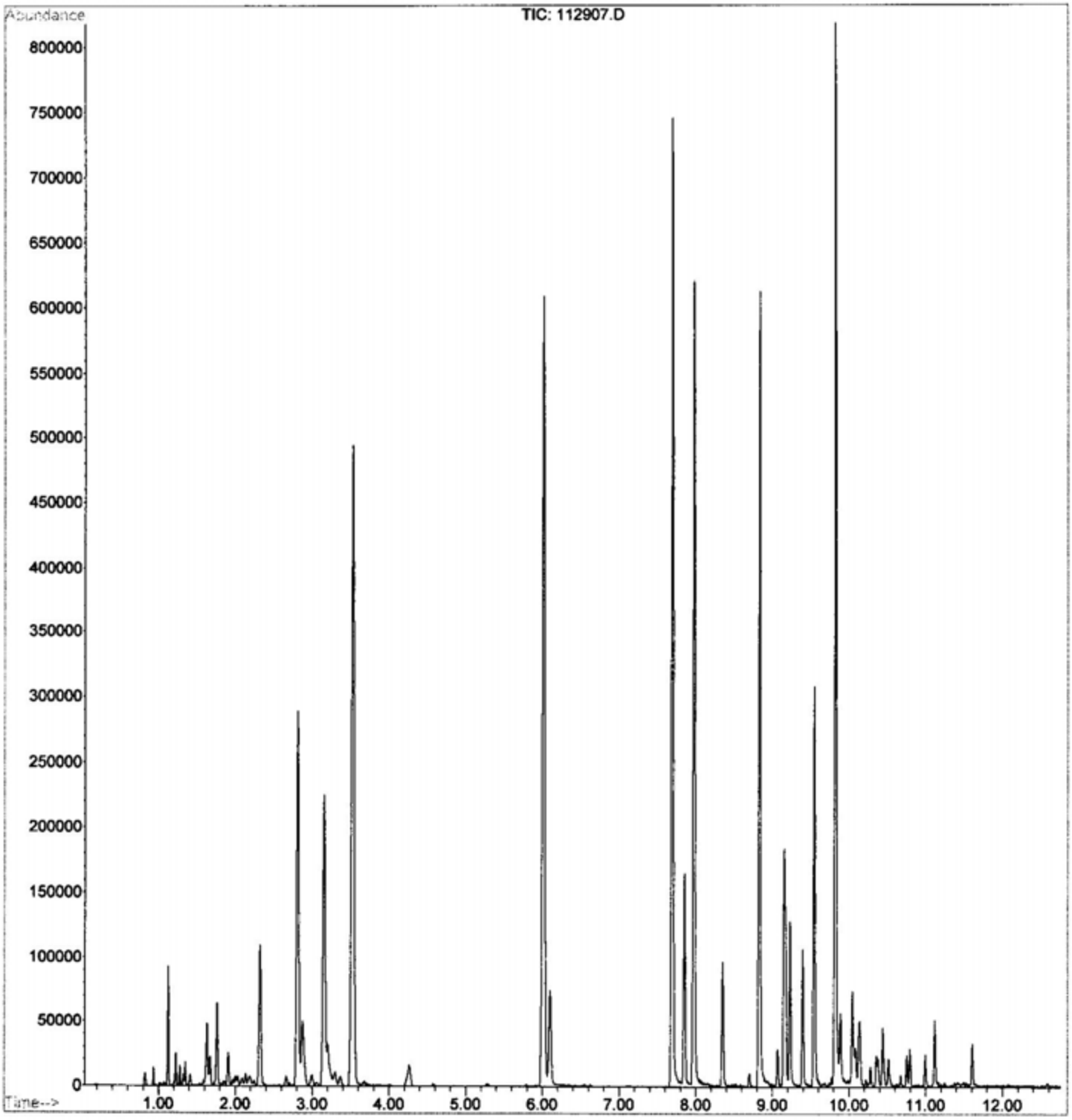
File : C:\HPCHEM\3\DATA\112912\112906.D
Operator :
Acquired : 29 Nov 2012 1:47 pm using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-004A 20X
Misc Info : SAMP O-VOC W
Vial Number: 6



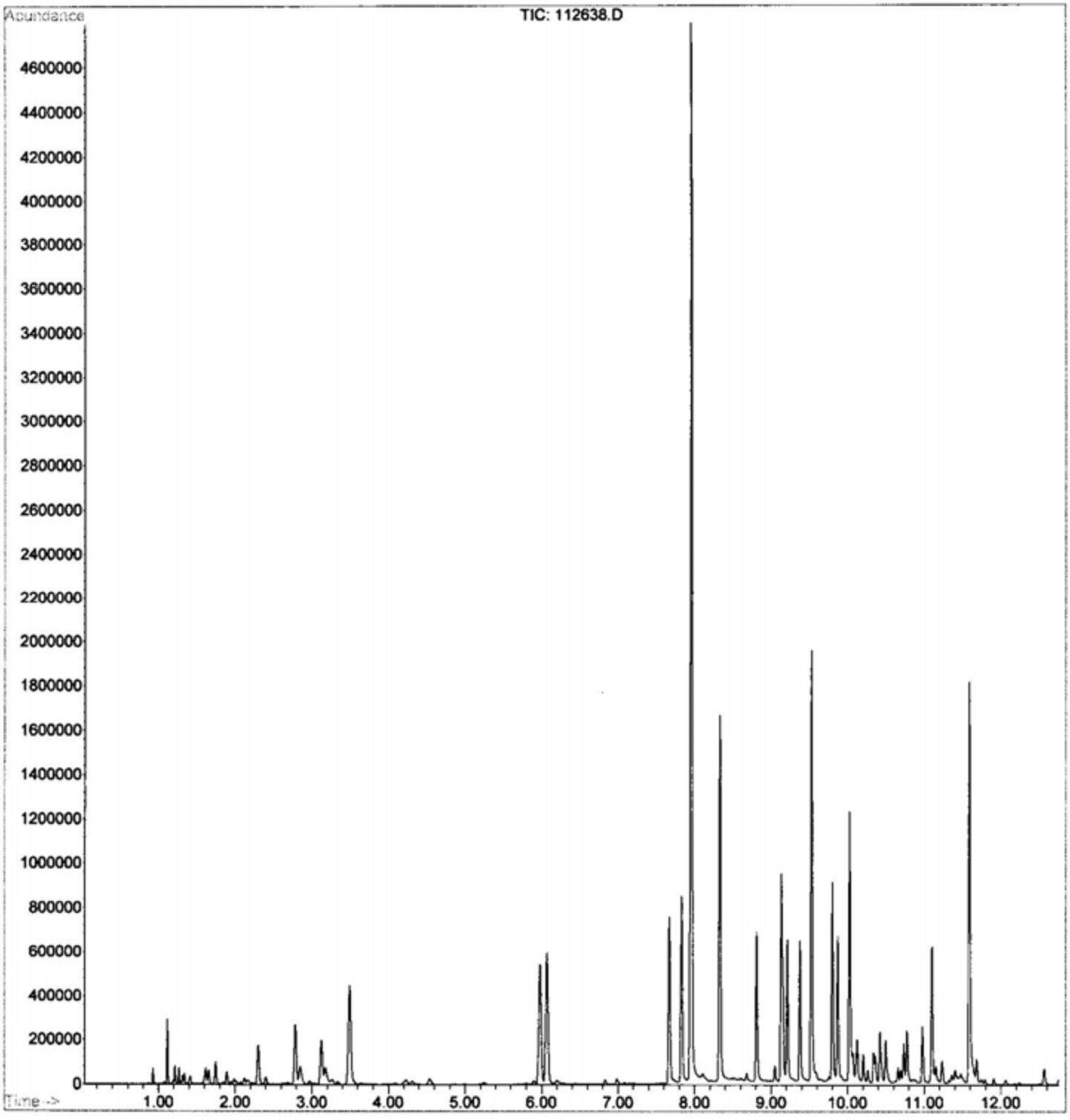
File : C:\HPCHEM\3\DATA\112612\112637.D
Operator :
Acquired : 27 Nov 2012 6:10 am using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-007A
Misc Info : SAMP O-VOC-W
Vial Number: 37



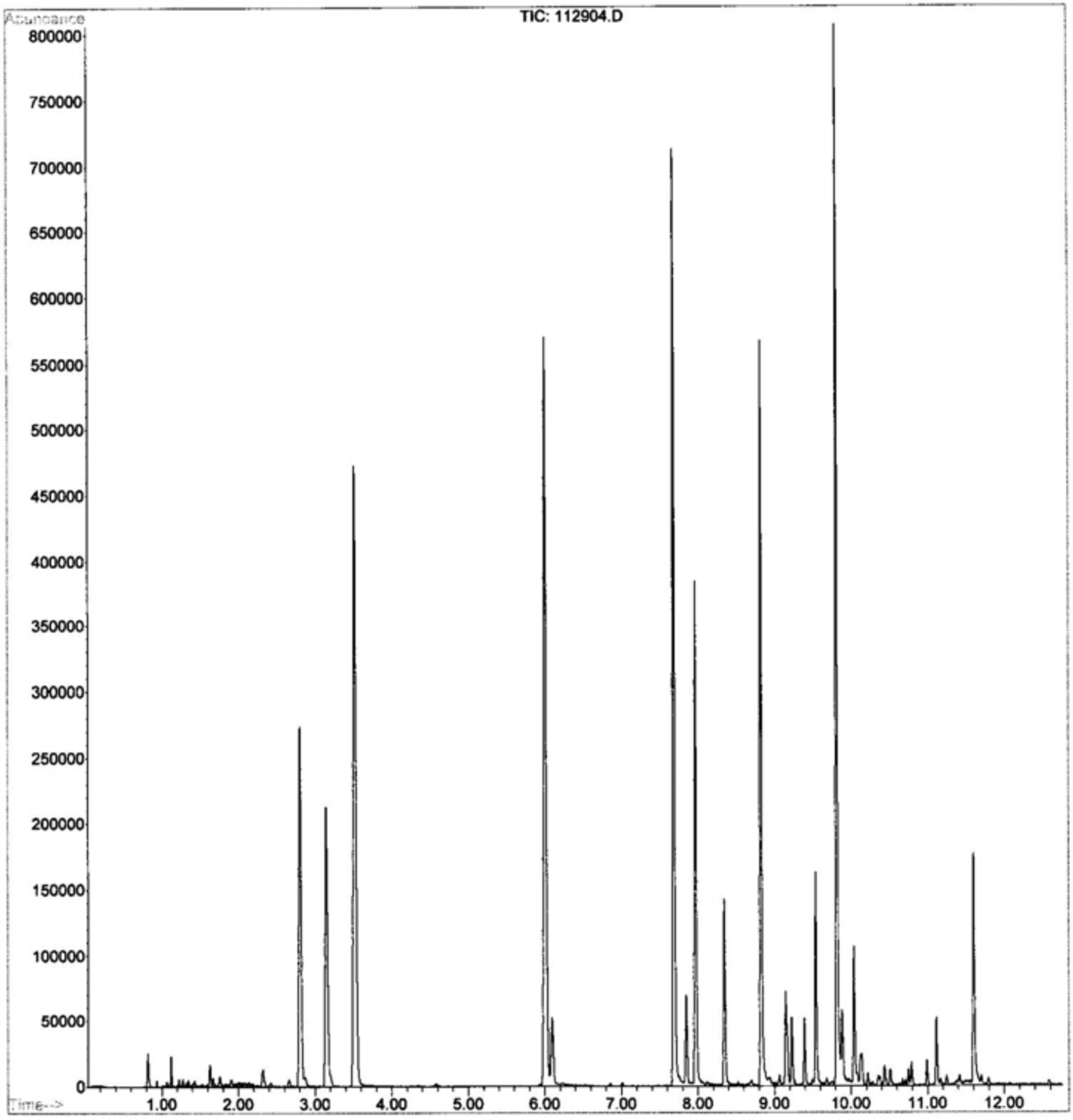
File : C:\HPCHEM\3\DATA\112912\112907.D
Operator :
Acquired : 29 Nov 2012 2:19 pm using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-007A 50X
Misc Info : SAMP O-VOC W
Vial Number: 7



File : C:\HPCHEM\3\DATA\112612\112638.D
Operator :
Acquired : 27 Nov 2012 6:42 am using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-008A
Misc Info : SAMP O-VOC-W
Vial Number: 38



File : C:\HPCHEM\3\DATA\112912\112904.D
Operator :
Acquired : 29 Nov 2012 12:43 pm using AcqMethod OFSL8260
Instrument : GC/MS Ins
Sample Name: 1211165-008A 10X
Misc Info : SAMP O-VOC W
Vial Number: 4



MTCA Method B Calculations

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

1. Enter Site Information

Date: 08/21/12
Site Name: Sportland Mini Mart
Sample Name: 082112-06.15

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	0.651	0.71%
AL_EC >6-8	12.1	13.17%
AL_EC >8-10	18.7	20.35%
AL_EC >10-12	11	11.97%
AL_EC >12-16	0	0.00%
AL_EC >16-21	0	0.00%
AL_EC >21-34	0	0.00%
AR_EC >8-10	14.9	16.22%
AR_EC >10-12	28.1	30.58%
AR_EC >12-16	0	0.00%
AR_EC >16-21	0	0.00%
AR_EC >21-34	0	0.00%
Benzene	0.0111	0.01%
Toluene	0.0111	0.01%
Ethylbenzene	0.505	0.55%
Total Xylenes	2.417	2.63%
Naphthalene	0.392	0.43%
1-Methyl Naphthalene	0	0.00%
2-Methyl Naphthalene	0	0.00%
n-Hexane	3.09	3.36%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0	0.00%
Benzo(b)fluoranthene	0	0.00%
Benzo(k)fluoranthene	0	0.00%
Benzo(a)pyrene	0	0.00%
Chrysene	0	0.00%
Dibenz(a,h)anthracene	0	0.00%
Indeno(1,2,3-cd)pyrene	0	0.00%
Sum	91.8772	100.00%

Notes for Data Entry **Set Default Hydrogeology**

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared

REMARK:
Enter site-specific information here.....

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:	500	ug/L

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

Site Information

Date: 8/21/2012
Site Name: Sportland Mini Mart
Sample Name: 082112-06.15
Measured Soil TPH Concentration, mg/kg: **91.877**

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	2,566	6.11E-10	3.58E-02	Pass
	Method C	50,300	8.18E-11	1.83E-03	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	Use A2.2	2.34E-06	2.59E+00	Fail
	Target TPH GW Conc. @ 500 ug/L	36	NA	NA	Fail

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	**2,565.55**	**50,300.47**
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	2.57E+03	1.71E-08	1.00E+00	YES	5.03E+04	4.48E-08	1.00E+00
Total Risk=1E-5	*NO*	1.50E+06	1.00E-05	5.86E+02	*NO*	1.12E+07	1.00E-05	2.23E+02
Risk of Benzene= 1E-6	*NO*	1.50E+05	1.00E-06	5.86E+01	NA			
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA				
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

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	**351.82**
Protective Soil Concentration, mg/kg	**45.03**

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	3.52E+02	1.10E-06	1.00E+00	4.50E+01
Total Risk = 1E-5	*NO*	1.26E+03	1.00E-05	3.44E+00	6.55E+02
Total Risk = 1E-6	*NO*	5.30E+02	1.00E-06	1.62E+00	3.73E+01
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	*NO*	1.18E+03	6.29E-06	3.24E+00	3.09E+02
MTBE = 20 ug/L	NA	NA	NA	NA	NA

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 = 500 ug/L	5.00E+02	9.69E-07	1.52E+00	**3.63E+01**

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

1. Enter Site Information

Date: 08/21/12
Site Name: Sportland Mini Mart
Sample Name: 082112-07.15

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	1.47	0.35%
AL_EC >6-8	14.4	3.42%
AL_EC >8-10	47	11.17%
AL_EC >10-12	35.8	8.51%
AL_EC >12-16	16.5	3.92%
AL_EC >16-21	0	0.00%
AL_EC >21-34	0	0.00%
AR_EC >8-10	112	26.62%
AR_EC >10-12	94.7	22.51%
AR_EC >12-16	44.3	10.53%
AR_EC >16-21	0	0.00%
AR_EC >21-34	0	0.00%
Benzene	0.0111	0.00%
Toluene	2.98	0.71%
Ethylbenzene	5.55	1.32%
Total Xylenes	35.97	8.55%
Naphthalene	7.38	1.75%
1-Methyl Naphthalene	0	0.00%
2-Methyl Naphthalene	0	0.00%
n-Hexane	2.71	0.64%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0	0.00%
Benzo(b)fluoranthene	0	0.00%
Benzo(k)fluoranthene	0	0.00%
Benzo(a)pyrene	0	0.00%
Chrysene	0	0.00%
Dibenz(a,h)anthracene	0	0.00%
Indeno(1,2,3-cd)pyrene	0	0.00%
Sum	420.7711	100.00%

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

REMARK:
Enter site-specific information here.....

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:	500	ug/L

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

Site Information

Date: 8/21/2012
Site Name: Sportland Mini Mart
Sample Name:
Measured Soil TPH Concentration, mg/kg: **420.771**

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	2,751	6.11E-10	1.53E-01	Pass
	Method C	48,085	8.18E-11	8.75E-03	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	Use A2.2	1.72E-06	3.98E+00	Fail
	Target TPH GW Conc. @ 500 ug/L	22	NA	NA	Fail

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	**2,751.23**	**48,084.92**
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	2.75E+03	4.00E-09	1.00E+00	YES	4.81E+04	9.35E-09	1.00E+00
Total Risk=1E-5	*NO*	6.88E+06	1.00E-05	2.50E+03	*NO*	5.14E+07	1.00E-05	1.07E+03
Risk of Benzene= 1E-6	*NO*	6.88E+05	1.00E-06	2.50E+02	NA			
Risk of cPAHs mixture= 1E-6	NA		NA	NA				
EDB	NA		NA	NA				
EDC	NA		NA	NA				

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	**551.21**
Protective Soil Concentration, mg/kg	**40.53**

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	5.51E+02	2.17E-07	1.00E+00	4.05E+01
Total Risk = 1E-5	*NO*	2.55E+03	4.70E-06	4.33E+00	100% NAPL
Total Risk = 1E-6	*NO*	2.07E+03	1.00E-06	3.67E+00	1.98E+02
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	*NO*	2.55E+03	4.70E-06	4.33E+00	100% NAPL
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 73000 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 = 500 ug/L	5.00E+02	1.25E-07	9.76E-01	**2.15E+01**

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

1. Enter Site Information

Date: 08/21/12
Site Name: Sportland Mini Mart
Sample Name: 082112-07.20

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	21.4	3.93%
AL_EC >6-8	53.3	9.79%
AL_EC >8-10	78.6	14.44%
AL_EC >10-12	46.5	8.54%
AL_EC >12-16	0	0.00%
AL_EC >16-21	0	0.00%
AL_EC >21-34	0	0.00%
AR_EC >8-10	146	26.81%
AR_EC >10-12	68.1	12.51%
AR_EC >12-16	6.45	1.18%
AR_EC >16-21	0	0.00%
AR_EC >21-34	0	0.00%
Benzene	0.64	0.12%
Toluene	30.8	5.66%
Ethylbenzene	10.7	1.97%
Total Xylenes	63	11.57%
Naphthalene	6.21	1.14%
1-Methyl Naphthalene	0	0.00%
2-Methyl Naphthalene	0	0.00%
n-Hexane	12.8	2.35%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0	0.00%
Benzo(b)fluoranthene	0	0.00%
Benzo(k)fluoranthene	0	0.00%
Benzo(a)pyrene	0	0.00%
Chrysene	0	0.00%
Dibenz(a,h)anthracene	0	0.00%
Indeno(1,2,3-cd)pyrene	0	0.00%
Sum	544.5	100.00%

Notes for Data Entry **Set Default Hydrogeology**

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared

REMARK:
Enter site-specific information here.....

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.42	Unitless
Volumetric air content:	0.01	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	1	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: 500 ug/L

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

Site Information

Date: 8/21/2012
Site Name: Sportland Mini Mart
Sample Name:
Measured Soil TPH Concentration, mg/kg: **544.500**

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	3,730	3.52E-08	1.46E-01	Pass
	Method C	71,876	4.72E-09	7.58E-03	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	Use A2.2	1.53E-03	1.39E+02	Fail
	Target TPH GW Conc. @ 500 ug/L	1	NA	NA	Fail

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	**3,730.00**	**71,875.73**
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	3.73E+03	2.41E-07	1.00E+00	YES	7.19E+04	6.23E-07	1.00E+00
Total Risk=1E-5	*NO*	1.55E+05	1.00E-05	4.14E+01	*NO*	1.15E+06	1.00E-05	1.61E+01
Risk of Benzene= 1E-6	*NO*	1.55E+04	1.00E-06	4.14E+00	NA			
Risk of cPAHs mixture= 1E-6	NA		NA	NA				
EDB	NA		NA	NA				
EDC	NA		NA	NA				

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	**623.21**
Protective Soil Concentration, mg/kg	**1.44**

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	6.23E+02	5.82E-06	1.00E+00	1.44E+00
Total Risk = 1E-5	*NO*	1.53E+03	1.00E-05	2.42E+00	2.33E+00
Total Risk = 1E-6	YES	1.50E+02	1.00E-06	2.38E-01	2.33E-01
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	*NO*	9.71E+02	6.29E-06	1.54E+00	1.46E+00
MTBE = 20 ug/L	NA	NA	NA	NA	NA

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 = 500 ug/L	5.00E+02	3.24E-06	7.94E-01	**7.53E-01**

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

1. Enter Site Information

Date: 11/06/12
Site Name: Sportland Mini Mart
Sample Name: 110612-09.17.5

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	0	0.00%
AL_EC >6-8	120	11.62%
AL_EC >8-10	160	15.49%
AL_EC >10-12	117	11.33%
AL_EC >12-16	0	0.00%
AL_EC >16-21	0	0.00%
AL_EC >21-34	0	0.00%
AR_EC >8-10	242	23.43%
AR_EC >10-12	220	21.30%
AR_EC >12-16	1.35	0.13%
AR_EC >16-21	0	0.00%
AR_EC >21-34	0	0.00%
Benzene	0	0.00%
Toluene	10.6	1.03%
Ethylbenzene	22.6	2.19%
Total Xylenes	129	12.49%
Naphthalene	10.4	1.01%
1-Methyl Naphthalene	0	0.00%
2-Methyl Naphthalene	0	0.00%
n-Hexane	0	0.00%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0	0.00%
Benzo(b)fluoranthene	0	0.00%
Benzo(k)fluoranthene	0	0.00%
Benzo(a)pyrene	0	0.00%
Chrysene	0	0.00%
Dibenz(a,h)anthracene	0	0.00%
Indeno(1,2,3-cd)pyrene	0	0.00%
Sum	1032.95	100.00%

Notes for Data Entry **Set Default Hydrogeology**

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared

REMARK:
Enter site-specific information here.....

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:	500	ug/L

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

Site Information

Date: 11/6/2012
Site Name: Sportland Mini Mart
Sample Name: 110612-09.17.5
Measured Soil TPH Concentration, mg/kg: **1,032.950**

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	3,130	0.00E+00	3.30E-01	Pass
	Method C	60,873	0.00E+00	1.70E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	Use A2.2	0.00E+00	4.07E+00	Fail
	Target TPH GW Conc. @ 500 ug/L	19	NA	NA	Fail

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	**3,130.11**	**60,872.97**
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	3.13E+03	0.00E+00	1.00E+00	YES	6.09E+04	0.00E+00	1.00E+00
Total Risk=1E-5	NA	NA	NA	NA	NA	NA	NA	NA
Risk of Benzene= 1E-6	NA	NA	NA	NA	NA			
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA				
EDB	NA	NA	NA	NA		NA		
EDC	NA	NA	NA	NA				

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	**639.14**
Protective Soil Concentration, mg/kg	**40.00**

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	6.39E+02	0.00E+00	1.00E+00	4.00E+01
Total Risk = 1E-5	NA	NA	NA	NA	NA
Total Risk = 1E-6	NA	NA	NA	NA	NA
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

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 = 500 ug/L	5.00E+02	0.00E+00	8.35E-01	**1.85E+01**

APPENDIX G

Monitoring Well Installation Plan

October 31, 2012

Washington State Department of Ecology
Attn: Norm Peck
15 West Yakima Avenue, Suite 200
Yakima, Washington 98901

RE: Revised Proposed Monitoring Well Installation Plan – 4400 Bullfrog Road, Cle Elum, Washington

Dear Norm:

Fulcrum Environmental Consulting, Inc. (Fulcrum) has prepared this Revised Monitoring Well Installation Plan to meet subsurface characterization requirements for the Sportland Mini-Mart facility located at 4400 Bullfrog Road in Cle Elum, Washington (site). This Revised Monitoring Well Installation Plan is designed to summarize conditions of existing monitoring wells installed during previously completed site investigation associated with petroleum product release discovery in 1998, and to present recommendations for installation of additional monitoring wells to meet project specific objectives.

To date, subsurface soil and groundwater characterization requirements associated with residual petroleum impact to the site have been presented in the following Fulcrum issued documents:

- Draft Site-Specific Sampling and Analysis Plan/Quality Assurance Project Plan (SAP/QAPP), dated July 31, 2012
- Draft Remedial Investigation and Site Characterization Report, dated October 15, 2012

The site specific SAP/QAPP includes summary of site specific objectives and requirements for investigation of site soils and groundwater at the site. The Draft Remedial Investigation and Site Characterization Report includes summary of results of completed soil investigation activities and condition assessment of previously installed groundwater monitoring wells.

This Monitoring Well Installation Plan is designed to provide a summary of existing monitoring well conditions and recommendations for installation of additional monitoring wells for review by the Washington State Department of Ecology (Ecology) to assist in the continued collaborative effort of subsurface characterization of residual petroleum impact to site soils and groundwater.

Previously Installed Monitoring Wells

On October 1, 2012, Fulcrum completed initial groundwater investigation activities of the previously installed monitoring wells at the site. Fulcrum identified the following conditions/deficiencies associated with each of the wells:

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Yakima, Washington 98901
efulcrum.net

Table 1: Summary of Previously Installed Monitoring Well Conditions

Monitoring Well	Location	Condition
MW-01	Northwest of mini-mart building	Silted-in to the estimated depth of groundwater at approximately 16-feet below ground surface (bgs). No static water identified in well casing.
MW-02	Immediately south of Dealership Building	Damaged pressure cap. Located within vehicle storage area and immediately adjacent to one of two onsite stormwater conveyance system dry-wells.
MW-03	Immediately west of current fueling island	Damaged well casing within surface monument below pressure cap elevation. Located within the current fueling island area.
MW-04	South of current fueling island	Insufficient water column in casing to facilitate sampling due to seasonal fluctuation. Damaged well casing in surface monument.
MW-05	Immediately northwest of dealership building	Heavy iron precipitate in well casing. Physical barrier preventing installation of dedicated tubing to elevation below groundwater sufficient to facilitate groundwater sampling. Damaged pressure cap.

Monitoring well 01 is located within the concrete sidewalk northwest of the mini-mart building and was identified with apparent silt material at a depth of approximately 16-feet below the top of the casing. The total well depth, according to the installation well log, is approximately 25-feet below ground surface. The presence of water was not identified within the well casing. Fulcrum recommends decommissioning and replacement of the monitoring well. Additionally, Fulcrum recommends placement of the monitoring well immediately west of the mini-mart building, and as northerly as possible while maintaining adequate buffer from buried utilities paralleling Highway 903.

Monitoring well 02 is located south of the dealership building within and an area of vehicle and equipment storage. The monument is elevated slightly above surrounding grade sufficient to significantly reduce the potential for impact from accidental releases to site paved surfaces. However, the monitoring well is located adjacent to one of two onsite stormwater conveyance system drywells. As such, the well may be influenced by influx of stormwater infiltration during seasonal precipitation. The well was identified with a damaged pressure cap. Fulcrum recommends that the pressure cap be replaced and the well be thoroughly purged with a surge block to remove sediment and static water within the casing.

Monitoring well 03 is located within the current fueling island area and presents a higher risk for groundwater impact from accidental spills associated with retail fueling operations. Fulcrum recommends that the monitoring well casing be repaired and the surface monument be routinely inspected to ensure proper surface seal in order to protect groundwater resources. Should the well casing not be repairable or monument integrity be compromised, the well should be decommissioned.

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Monitoring well 04 is located south of the current fueling island area and was identified as having insufficient water column in the well to facilitate sampling. The low water level is likely due to insufficient well depth to capture seasonal fluctuations of groundwater elevation at the site as previous monitoring events reported sufficient water for sample collection. Initial groundwater measurements collected for the site suggest a complex potentiometric hydraulic gradient at the site. As the well is insufficient facilitate quarterly sampling activities, and due to the damages well casing within the monument, Fulcrum recommends decommissioning of the well.

Monitoring well 05 is located immediately northwest of the onsite dealership building. The well is located within an apparent area or pathway of water surface runoff from the adjacent asphalt surfaced area to the west. Additionally, the well was identified with a damaged pressure cap. During onsite activities, Fulcrum replaced the damaged pressure cap. The interior portion of the well casing was observed to contain heavy iron precipitate. Attempts to install dedicated tubing to depths below the measured groundwater elevation were unsuccessful due to an apparent physical blockage or barrier within the well casing. Fulcrum recommends inspection of the well casing, and clearing of iron buildup and the apparent physical barrier. Additionally, Fulcrum recommends modification to the well surface monument or adjacent asphalt surface to remove the well monument from potential pathway of stormwater flow.

Identified monitoring well conditions suggest that MW-01 and MW-04 are unable to facilitate quarterly groundwater sampling events. As such, Fulcrum recommends that the monitoring wells be decommissioned in accordance with regulatory criteria.

Installation of Additional Monitoring Wells

Fulcrum recommends installation of monitoring wells in the following locations based on results of the completed soil investigation and limited groundwater investigation activities, as shown in Figure 1:

1. Northwest of the mini-mart building within the asphalt paved surface area and former tank basin providing upgradient groundwater data near the northern property boundary. The current upgradient and non-producing well identified as monitoring well 01 is located adjacent to buried high capacity water and sewer lines. Relocating the replacement upgradient well to the former tank basin will provide an adequate buffer between the buried utilities while providing groundwater data north of the presumed area of residual groundwater impact.
2. East of the mini-mart building and as near Highway 903 and northern property boundary as feasible while maintaining proper clearance of overhead power lines. The monitoring well will provide data associated with observed potential migration of petroleum product during soil investigation. Fulcrum recommends installation of the well consistent with Borehole 09B as identified during the soil investigation due to the presence of subsurface high density boulder(s).
3. South of the dealership building and adjacent to the eastern property boundary. The monitoring well will provide additional downgradient data within the presumed direction of groundwater flow.

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4. Southwest of the dealership building and adjacent to the southern property boundary. The well will provide additional downgradient data to capture seasonal fluctuation from the presumed groundwater flow direction.
5. Southwest of the dealership building and adjacent to the southern portion of the western property boundary. The well will provide additional downgradient data to capture seasonal fluctuation from the presumed groundwater flow direction.
6. Northeast of the dealership building and adjacent to the eastern property boundary. The well will provide data associated with observed potential migration of petroleum product during soil investigation.

All additional monitoring wells will be installed to a depth of approximately 35 feet below ground surface (bgs) to allow for seasonal fluctuation of groundwater elevation. All monitoring well installation activities as well as repair and inspection of previously installed monitoring wells will be completed by a Washington State licensed well driller.

If previously installed monitoring wells 02, 03 and 05 be determined to be irremediable or have high potential for impact from site operations, then the wells will be decommissioned and replaced as necessary to meet investigation objectives.

At Ecology's request, Fulcrum has completed additional review of subsurface and overhead utility lines located north of the mini-mart building as a potential location for an additional monitoring well to characterize potential contaminant migration. Fulcrum's review of the area north of the mini-mart has determined that installation of a monitoring well is not feasible north of the mini-mart building due to the required buffer distance from subsurface and overhead utilities to meet applicable safety standards. See attached *Draft* figure provided by Cruse & Associates, Inc. illustrating onsite subsurface and overhead utility locations. Should additional evaluation of subsurface conditions north of the mini-mart be required based on investigation results, an additional proposal summarizing required offsite monitoring well installation will be completed.

Monitoring well installation activities are scheduled for November 5, 2012.

Please feel free to call us at 574.0839 with any questions.

Sincerely,

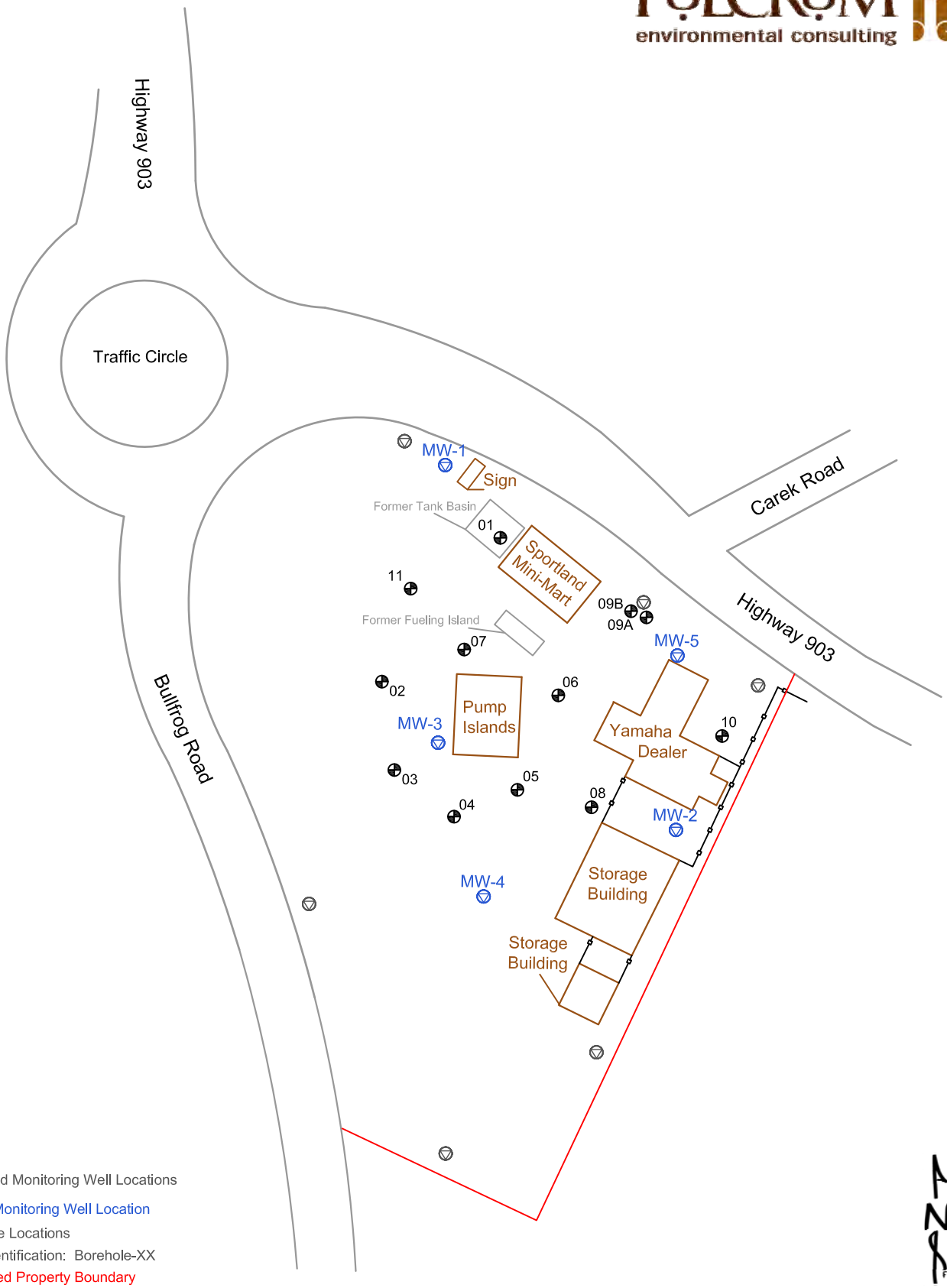
Jeremy M. Lynn, P.G., L.H.G.
Hydrogeologist

Ryan K. Mathews, CIH, CHMM
Principal

Attachments

P. 509.574.0839 F. 509.575.8453
406 North 2nd Street
Yakima, Washington 98901
efulcrum.net

FULCRUM environmental consulting



Legend

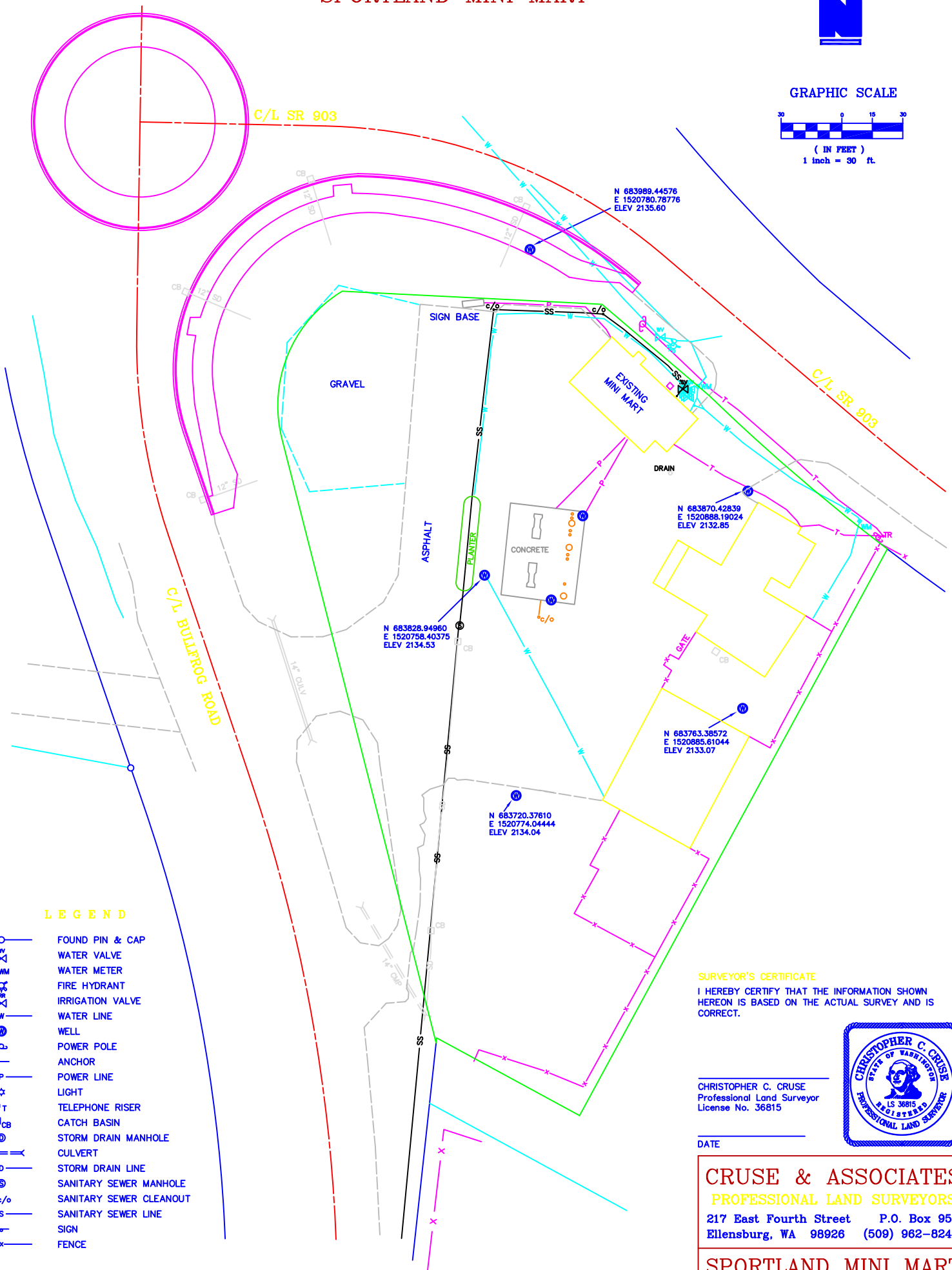
- Proposed Monitoring Well Locations
- Onsite Monitoring Well Location
- Borehole Locations
- Borehole Identification: Borehole-XX
- Estimated Property Boundary
- Fencing

N

Not to Scale

Fulcrum Environmental Consulting, Inc. 406 North Second Street, Yakima, Washington 98901 p: 509.574.0839 f: 509.575.8453 efulcrum.net Sportland Mini Mart Subsurface. 12698. JML. 103112	Sportland Mini Mart 4400 Bullfrog Road Cle Elum, Washington	Site Layout Map FIGURE 1

SPORTLAND MINI MART



GRAPHIC SCALE

30 0 15 30

(IN FEET)
1 inch = 30 ft.

L E G E N D

- FOUND PIN & CAP
- WV WATER VALVE
- WM WATER METER
- FIRE HYDRANT
- IRR IRRIGATION VALVE
- W WATER LINE
- W WELL
- POWER POLE
- ANCHOR
- P POWER LINE
- LIGHT
- T TELEPHONE RISER
- CB CATCH BASIN
- D STORM DRAIN MANHOLE
- CULVERT
- D STORM DRAIN LINE
- S SANITARY SEWER MANHOLE
- c/o SANITARY SEWER CLEANOUT
- S SANITARY SEWER LINE
- SIGN
- x FENCE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE INFORMATION SHOWN HEREON IS BASED ON THE ACTUAL SURVEY AND IS CORRECT.

CHRISTOPHER C. CRUSE
Professional Land Surveyor
License No. 36815

DATE

CHRISTOPHER C. CRUSE STATE OF WASHINGTON LS 36815 REGISTERED PROFESSIONAL LAND SURVEYOR

CRUSE & ASSOCIATES
PROFESSIONAL LAND SURVEYORS
217 East Fourth Street P.O. Box 959
Ellensburg, WA 98926 (509) 962-8242

SPORTLAND MINI MART

APPENDIX H

Well Sampling Forms

Table H.1: Groundwater Elevation Summary

Well	Location	Casing Depth	Depth to Static Groundwater	Casing Elevation	Corrected Groundwater Elevation	Comments
MW-01	*Decommissioned*					
MW-01B	Northwest portion of the property	35.05-feet	16.795-feet	2,135.67-feet	2,118.875-feet	No odor or sheen noted.
MW-02	Within fenced area along east border	~25-feet	–	2,133.07 feet	–	No measurable water. Well not sampled.
MW-03	Southwest of the current fueling island	24.25-feet	13.312-feet	2,134.44-feet	2,121.128-feet	Petroleum odor and sheen identified during sampling.
MW-04	South of the current fueling island	25.00-feet	21.995-feet	2,133.96-feet	2,111.965-feet	Mild petroleum odor noted. No sheen identified.
MW-05	*Decommissioned*					
MW-06	Near the west driveway entrance	35.21-feet	33.735-feet	2,134.16-feet	2,100.425-feet	No odor or sheen noted. Well sampled utilizing bailer.
MW-07	South border of the property	~45-feet	–	2,133.61 feet	–	No measurable water. Well not sampled.
MW-08	South of the storage building, west property border	45.20-feet	43.075-feet	2,132.67-feet	2,089.595-feet	No odor or sheen noted. Well sampled utilizing bailer.
MW-09	Northeast site driveway	35.085-feet	34.612-feet	2,132.85-feet	2,098.238-feet	No odor or sheen noted. Well sampled utilizing bailer.
MW-10	Northeastern portion of property	25.00-feet	22.190-feet	2,131.88-feet	2,109.69-feet	Petroleum odor noted. No sheen identified. Well purging supplemented with bailer.

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Project Name/Number: Sportland Wells/12698

SAMPLE No. 112012-01B
Date Collected 11/20/12 Time 10:35
Weather cloudy, cold Collectors K.Williams, R.Mathews

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-01B

Depth to Water (ft): 16.795 Time: 8:20 Measured from: ❑ Top of protective casing ✓ Top of well casing

Well Casing Type: ✓ PVC ❑ Stainless Steel ❑ Fiberglass Casing Diameter: 2-inches

Well Condition: Secure (✓ Yes / ❑ No) Damaged (❑ Yes / ✓ No) Describe: _____

Begin Purge: Date/Time: 11/20/12 8:40 Casing Volume (gal): 3.10

End Purge: Date/Time: 11/20/12 10:35 Purge Volume (gal): 9.30

Total Depth of Well (ft. below top of well casing): 35.05

Purge Volume Calculation: 35.05–16.795 = 18.26, 18.26x0.17 = 3.10, 3.10x3 = 9.30

VOLUME OF SCHEDULE 40 PVC PIPE
Casing Volume (gal) = $\pi r^2 h * 7.48$
Where: π = 3.1416; r = radius in ft.; h = ft. of water column

Diameter (inch)	O.D. (inch)	I.D. (inch)	Volume (gal/linear ft.)	Wt. Water (lbs/linear ft.)
2	2.375	2.067	0.17	1.45
4	4.500	4.026	0.66	5.51

Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~9.75

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
9:10	3.00	6.94	55.8/13.2	630	See comments below
9:49	6.00	6.79	55.8/13.2	630	Same as above
10:34	9.00	6.82	55.8/13.2	630	Same as above

SAMPLE COLLECTION DATA

Sample Collected With: ❑Bailer ✓ Pump/Pump Type Peristaltic Dedicated Tubing (✓ Yes / ❑ No)

Made of: ❑ Stainless Steel ✓ PVC ❑ Teflon ❑Polyethylene ❑ Other _____

Decon Procedure: ✓ Alconox Wash (1) ❑ Tap Rinse ✓ DI Water (2) ✓ Discharge water (3) ❑ Other _____

Replicate	pH	Temperature (ºF/ºC)	Conductivity	Other
1	6.82	55.8/13.2	630	
2	6.83	55.8/13.2	630	
3	6.82	55.8/13.2	630	
4	6.82	55.8/13.2	630	

pH Meter: pH Tester 2 Cond. Meter: EC Tester I Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.02 at 15.3 ºC Before Sample Collection

Conductivity meter reads 370 at 15.6 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample was light brown with no silt, and no odor

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
4	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl) ❑ No	VOC, NWTPH-Gx; BTEX, CH_4
1	1L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl) ❑ No	NWTPH-Dx Ext.
1	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	✓ Yes (HNO_3) ❑ No	Total Pb & Mn
1	0.5L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3) ❑ No	Dissolved Pb & Mn
1	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes ( ) ✓ No	Ethanol
2	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes ( ) ✓ No	Nitrate, Sulfate, Alkalinity

Duplicate Sample No(s). _____

Comments: Purge water was light brown with no silt, and a mild odor. Light brown color cleared with subsequent purging.

Signature Kendra J. Williams Date 11/20/12

Fulcrum Environmental Consulting, Inc.
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Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Sportland Wells/12698

SAMPLE No. 112012-03
Date Collected 11/20/12 Time 13:04
Weather cloudy, cold Collectors K.Williams, R.Mathews

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-03

Depth to Water (ft): 13.312 Time: 12:15 Measured from: ❑ Top of protective casing ✓ Top of well casing

Well Casing Type: ✓ PVC ❑ Stainless Steel ❑ Fiberglass Casing Diameter: 2-inches

Well Condition: Secure (✓ Yes / ❑ No) Damaged (❑ Yes / ✓ No) Describe: _____

Begin Purge: Date/Time: 11/20/12 12:15 Casing Volume (gal): 1.90

End Purge: Date/Time: 11/20/12 13:04 Purge Volume (gal): 5.70

Total Depth of Well (ft. below top of well casing): 24.25

Purge Volume Calculation: 24.25–13.312 = 10.94, 10.94x0.17 = 1.9, 1.9x3 = 5.70

VOLUME OF SCHEDULE 40 PVC PIPE
Casing Volume (gal) = $\pi r^2 h$ * 7.48
Where: π = 3.1416; r = radius in ft.; h = ft. of water column

Diameter (inch)	O.D. (inch)	I.D. (inch)	Volume (gal/linear ft.)	Wt. Water (lbs/linear ft.)
2	2.375	2.067	0.17	1.45
4	4.500	4.026	0.66	5.51

Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~7

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
12:30	2.00	6.65	56.1/13.4	340	See comments below
12:47	4.00	6.66	55.4/13.0	340	Same as above
13:09	6.00	6.71	55.8/13.2	340	Same as above

SAMPLE COLLECTION DATA

Sample Collected With: ❑Bailer ✓ Pump/Pump Type Peristaltic Dedicated Tubing (✓ Yes / ❑ No)

Made of: ❑ Stainless Steel ✓ PVC ❑ Teflon ❑Polyethylene ❑ Other _____

Decon Procedure: ✓ Alconox Wash (1) ❑ Tap Rinse ✓ DI Water (2) ✓ Discharge water (3) ❑ Other _____

Replicate	pH	Temperature (ºF/ºC)	Conductivity	Other
1	6.69	55.8/13.2	340	
2	6.71	55.8/13.2	340	
3	6.70	55.8/13.2	340	
4	6.69	55.8/13.2	340	

pH Meter: pH Tester 2 Cond. Meter: EC Tester I Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.05 at 10.3 ºC Before Sample Collection

Conductivity meter reads 320 at 10.6 ºC Before Sample Collection

Ferrous Iron Level: ~6 ppm ✓ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample was clear, no odor, no particulate

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
4	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl)❑ No	VOC, NWTPH-Gx; BTEX, CH_4
1	1L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl) ❑ No	NWTPH-Dx Ext.
1	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	✓ Yes (HNO_3)❑ No	Total Pb & Mn
1	0.5L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)❑ No	Dissolved Pb & Mn
1	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Ethanol
2	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Nitrate, Sulfate, Alkalinity

Duplicate Sample No(s). Duplicate sample collected labeled as MW-11

Comments: Purge water was gray with gray/black particulates, oil sheen, and odor. Purge water cleared with subsequent purging.

Signature Kendra J. Williams Date 11/20/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Sportland Wells/12698

SAMPLE No. 112012-04
Date Collected 11/20/12 Time 14:35
Weather cloudy, cold Collectors K.Williams, R.Mathews

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-04

Depth to Water (ft): 21.995 Time: 14:10 Measured from: ❑ Top of protective casing ✓ Top of well casing

Well Casing Type: ✓ PVC ❑ Stainless Steel ❑ Fiberglass Casing Diameter: 2-inches

Well Condition: Secure (✓ Yes / ❑ No) Damaged (❑ Yes / ✓ No) Describe: _____

Begin Purge: Date/Time: 11/20/12 14:05 Casing Volume (gal): 0.51

End Purge: Date/Time: 11/20/12 14:34 Purge Volume (gal): 1.53

Total Depth of Well (ft. below top of well casing): 25.00

Purge Volume Calculation: 25.00–21.995 = 3.01, 3.01x0.17 = .51, .51x3 = 1.53

VOLUME OF SCHEDULE 40 PVC PIPE
Casing Volume (gal) = $\pi r^2 h * 7.48$
Where: π = 3.1416; r = radius in ft.; h = ft. of water column

Diameter (inch)	O.D. (inch)	I.D. (inch)	Volume (gal/linear ft.)	Wt. Water (lbs/linear ft.)
2	2.375	2.067	0.17	1.45
4	4.500	4.026	0.66	5.51

Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~2

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
14:15	0.50	6.34	54.5/12.5	340	See comments below
14:23	1.00	6.36	54.1/12.3	340	Same as above
14:34	1.50	6.38	54.0/12.2	340	Same as above

SAMPLE COLLECTION DATA

Sample Collected With: ❑Bailer ✓ Pump/Pump Type Peristaltic Dedicated Tubing (✓ Yes / ❑ No)

Made of: ❑ Stainless Steel ✓ PVC ❑ Teflon ❑Polyethylene ❑ Other _____

Decon Procedure: ✓ Alconox Wash (1) ❑ Tap Rinse ✓ DI Water (2) ✓ Discharge water (3) ❑ Other _____

Replicate	pH	Temperature (ºF/ºC)	Conductivity	Other
1	6.38	54.5/12.5	340	
2	6.39	54.5/12.5	340	
3	6.39	54.5/12.5	340	
4	6.39	54.3/12.4	340	

pH Meter: pH Tester 2 Cond. Meter: EC Tester I Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.00 at 14.5 ºC Before Sample Collection

Conductivity meter reads 360 at 14.4 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample was clear, no odor, no particulate

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
4	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl)❑ No	VOC, NWTPH-Gx; BTEX, CH_4
1	1L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl) ❑ No	NWTPH-Dx Ext.
1	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	✓ Yes (HNO_3)❑ No	Total Pb & Mn
1	0.5L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)❑ No	Dissolved Pb & Mn
1	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Ethanol
2	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Nitrate, Sulfate, Alkalinity

Duplicate Sample No(s). _____

Comments: Purge water was light brown with brown and black particulates, mild odor and no sheen. Water cleared with subsequent purging.

Signature Kendra J. Williams Date 11/20/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Sportland Wells/12698

SAMPLE No. 112112-06
Date Collected 11/21/12 Time 13:30
Weather cloudy, cold Collectors K.Williams, R.Mathews

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-06

Depth to Water (ft): 33.735 Time: 12:15 Measured from: ❑ Top of protective casing ✓ Top of well casing

Well Casing Type: ✓ PVC ❑ Stainless Steel ❑ Fiberglass Casing Diameter: 2-inches

Well Condition: Secure (✓ Yes / ❑ No) Damaged (❑ Yes / ✓ No) Describe: _____

Begin Purge: Date/Time: 11/21/12 12:57 Casing Volume (gal): 0.25

End Purge: Date/Time: 11/21/12 13:27 Purge Volume (gal): 0.75

Total Depth of Well (ft. below top of well casing): 35.21

Purge Volume Calculation: 35.21-33.735 = 1.48, 1.48x0.17 = 0.25, 0.25x3 = 0.75

VOLUME OF SCHEDULE 40 PVC PIPE
Casing Volume (gal) = $\pi r^2 h * 7.48$
Where: π = 3.1416; r = radius in ft.; h = ft. of water column

Diameter (inch)	O.D. (inch)	I.D. (inch)	Volume (gal/linear ft.)	Wt. Water (lbs/linear ft.)
2	2.375	2.067	0.17	1.45
4	4.500	4.026	0.66	5.51

Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~1

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
13:08	0.25	6.87	48.7/9.4	330	See comments below
13:17	0.50	7.07	48.4/10.2	330	Same as above
13:27	0.75	7.27	48.6/10.1	330	Same as above

SAMPLE COLLECTION DATA

Sample Collected With: ✓Bailer ❑ Pump/Pump Type _____ Dedicated Tubing (❑ Yes / ✓ No)

Made of: ❑ Stainless Steel ✓ PVC ❑ Teflon ❑Polyethylene ❑ Other _____

Decon Procedure: ✓ Alconox Wash (1) ❑ Tap Rinse ✓ DI Water (2) ✓ Discharge water (3) ❑ Other _____

Replicate	pH	Temperature (ºF/ºC)	Conductivity	Other
1				
2				
3				
4				

pH Meter: pH Tester 2 Cond. Meter: EC Tester I Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.09 at 6.3 ºC Before Sample Collection

Conductivity meter reads 290 at 6.3 ºC Before Sample Collection

Ferrous Iron Level: ~2 ppm ✓ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample was light brown with brown particulates, no odor and no sheen

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
4	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl) ❑ No	VOC, NWTPH-Gx; BTEX, CH_4
1	1L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl) ❑ No	NWTPH-Dx Ext.
1	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	✓ Yes (HNO_3) ❑ No	Total Pb & Mn
1	0.5L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3) ❑ No	Dissolved Pb & Mn
1	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes ( ) ✓ No	Ethanol
2	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes ( ) ✓ No	Nitrate, Sulfate, Alkalinity

Duplicate Sample No(s). _____

Comments: Purge water was light brown with brown particulates, no odor and no sheen. A bailer was used for purging and sampling. Replicates of field parameters were not collected due to low water level in the well.

Signature Kendra J. Williams Date 11/21/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Sportland Wells/12698

SAMPLE No. 112112-08
Date Collected 11/21/12 Time 11:15
Weather cloudy, cold Collectors K.Williams, R.Mathews

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-08

Depth to Water (ft): 43.075 Time: 11:15 Measured from: ❑ Top of protective casing ✓ Top of well casing

Well Casing Type: ✓ PVC ❑ Stainless Steel ❑ Fiberglass Casing Diameter: 2-inches

Well Condition: Secure (✓ Yes / ❑ No) Damaged (❑ Yes / ✓ No) Describe: _____

Begin Purge: Date/Time: 11/21/12 11:20 Casing Volume (gal): 0.36

End Purge: Date/Time: 11/21/12 11:45 Purge Volume (gal): 1.08

Total Depth of Well (ft. below top of well casing): 45.20

Purge Volume Calculation: 45.20-43.075 = 2.13, 2.13x0.17 = 0.36, 0.36x3 = 1.08

VOLUME OF SCHEDULE 40 PVC PIPE
Casing Volume (gal) = $\pi r^2 h * 7.48$
Where: π = 3.1416; r = radius in ft.; h = ft. of water column

Diameter (inch)	O.D. (inch)	I.D. (inch)	Volume (gal/linear ft.)	Wt. Water (lbs/linear ft.)
2	2.375	2.067	0.17	1.45
4	4.500	4.026	0.66	5.51

Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~2

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
11:32	0.50	6.95	48.7/9.3	200	See comments below
11:40	1.00	6.97	48.4/9.1	190	Same as above
11:45	1.50	7.09	48.6/9.2	190	Same as above

SAMPLE COLLECTION DATA

Sample Collected With: ✓Bailer ❑ Pump/Pump Type _____ Dedicated Tubing (❑ Yes / ✓ No)

Made of: ❑ Stainless Steel ✓ PVC ❑ Teflon ❑Polyethylene ❑ Other _____

Decon Procedure: ✓ Alconox Wash (1) ❑ Tap Rinse ✓ DI Water (2) ✓ Discharge water (3) ❑ Other _____

Replicate	pH	Temperature (ºF/ºC)	Conductivity	Other
1	7.05	48.6/9.2	200	
2	7.02	48.6/9.2	200	
3	7.01	48.6/9.2	200	
4	7.01	48.6/9.2	200	

pH Meter: pH Tester 2 Cond. Meter: EC Tester I Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.06 at 11.8 ºC Before Sample Collection

Conductivity meter reads 350 at 13.3 ºC Before Sample Collection

Ferrous Iron Level: ~2 ppm ✓ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample was light brown with brown particulates, no odor and no sheen

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
4	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl)❑ No	VOC, NWTPH-Gx; BTEX, CH_4
1	1L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl) ❑ No	NWTPH-Dx Ext.
1	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	✓ Yes (HNO_3)❑ No	Total Pb & Mn
1	0.5L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)❑ No	Dissolved Pb & Mn
1	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Ethanol
2	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Nitrate, Sulfate, Alkalinity

Duplicate Sample No(s). _____

Comments: Purge water was light brown with brown particulates, no odor and no sheen. A bailer was used for purging and sampling.

Signature Kendra J. Williams Date 11/21/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Sportland Wells/12698

SAMPLE No. 112112-09
Date Collected 11/21/12 Time 15:30
Weather cloudy, cold Collectors K.Williams, R.Mathews

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-09

Depth to Water (ft): 34.612 Time: 13:50 Measured from: ❑ Top of protective casing ✓ Top of well casing

Well Casing Type: ✓ PVC ❑ Stainless Steel ❑ Fiberglass Casing Diameter: 2-inches

Well Condition: Secure (✓ Yes / ❑ No) Damaged (❑ Yes / ✓ No) Describe: _____

Begin Purge: Date/Time: 11/21/12 14:00 Casing Volume (gal): 0.08

End Purge: Date/Time: 11/21/12 14:10 Purge Volume (gal): 0.24

Total Depth of Well (ft. below top of well casing): 35.085

Purge Volume Calculation: 35.085-34.612 = 0.473, 0.473x0.17 = 0.08, 0.08x3 = 0.24

VOLUME OF SCHEDULE 40 PVC PIPE
Casing Volume (gal) = $\pi r^2 h * 7.48$
Where: π = 3.1416; r = radius in ft.; h = ft. of water column

Diameter (inch)	O.D. (inch)	I.D. (inch)	Volume (gal/linear ft.)	Wt. Water (lbs/linear ft.)
2	2.375	2.067	0.17	1.45
4	4.500	4.026	0.66	5.51

Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~1

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
14:09		7.04	46.6/8.1	420	See comments below
14:10		7.15	46.6/8.1	420	Same as above

SAMPLE COLLECTION DATA

Sample Collected With: ✓Bailer ❑ Pump/Pump Type _____ Dedicated Tubing (❑ Yes / ✓ No)

Made of: ❑ Stainless Steel ✓ PVC ❑ Teflon ❑Polyethylene ❑ Other _____

Decon Procedure: ✓ Alconox Wash (1) ❑ Tap Rinse ✓ DI Water (2) ✓ Discharge water (3) ❑ Other _____

Replicate	pH	Temperature (ºF/ºC)	Conductivity	Other
1				
2				
3				
4				

pH Meter: pH Tester 2 Cond. Meter: EC Tester I Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 6.98 at 3.4 ºC Before Sample Collection

Conductivity meter reads 270 at 3.8 ºC Before Sample Collection

Ferrous Iron Level: ~2 ppm ✓ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample was light brown with brown particulates, no odor and no sheen

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
4	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl) ❑ No	VOC, NWTPH-Gx; BTEX, CH_4
1	1L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl) ❑ No	NWTPH-Dx Ext.
1	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	✓ Yes (HNO_3) ❑ No	Total Pb & Mn
1	0.5L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3) ❑ No	Dissolved Pb & Mn
1	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes ( ) ✓ No	Ethanol
2	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes ( ) ✓ No	Nitrate, Sulfate, Alkalinity

Duplicate Sample No(s). _____

Comments: Purge water was light brown with brown particulates, no odor and no sheen. A bailer was used for purging and sampling. Replicates of field parameters were not collected due to low water level in the well.

Signature Kendra J. Williams Date 11/21/12

Fulcrum Environmental Consulting, Inc.
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(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Sportland Wells/12698

SAMPLE No. 112112-10
Date Collected 11/21/12 Time 15:30
Weather sunny, cold Collectors K.Williams, R.Mathews

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-10

Depth to Water (ft): 22.190 Time: 10:24 Measured from: ❑ Top of protective casing ✓ Top of well casing

Well Casing Type: ✓ PVC ❑ Stainless Steel ❑ Fiberglass Casing Diameter: 2-inches

Well Condition: Secure (✓ Yes / ❑ No) Damaged (❑ Yes / ✓ No) Describe: _____

Begin Purge: Date/Time: 11/21/12 14:10 Casing Volume (gal): 2.20

End Purge: Date/Time: 11/21/12 15:20 Purge Volume (gal): 6.60

Total Depth of Well (ft. below top of well casing): 35.13

Purge Volume Calculation: 35.13-22.19, = 12.94, 12.94x0.17 = 2.20, 2.20x3 = 6.60

VOLUME OF SCHEDULE 40 PVC PIPE
Casing Volume (gal) = $\pi r^2 h * 7.48$
Where: π = 3.1416; r = radius in ft.; h = ft. of water column

Diameter (inch)	O.D. (inch)	I.D. (inch)	Volume (gal/linear ft.)	Wt. Water (lbs/linear ft.)
2	2.375	2.067	0.17	1.45
4	4.500	4.026	0.66	5.51

Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~7

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
14:20	2.25	7.01	48.6/9.2	300	See comments below
15:11	4.50	6.83	47.0/8.3	300	Same as above
15:19	6.75	6.79	45.7/7.6	300	Same as above

SAMPLE COLLECTION DATA

Sample Collected With: ❑Bailer ✓ Pump/Pump Type Peristaltic Dedicated Tubing (✓ Yes / ❑ No)

Made of: ❑ Stainless Steel ✓ PVC ❑ Teflon ❑Polyethylene ❑ Other _____

Decon Procedure: ✓ Alconox Wash (1) ❑ Tap Rinse ✓ DI Water (2) ✓ Discharge water (3) ❑ Other _____

Replicate	pH	Temperature (ºF/ºC)	Conductivity	Other
1	6.79	45.5/7.5	300	
2	6.78	45.7/7.6	300	
3	6.78	45.7/7.6	300	
4	6.78	45.7/7.6	300	

pH Meter: pH Tester 2 Cond. Meter: EC Tester I Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 6.98 at 3.4 ºC Before Sample Collection

Conductivity meter reads 270 at 3.8 ºC Before Sample Collection

Ferrous Iron Level: ~2 ppm ✓ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample was clear, no odor, no particulate

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
4	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl)❑ No	VOC, NWTPH-Gx; BTEX, CH_4
1	1L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (HCl) ❑ No	NWTPH-Dx Ext.
1	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	✓ Yes (HNO_3)❑ No	Total Pb & Mn
1	0.5L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)❑ No	Dissolved Pb & Mn
1	40mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Ethanol
2	0.5L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Nitrate, Sulfate, Alkalinity

Duplicate Sample No(s). _____

Comments: Purge water was clear with brown particulates, strong odor and no sheen. Purging began with the peristaltic pump, due to time restraint purging was assisted with use of a manual bailer. Samples collected using the peristaltic pump.

Signature Kendra J. Williams Date 11/21/12