FULCRUM
environmental consulting

REMEDIAL SITE INVESTIGATION & CHARACTERIZATION REPORT

IPG #G120098
400 East Mountain View Avenue
Ellensburg, Washington

Project Number: 11570

August 14, 2012

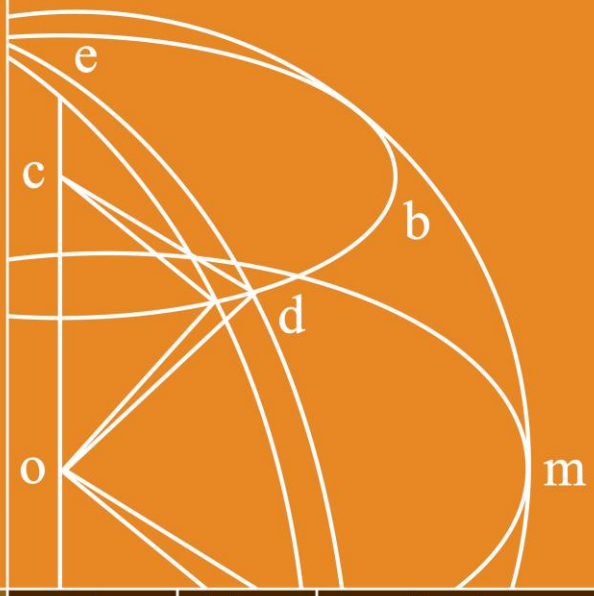
Prepared for:

Kittitas Valley Fire & Rescue (Station 21)
Attn: John Sinclair
2020 Vantage Highway
Ellensburg, Washington 98926

Traho Architects, Inc.
Attn: Nancy Charron
1460 North 16th Avenue, Suite A
Yakima, Washington 98902

Prepared by:

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



Report Title: Site Investigation and Characterization Report

Project Number: 11570

Date: August 14, 2012

Site: 400 East Mountain View Avenue, Ellensburg, Washington

Prepared for: Kittitas Valley Fire & Rescue (Station 21)
Attn: John Sinclair
2020 Vantage Highway
Ellensburg, Washington 98926

Traho Architects, Inc.
Attn: Nancy Charron
1460 North 16th Avenue, Suite A
Yakima, Washington 98902

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:** 8/14/2012

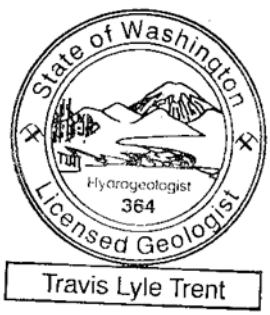
Jeremy M. Lynn, P.G., L.H.G. Geologist
Fulcrum Environmental Consulting, Inc.

Reviewed by: _____ **Date:** 8/14/2012

Ryan K. Mathews, CIH, CHMM, Principal
Fulcrum Environmental Consulting, Inc.

Reviewed by: _____ **Date:** 8/14/2012

Travis L. Trent, P.G, L.H.G, Principal
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.

TABLE OF CONTENTS

TABLES

APPENDICES

Appendix D Monitoring Well Installation

1. Health and Safety Plan – Groundwater Monitoring
2. Site Observation Reports
3. Site Photographs
4. Well Logs (Driller's Logs)

Appendix E Groundwater Monitoring Events

1. March 12, 2012 Groundwater Monitoring Event Summary
2. April 30, 2012 Groundwater Monitoring Event Summary
3. June 7, 2012 Groundwater Monitoring Well Summary
4. Groundwater Field Data Summary Tables
5. Laboratory Results Summary Table

Appendix F Domestic Water Well Sampling Event

Appendix G MTCA Method B Site-Specific Cleanup Level Calculations

Appendix H Remedial Action Alternative

1. Remedial Action Alternative Summary Table
2. Remedial Cost Summary

EXECUTIVE SUMMARY

The Mountain View Brownfield site is located at 400 East Mountain View Avenue in Ellensburg, Washington (subject property). Formerly referred to as Mackner's Transport, the site is currently being evaluated for beneficial reuse and redevelopment under Washington State Department of Ecology's (Ecology) Integrated Planning Grant (IPG) #G120098. The IPG is a tool by which Ecology can support the evaluation of identified brownfield sites for potential redevelopment by or through the assistance of local governments or districts. This IPG was awarded to the Kittitas County Fire District #2 (commonly referred to as Kittitas Valley Fire & Rescue (KVFR)) to assist in evaluation of the property for potential acquisition and redevelopment as a fire station, onsite firefighter living quarters, administrative offices, and public use spaces.

Site concerns identified during completion of a Phase I Environmental Site Assessment as a portion of the IPG identified the presence of potential environmental concerns including three Recognized Environmental Conditions: historic underground storage tanks, reported groundwater contamination, and heavily stained surface soils. Also identified were Risk Management Concerns, including, but not limited to general parking of trucks and equipment at the site, and solid waste and universal waste. Fulcrum prepared a Sampling and Analysis Plan/Quality Assurance Project Plan (SAP/QAPP) and associated Health and Safety Plans for the remedial investigation. These plans were reviewed by Ecology prior to onsite services.

Remedial investigation consisted of excavated trenches to assess soil conditions and groundwater monitoring well installation to assess groundwater conditions. Laboratory analysis has confirmed the presence of diesel and heavy oil range petroleum hydrocarbons in site soils.

A review of Model Toxic Control Act (MTCA) Method A cleanup levels and calculated site-specific Method B cleanup levels, identified MTCA Method A cleanup levels to represent a conservative remedial standard (Ecology, 2007a and Ecology, 207b). Based on the use of MTCA Method A cleanup levels, approximately 1,250 to 1,650 cubic yards of petroleum contaminated soil (PCS) were identified at the site. The majority of PCS is located beneath a 4 to 4.5-foot layer of overburden.

Groundwater monitoring completed on March 12, 2012 identified the presence of diesel range petroleum hydrocarbons in the first quarterly groundwater monitoring event at 697 micrograms per liter (µg/L) in Monitoring Well 2, located within an area where three underground storage tanks (UST) were formerly present. Two additional groundwater monitoring events, completed on April 30, 2012 and June 7, 2012, identified diesel range petroleum hydrocarbons to be at 189 µg/L and 220 µg/L, respectively.

Proposed redevelopment of the site includes construction of a regional fire station, associated administrative offices, crew living quarters, and public use spaces. Due to site land use restrictions associated with Wilson Creek, the proposed building location is present directly over the identified PCS. Preferred remedial strategy is the excavation and offsite disposal or treatment of contaminated soil and completion of groundwater monitoring to confirm absence of residual groundwater contamination.

1.0 INTRODUCTION

The Mountain View Brownfield site is located at 400 East Mountain View Avenue in Ellensburg, Washington (subject property). Formerly referred to as Mackner's Transport, the site is currently being evaluated for beneficial reuse and redevelopment under Washington State Department of Ecology's (Ecology) Integrated Planning Grant (IPG) #G120098. The IPG is a tool by which Ecology can support the evaluation of identified brownfield sites for potential redevelopment by or through the assistance of local governments or districts. This IPG was awarded to the Kittitas County Fire District #2 (commonly referred to as Kittitas Valley Fire & Rescue (KVFR)) to assist in evaluation of the property for potential acquisition and redevelopment as a fire station, onsite firefighter living quarters, administrative offices, and public use spaces. See Appendix A, Figure 1 for a map identifying the general site location.

The Mountain View Brownfield site has been listed on Ecology's confirmed and suspected contaminated sites list (CSCSL) due to previously documented areas of contaminated soils and groundwater within the boundaries of the subject property. Fulcrum's investigation activities were completed to define the extents of soil and groundwater impact to facilitate property purchase and sales agreement, remedial action planning, and proposed site re-development activities.

Site services were provided by Jeremy Lynn, Professional Geologist (PG); Peter Snider, Environmental Technician; and Ryan Mathews, Certified Industrial Hygienist (CIH) and Certified Hazardous Materials Manager (CHMM), all with Fulcrum.

2.0 SITE DESCRIPTION AND BACKGROUND

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

- 908633
- 888633
- 898633
- 198633
- 218633

The areas of concern are located fully within the boundaries of the subject property parcel boundaries. For the purposes of the investigation and regulatory review, the site is identified as legal boundaries of the subject property.

2.1 Site Description

The Mountain View Brownfield site is located south of East Mountain View Avenue in the southern portion of the City of Ellensburg. Historically, while associated with the city, the site has been outside of the city's incorporated area and under Kittitas County jurisdiction. The site is bordered on the east by Wilson Creek, an impaired surface water resource. Mixed residential and commercial land use is present west of the site. Undeveloped property, zoned for commercial use, is present along the south property boundary. See Appendix A, Figure 2 for general site features.

Presently consisting of five tax parcels, the site was first developed in the 1950s as an agricultural business associated with local hay production. At the time of first site development, an adjacent offsite metal barn was the center of operations. In the late 1950s and early 1960s, the business operations expanded east and north to encompass the Mountain View Brownfield site; this expansion included three pole buildings that were used primarily for covered hay storage. One groundwater well, shared by both the site users and at least one adjacent residential parcel, is present at the site. A well log has not been identified for the well and the depth and details of construction have not been established.

With construction of a scale house and residential structure (scale house/residence), site business operations expanded to include an independent scale house. The scale house and site operations were reported to be regionally important to hay farmers and other agricultural producers. The scale house services closed within the past approximately 10 years and the residence is not currently occupied. Current site operations include hay storage and a diesel repair shop.

At some time, fuel service was provided at the site. Review of the Ecology site file indicates that in 1991, three underground storage tanks (UST), including one gasoline and two diesel fuel tanks, and associated dispensers were known to be present at the site as indicated in a Site Investigation report by Ecology (Ecology, 1991). In the late 1990s or early 2000s, the tanks were reportedly excavated and removed by a local contractor. No site assessment services or other environmental investigation are known to have been completed at the time.

Subsequently in 2005, a local investor considered acquisition of the site for redevelopment. Limited investigation was completed by PLSA, Inc. (PLSA, 2005). The limited investigation identified one additional unknown UST associated with the diesel repair shop and reported the presence of petroleum impacted site soils and groundwater. Investigation methods were not sufficient to conclude if contamination exceeded applicable Model Toxics Control Act (MTCA) regulatory thresholds.

2.2 Areas of Investigation

Initial site activities have consisted of a review of existing site investigation reports, initial interviews with the diesel mechanic operating at the site, and an initial site walk. Previous site investigation reports identified include the Ecology, 1991 and PLSA, 2005. Both records are available in Ecology's site file. In addition, Fulcrum has completed the historical research associated with an ASTM E1527-05 and U.S. Environmental Protection Agency (EPA) compliant *All Appropriate Inquiries* Phase I Environmental Site Assessment for the site (Fulcrum, 2012).

The Phase I ESA identified three Recognized Environmental Conditions:

- Former Underground Storage Tanks
- Reported Groundwater Contamination
- Heavily Stained Surface Soils

Also identified were two Risk Management Concerns associated with potential for site contamination:

- General Parking of Trucks and Equipment at the Site
- Solid Waste and Universal Waste

A review of each of these five concerns follows.

2.3 Underground Storage Tanks

A total of four underground storage tanks and associated dispensers are known to have been present at the site during the 1991 and 2005 investigations completed by Ecology and PLSA respectively, all of which are no longer in use. Three of the USTs were removed prior to 2005 and the fourth UST was removed during this investigation. No information was identified during this investigation to suggest that site USTs were closed consisted with WAC 173-360 or that a UST Site Assessment was completed as required (Ecology, 2003). See Appendix A, Figure 3 for UST locations.

Three of the tanks, UST-01, UST-02, and UST-03 were located on the east side of the scale house/residence building. The approximate location is shown in site photographs collected during a 1991 Ecology site inspection (Ecology, 1991). The UST-04 location is at the northwest corner of the diesel repair shop building.

- UST-01 (Gasoline Fuel) – Identified in 1991 Ecology Site Visit as a 500 gallon, 20 year old UST - Tank not in service in 1991.
- UST-02 (Diesel Fuel) – Identified in 1991 Ecology Site Visit as a 5,000 gallon, 15 year old UST.
- UST-03 (Diesel Fuel) – Identified in 1991 Ecology Site Visit as a 2,000 gallon, 18 year old UST.
- UST-04 (Fuel Oil) – Identified during 2005 PLSA Inspection, the age, condition, or size of the UST was not indicated in the inspection report.

During completion of this site investigation, UST-04 was identified and removed from the ground to facilitate soil sampling. The tank was identified in poor condition and had an approximate size of 1,000-gallons. Sludge was identified in the tank and was sampled during this investigation.

2.4 Reported Groundwater Contamination

In 2005, PLSA reported collection of a "Groundwater" sample during site investigation activities (PLSA, 2005). The sample appeared to consist of "pit water," a sampling method that is historically unreliable. However, the laboratory reported a concentration of 130,000 ug/L of heating oil range petroleum hydrocarbons at an excavation near the scale house/residence (excavation associated with UST 02 & 03). Laboratory quality assurance/quality control further suggest that the result may not be reliable, as the result reports that the detection of oil was a "gasoline range hydrocarbon" and the laboratory could not provide sample gas chromatography results upon request by Fulcrum in December 2011.

In the report (PLSA, 2005), the author opines that the groundwater sample may be within the plume of contaminated groundwater sourced independent of the known USTs. Specific basis for this opinion or additional information was not provided. No other sources of petroleum hydrocarbon use, such as a fuel oil tank associated with the residence, were observed. Regardless, existing data in the public record suggests that groundwater at the site may be contaminated with petroleum hydrocarbons.

2.5 Heavily Stained Surface Soils

During the initial site walk, Fulcrum representatives observed the presence of heavily stained site soils. Staining appeared to be the result of poor housekeeping associated with used vehicle and equipment parts, and storage of used oil and other vehicle and equipment fluids. Stained soils were primarily located on the east side of the diesel repair shop building and appeared to be related to both historic and current site use by the diesel repair shop. See Appendix A, Figure 3 for stained soil areas.

2.6 General Parking of Trucks and Equipment at the Site

Based on historical aerial photographs, primary areas of vehicle and equipment parking have been located at the northwest corner of the site, the northeast corner of the site, and between the scale house/residence and the diesel repair shop building. While no areas of significant petroleum staining greater than 3 square feet in an area have been identified, potential exists for historic releases to the gravel covered areas of the site used for vehicle and equipment parking to be impacted by petroleum releases.

2.7 Solid Waste and Universal Wastes

Items such as tires, aerosol cans, etc. were identified at the site. No visual evidence of a release to the environment or other factors indicative of a release was noted. Presence of solid and universal wastes is best managed as a component of general site housekeeping.

3.0 SCOPE OF SERVICES

Fulcrum was selected as a portion of the IPG team to provide environmental consulting and investigation services.

Initial site activities consisted of a site inspection and historical research consistent with an ASTM E1527-05 Phase I Environmental Site Assessment (ESA). During site inspection, Fulcrum's staff observed the locations of the former USTs, noted heavily stained soils east of the diesel repair shop, and other less significant environmental concerns. Fulcrum's Phase I ESA is presented under separate cover.

Contaminants of concern include total petroleum hydrocarbons, volatile organic compounds, and heavy metals. In addition, per Ecology criteria, assessment included evaluation of petroleum stained soils for polyaromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) from

areas where the generation of petroleum products may be mixed with other vehicle or equipment fluids. This data enables Fulcrum to assist KVFR in establishing extent of contaminant impact, potential liability associated with site acquisition, redevelopment options and remedial strategies, and remediation costs. In addition, this investigation provides additional information to supplement the limited understanding of site contamination.

The primary goal of this project is to provide investigation for the presence and extents of petroleum hydrocarbon impact to site soils and groundwater in compliance with Ecology's Model Toxic Control Act (MTCA) guidance criteria (Ecology, 2007a).

Tasks to meet this objective are:

- Completed a site soil investigation of the former underground storage tank locations and the present areas of petroleum stained soils.
- Installed groundwater monitoring wells in one upgradient and select downgradient locations.
- Completed three groundwater monitoring events for contaminants identified in site soils.
- Prepared in-progress reporting and a final report for the project.

Fulcrum prepared a site-specific sampling and analysis plan (SAP)/quality assurance project plan (QAPP), consistent with Ecology's format, and a site-specific health and safety plan (HSP) (Ecology, 2007a). See Appendix B for the final site-specific SAP/QAPP. See Appendix C.1 and D.1 for copies of the site-specific HSPs for the soil and groundwater investigations, respectively.

To facilitate site investigation activities, Fulcrum subcontracted the following companies:

- Utilities Plus, LLC. was retained to complete private, third-party utility locate services.
- Belsaas & Smith Construction, Inc. of Ellensburg, Washington to complete soil excavation activities.
- Cascade Drilling, Inc. of Woodinville, Washington to complete environmental drilling and monitoring well installation.
- Fremont Analytical, Inc. of Seattle, Washington to complete laboratory analysis.
- Cruse & Associates, Inc. of Ellensburg, Washington, an IPG team member, completed survey services for the project, including survey location of all samples and establishing elevations for all groundwater monitoring wells.

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 Kittitas Basin.

The Kittitas Basin encompasses the topographic valley bordered by the Wenatchee Mountains to the north, Manashtash Anticline to the south and southwest, and the Boylton Mountains to the east. The total area of the basin is approximately 270-square miles. The basin fill deposit stratigraphy is divided into three hydrogeologic subunits. The upper unit, limited to the Yakima River floodplain, consists of alluvial deposits and ranges in thickness from 0 to 100-feet. The second unit contains unconsolidated deposits of loess, alluvial fan, glacial, terrace and Thorp gravel with a thickness range of 0 to 790-feet. The third unit is limited to the northern portion of the basin and consists predominately of Ellensburg Formation and similar continental sedimentary deposits with a thickness range of 0 to 2,040-feet. The total basin thickness ranges from 0 to 2,120-feet.

4.2 Local Geologic Setting

The site is located within the 100-year flood plain boundary of the Yakima River system. The eastern border of the site is defined by Wilson Creek, a Yakima River tributary. The site is located at an approximate elevation above sea level of 1,505-feet with a maximum topographic elevation change of 5-feet across the site, and sloping downward from north to south (USGS, 2011). Elevation change is largely limited to the northern most portion of the site.

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 Brickmill Gravelly Ashy Loam, with localized areas within the northeast and southwest most portions of the site as Opnish Ashy Loam (USDA, 2012).

4.2.1 Brickmill Gravelly Ashy Loam

Brickmill Gravelly Ashy Loam is described as being composed of gravelly ashy loam from the surface to a depth of 12-inches below ground surface (bgs). Soils at depths of 12 to 28-inches are described as very gravelly ashy sandy loam with underlying extremely gravelly sandy loam to a depth of 49-inches bgs. Soils are identified as transitioning to extremely gravelly loamy coarse sand at a depth of 49-inches and extending to a minimum of 60-inches bgs. Brickmill Gravelly Ashy Loam is additionally described as somewhat poorly drained with a moderately high to high capacity to transmit water and a depth to groundwater of approximately 28 to 38-inches bgs.

4.2.2 Opnish Ashy Loam

Opnish Ashy Loam is described as being composed of ashy loam from the surface to a depth of 8-inches bgs. Soils at depths ranging from 8 to 13-inches bgs are identified as ashy clay loam with underlying clay loam to a depth of 26-inches bgs. Soils transition to extremely gravelly clay loam at a depth of 26-inches and extent to a minimum depth of 60-inches bgs. Opnish Ashy Loam is additionally described as moderately well drained with a moderately high capacity to transmit water and a depth to groundwater of approximately 24 to 40-inches bgs.

4.2.3 Soils Identified During Onsite Activities

Onsite investigation activities generally identified surface soils ranging from clay to sandy clay to sandy loam extending from the surface to depths of approximately 5 to 7-feet bgs. Underlying soils were composed of clayey sandy gravel to sandy gravel extending to the maximum depths of borings of approximately 15-feet bgs. Groundwater was evident within gravelly soil horizons at depths of approximately 5 to 7-feet bgs with high water marks extending to depths of approximately 4 to 6-feet. Depths to surface water vary with topographical elevations changes across the site. See Section 6.2 for groundwater investigation and associated boring logs.

4.2.4 Hydrology and Hydrogeologic Site Conditions

Site-specific hydrology and hydrogeologic influences include the presence Wilson Creek along the eastern site boundary. Wilson Creek has been heavily influenced by channel confinement, channel realignment, water diversion, vegetation removal, and maintenance, including dredging near and at the site. Presently, the western bank of Wilson Creek along the site is built-up with dredged materials. As an effect, water elevation within the creek is greater than the site elevation immediately to the west of the creek. Wilson Creek represents a potential environmental receptor and presents an additional potential point of compliance for site impact evaluation. Fulcrum's limited review of publically available reports did not identify any research establishing if stream conditions in the portion of Wilson Creek near the site represent a gaining or losing waterway of water flow.

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 of 1989, the Model Toxics Control Act (MTCA) went into effect 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 Remediation Standard 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.

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.

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 redevelopment planning. As such, Fulcrum's investigation activities were additionally 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 (Ecology, 2007a).

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

- Establishment of appropriate site engineering controls and monitoring of contamination as appropriate to reduce significantly potential for human contact and to provide data associated with potential contaminant migration to ensure protection of groundwater resources, WAC-173-340-440.
- Complete, if appropriate, a Terrestrial Ecological Evaluation (TEE) of site conditions to determine the effects of 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, and atmospheric resources, as well as 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.
- Comply with Applicable State and Federal Laws
- Provide Compliance Monitoring

The selected remedy also must meet other requirements for selection under WAC 173-340-360(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 a site-specific SAP/QAPP and site-specific health and safety plans (HSP). The investigation included a two phase approach comprised of an initial soil characterization and sampling event, followed by groundwater installation and quarterly groundwater monitoring. Separate HSP were prepared for two areas of investigation, soil and groundwater. The HSP associated with the soil investigation is included in Appendix C.1 and the HSP for the groundwater investigation is included in Appendix D.1. Prior to initiation of daily onsite activities, the elements of the HSP were reviewed with personnel.

This report is inclusive of onsite soil investigation activities, groundwater monitoring well installation, and initial groundwater sampling results. See the SAP/QAPP in Appendix B for additional detail associated with sampling design and established quality assurance/quality control criteria. Additionally, all sample handling criteria is presented within the SAP/QAPP and only identified deviations from the established guidance during site activities is addressed within the following sections.

6.1 Soil Investigation

On February 14, and 15, 2012, Fulcrum completed site soil investigation activities with additional follow-up soil investigation completed on February 21, and May 22, 2012. See Appendix C.2 for site observation reports and Appendix C.3 for site photographs associated with the soil investigation.

The SAP/QAPP identified four primary areas of investigation:

- Former Diesel and Gasoline UST Area
- Former Diesel Repair Shop UST Area
- Stained Soils East of the Diesel Repair Shop
- Historic Areas of Vehicle and Equipment Parking

Fulcrum's approach consisted of trench excavations or test pit excavations at each area of investigation. The purpose of the investigation was two-fold; first, confirm worst case environmental contamination and second, determine approximate extents of contaminant impact. From these excavation locations, samples were collected for analysis for diesel range organics, heavy oil range organics, gasoline range organics, volatile organic compounds, polyaromatic hydrocarbons, polychlorinated biphenyls, and metals were completed. In addition, evaluation of hydrocarbon fractionation was completed on selected samples to assist with site-specific cleanup calculations. All samples for volatile organic compound analysis were collected as prescribed in Ecology's relevant technical memorandum (Ecology, 2004.) See Appendix A, Figure 4 for trench and test pit locations. See Appendix C.4 for soil descriptions and site observations.

Fulcrum collected 64 soil samples during the investigation of which 36 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. See Appendix A, Figure 5 for sample locations. All surface soil samples were collected directly from the site using limited hand excavation to remove

the upper-most surface soils. Soils collected at depths greater than 1-foot bgs were collected directly from the excavator bucket using new nitrile gloves.

Soils were evaluated using an MSA Altair 5 multi-gas meter with volatile organic compound (VOC) monitor. No detectable concentrations of volatile organic compounds were identified in any of the soil samples collected even following warming of collected samples in sealed bags.

During completion of the investigation, field modifications to the SAP were made to improve investigation performance. See Section 6.3 for a review of the in-progress modifications to the SAP/QAPP. See Appendix A, Figure 5 for soil sample locations.

6.1.1 Former Diesel and Gasoline UST Area

A total of three trenches and six test pits were completed to evaluate the extents of impact of suspected contaminants within the determine extents of characterize impacted soils associated with the former diesel and gasoline UST area.

Petroleum-type sheen was observed on groundwater within portions of excavated trench and was significantly more prevalent within the former UST area. Soil samples were collected within each trench at depths immediately above groundwater and at approximately 3-feet bgs representing potentially non-contaminated overburden. However, only representative samples were submitted for laboratory analysis.

The first trench was completed west to east through the center of the former UST location and was initiated as close to the scale house/residence as feasible. Soils were identified as being free of field indicators of petroleum-type impact from the surface to approximately 6-feet bgs. Soils from 6-feet to static groundwater at 7-feet bgs contained significant petroleum odor, staining, and sheen. Excavation was continued east toward the diesel repair shop building. Staining was evident within soils ranging from 6 to 7-feet bgs from the former UST area extending to approximately 5-feet from the west extent of the diesel repair shop building footprint. See Appendix A, Figure 6 for the approximate extents of petroleum contained soils and visually stained and discolored soils.

The second excavation trench was completed immediately south of the scale house/residence and west of the former UST area to evaluate the western most extents of the visually impacted soil. Visually impacted soils were measured to be approximately 90-feet east to west as measured through the center of the former UST area.

The third excavation trench was completed from the former UST area in a southerly direction. Impacted soils were identified extending approximately 140-feet south of the former UST area.

Two test pits were completed north of the former UST area. The first test pit was completed approximately 20-feet north of the former UST area and immediately south of the scale house/residence entry awning structure. Visually impacted soils were identified immediately above groundwater. The second test pit was completed north of the scale house/residence awning structure and approximately 40-feet north of the former UST area. Visually impacted soils were

not identified within the test pit. Soils were sampled within the second test pit immediately above static groundwater at a depth of 10-feet bgs.

Four additional test pits were completed surrounding visually identified contaminant extents. Samples were collected at depths immediately above the static groundwater elevation as well as from soil overburden.

6.1.2 Former Diesel Repair Shop UST-04 Area

During completion of the site investigation, one UST, consistent with the UST-04 identified in the PLSA 2005 report, was located north of the diesel repair shop. See Appendix A, Figure 3 for the UST-04 location.

The UST was in poor condition with one large hole in the top portion and severe degradation throughout its entirety. The UST was estimated as being approximately 25 to 50-percent filled with sludge and site soil. One sample was collected from the tank contents and labeled 022112-59.

To facilitate sampling of the UST in accordance with Ecology Site Assessment criteria, the UST was removed and staged onsite under verbal permission from the site owner representative, Roger Weaver, and Ecology. The UST was removed and placed on, and covered with plastic sheeting adjacent to the diesel repair shop building. The tank was estimated at 1,000 gallon capacity.

Fulcrum hand excavated through the soil located within the interior portion of the UST and collected one sample of residual sludge in the bottom portion of the tank. Soil samples were collected from the excavation pit sidewalls and pit bottom, as well as from stockpiled soils in accordance with Ecology defined criteria applicable for UST Site Assessments (Ecology, 2003). Soils collected from the center of the excavation pit bottom were identified as containing staining and a mild petroleum-type odor; field screening did not identify the presence of volatile organic compounds. The UST excavation pit was backfilled following investigation activities in consideration of site safety.

6.1.3 Stained Soil East of Diesel Repair Shop

Three test pits were completed east of the diesel repair shop within the area of previously identified stained soils. The initially completed test pit was located directly east of the used oil storage area. Proximity of the test pit to the used oil storage area was limited by the presence of a buried electrical utility line located approximately 6-feet east of the used oil storage containers. See Appendix A, Figure 3 for the location of the stained soils.

The excavation pits east of the diesel repair shop were completed to the depth of groundwater; approximately 5 to 6-feet bgs. No petroleum-type staining, odor, sheen, or indications of the presence of volatile organic compounds were identified through onsite screening within any of the samples collected from about 2-feet bgs to the maximum extent of excavation. Identification of residual surface staining was limited during onsite activities due to seasonal precipitation and saturated surface soils. Soil present within the southern excavation trench contained green-colored soil present at the 6 to 12-inch soil horizon.

Onsite observations included the presence of buried bricks, glass bottles, and a silver spoon within the initial excavation trench. The buried material appeared to be localized and was limited to the 1 to 3-foot soil horizon. Material was not identified within the additional excavation pits. See Appendix A, Figure 4 for the debris location.

On May 22, 2012, one sample of surface soil was collected from stained soils located between used oil storage containers to characterize the soil with the greatest visual petroleum staining. Fulcrum completed hand excavation through visually stained soils to identify the maximum vertical extents of impact. Stained soils were visually limited to the upper 1-foot of site soils. One sample was collected at the maximum extents of visual impact. The sample was submitted for diesel and heavy oil range organic analysis as the only constituents identified in visually stained overlying soils above MTCA Method A cleanup levels in samples previously collected from this area.

On May 29, 2012, at Ecology's request, Fulcrum collected an additional sample from the sample location. The sample was analyzed for volatile organic compounds by EPA Method 8260.

6.1.4 Historic Areas of Vehicle and Equipment Parking

Historic areas of vehicle and equipment parking have been identified within the northeast, southern, and central portion of the site. Fulcrum collected a total of five surface soil samples from the three historic parking areas. Representing the largest former parking area, three samples were collected from the northeast portion of the site. One sample was collected from the southern area, and one sample from the central area. No field indicators of impact were identified within the sampled soils or areas of concern.

6.2 Groundwater Investigation

On March 5 and 6, 2012, Fulcrum and Cascade Drilling, Inc. completed installation of seven monitoring wells to facilitate evaluation of site groundwater conditions. Monitoring wells were installed as directed in WAC 173-160 (Ecology 2008b). See Appendix D.1 for the HSP for the groundwater monitoring, Appendix D.2 for site observation reports and Appendix D.3 for site photographs associated with monitoring well installation.

One monitoring well was located north of the Mountain View Brownfield site on private property with permission for access and installation obtained by KVFR. A second monitoring well was installed near the center of the Former Diesel and Gasoline UST Area. The remaining five monitoring wells were installed in presumed downgradient and crossgradient locations. See Appendix A, Figure 7 for monitoring well locations. Due to the presence of shallow groundwater in an unconfirmed alluvial aquifer and probable influence of Wilson Creek, and area irrigation practices, potential exists for a wide fluctuation in groundwater flow direction as a result of seasonal changes and irrigation practices.

Monitoring wells were installed to depths ranging from 8 to 15-feet bgs. Well screens were installed to an approximate depth of 5-feet below the estimated static groundwater elevation at each location to allow for seasonal fluctuations. Screen length varied from 6 to 10-feet. See

Appendix D.4 for the driller's logs. The upgradient monitoring well was installed to the deepest elevation. Generally, monitoring wells were constructed as flush finished monuments to maximize the thickness of the bentonite seal, while minimizing the depth to the upper extent of the screened interval. All monitoring wells were developed immediately following installation. No soil samples were collected during monitoring well installation.

6.2.1 Groundwater Monitoring Well Sampling Events

On March 12, 2012, Fulcrum completed the first scheduled groundwater monitoring event. Purge water was found to have moderate silting. Depth to groundwater in site monitoring wells ranged from 4 to 8-feet bgs as a result of the unconfirmed alluvial aquifer, influence of Wilson Creek, and changes in surface topography. Samples were shipped by commercial carrier under chain-of-custody to Fremont for analysis. See Appendix E.1 for the March 12, 2012 groundwater monitoring event records. See Appendix A, Figure 8 for the groundwater contour and flow direction associated with the March 12, 2012 monitoring event.

On April 30, 2012, Fulcrum completed the second scheduled ground water monitoring event. Purge water was observed with reduced silting as compared to the previous event. Depth to groundwater in site monitoring wells ranged from 1-foot to 5-feet bgs. Samples were shipped by commercial carrier under chain-of-custody to Fremont for analysis. See Appendix E.2 for the April 30, 2012 groundwater monitoring event records. See Appendix A, Figure 9 for the groundwater contour and flow direction associated with the April 30, 2012 monitoring event.

On June 7, 2012, Fulcrum completed the third scheduled ground water monitoring event. Purge water was observed with further reduced silting as compared to the previous two events. Depth to groundwater in site monitoring wells ranged from 1-foot to 5-feet bgs consistent with the second groundwater sampling event. Samples were shipped by commercial carrier under chain-of-custody to Fremont for analysis. See Appendix E.3 for the June 7, 2012 groundwater monitoring event records. See Appendix A, Figure 10 for the groundwater contour and flow direction associated with the June 7, 2012 monitoring event.

A review of groundwater sample laboratory results is presented in Section 7.0. A summary of field data collected during each groundwater monitoring event is included in Appendix E.4. The laboratory results summary table is included in Appendix E.5.

6.2.2 Domestic Well Sampling Event

On May 22, 2012, Fulcrum completed sampling of the onsite domestic well. The well consists of a 6-inch diameter, steel casing. The top of the casing is sealed and is the structural support for the well pump. Discharge piping exits the well and transitions to a large pressure tank before transitioning to the subsurface and to the site scale house/residence, diesel repair shop building, and offsite residence. No records associated with well construction or previously completed water quality testing was located during investigation activities. See Appendix F for the Domestic Water Well sample event records.

Water from the well was accessed from discharge piping located immediately after the pressure tank unit. The selected discharge location represented the location available within the system nearest the well without dismantling the piping system. Approximately 450 gallons of water was allowed to discharge to flush the system and provide representative water conditions associated with the well.

Field parameters including, temperature, pH, and electrical conductivity were measured throughout the discharge process to evaluate the potential for fluctuations in water condition during the discharge process. Field parameters were documented as stable beginning at approximately 240-gallons. Samples were subsequently collected from the discharge. See Section 7.0 for laboratory analysis.

6.3 Deviations from SAP/QAPP

During the project, Fulcrum's onsite staff completed field modifications to the Sampling and Analysis Plan (SAP), including sampling approach, well construction, and groundwater sample collection methods.

6.3.1 Soil Trench Locations

Fulcrum's investigation strategy consisted of trench excavations in the general area of the established locations of UST-01, UST-02, and UST-03. The initial intent was to excavate three trenches from near the scale house/residence to the east and the approximate center of the site roadway between buildings. Upon initial exploration, Fulcrum confirmed the presence of visibly contaminated soils. Subsequently, excavation intent was changed to collect samples at the approximate center of the UST-01, UST-02, and UST-03 area for presumed worst-case contaminant characterization, complete north to south trench, and test pit at the approximate corners of the suspected extent of petroleum impact.

Under the modified trenching plan, Fulcrum excavated a north to south trench from the approximate north center of the parcel, directly south to the south extent of the south-center hay shed. Test pit locations were completed at the west, southwest, southeast, and east borders of the approximate extent of the petroleum impact.

6.3.2 Number of Soil and Groundwater Samples

Fulcrum's initial SAP/QAPP identified the analysis of 29 soil samples. As a result of site investigation and sample selection, 36 samples were submitted for analysis. Analytical methodologies associated with sample location and investigation purpose were completed in conformance with the SAP/QAPP.

Sampling activities from the domestic well were not included within the SAP/QAPP. Fulcrum utilized industry standard of care for sampling of the domestic well.

6.3.3 Well Finish Type

Due to the uncontrolled site conditions and presence of large truck traffic, monitoring well locations were established proximal to onsite buildings, Wilson Creek, or in otherwise protected locations. Additionally, except for one monitoring well location, representing the upgradient offsite well, the SAP/QAPP specified that all monitoring wells would be constructed as aboveground finished monuments with steel and concrete bollards. The upgradient offsite well was to be constructed as a flush mount surface well within a concrete surrounding base.

Upon construction of the first onsite well, Fulcrum identified the presence of groundwater at approximately 5 to 6-feet bgs. Based on the time of well installation and visual estimation of the petroleum smear zone, and observed during soil investigation, groundwater level was anticipated to rise at least an additional 1 to 2-feet as a result of increased volume in Wilson Creek and seasonal irrigation. Construction of an aboveground monument requires a thicker surface seal to meet Ecology monitoring well construction regulations. As such, except for MW-02, located at the center of the apparent area of petroleum impact, all monitoring wells were constructed as flush mount surface wells to reduce the depth of the top of the screened interval of the well casing.

6.3.4 Laboratory Filtering of Groundwater Samples

During the first groundwater monitoring event, moderate silting was present in purged groundwater. Field filtering of monitoring well purge water did not appear to be sufficient to remove sediment without filter failure. As such, all groundwater samples for the first event were transferred unfiltered to Fremont for laboratory filtering prior to lead in water analysis.

During the second groundwater monitoring event, silt concentrations within the wells were less than identified during the initial sampling event. Fulcrum utilized high capacity groundwater filters to manage the silt particulate and allow for field filtering of groundwater samples for dissolved metals.

6.3.5 Groundwater Sampling Field Parameters

Groundwater field parameters utilized during onsite sampling activities included temperature, pH, and electrical conductivity. Oxidation-reduction potential (ORP) and dissolved oxygen (DO) were not analyzed during onsite field sampling activities. In Fulcrum's opinion, the absence of the field data does not invalidate the data or alter recommendations or evaluation criteria under the Remedial Action Alternatives review as presented in Section 10.0. Evaluation of ORP and DO are required under Ecology's Monitored Natural Attenuation (MNA) guidance.

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 final 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 C.7 and for each groundwater investigation in Appendix E.1, E.2, and E.3.

7.1 Laboratory Results

A summation of laboratory results for each sample is presented in Appendix C.5. Included in Appendix C.6 provides a table summary of extractable petroleum hydrocarbons and volatile petroleum hydrocarbons analysis. Discussion of laboratory results is presented in Section 8.0.

7.2 Laboratory QA/QC Review – Soil Investigation

Fulcrum collected 65 soil samples during the investigation, of which 36 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 was 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. Final laboratory reports are included in Appendix C.7.

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 1205138 – Cooler temperatures measured by Fremont ranged from 2.7 degrees Celsius (˚C) to 8.6˚C and custody seals were reported to be intact.

Of the 36 soil samples analyzed, eight samples had laboratory notes associated with the analysis or sample handling.

Three samples, 021412-01.7, 021412-12.6, and 021512-59, were diluted to facilitate laboratory analysis. Dilution of samples as a result of elevated contaminant concentration is typical and is more to occur during analysis where many samples have low or non-detect concentrations of contaminants and one or more samples have significantly higher contaminant concentrations. Identified sample dilutions do not appear to have adversely affected data quality for the purpose of this investigation as contaminant levels substantially exceed MTCA Method A cleanup levels on each of the three affected samples.

The following summarizes laboratory data qualifiers presented within the issued final laboratory reports:

Seven samples, 021412-01.7, 021412-12.6, 021512-21.1, 021512-46.5, 021512-54.6, 021512-61, and 021512-62, were analyzed outside of method holding time. In all cases, due to the extended period between sample collection, initial analysis, and review of data, the prescribed holding times was exceeded prior to direction to the laboratory to complete analysis, and analysis could not within the available holding times. All samples were maintained in refrigerated conditions with

storage between 4 degrees Celsius (˚C) and 10˚C by the laboratory. All laboratory results for samples affected by holding time qualifiers reported concentrations in excess of MTCA Method A cleanup levels. Additional sample collection and analysis for waste characterization purposes would be appropriate as a portion of site remediation as required by WAC 173-303 (Ecology, 2009). It is Fulcrum's opinion that for the purpose of this investigation, data generated by select analysis beyond established holding times is of sufficient quality to confirm presence of contamination at concentrations in excess of MTCA Method A.

Also reported is that four samples contained many large rocks in the sample jars prior to Northwest Total Petroleum Hydrocarbons (NWTPH) Diesel Extended (Dx Ext) analysis and that six samples required a cleanup procedure prior to PCB analysis.

Also of note is that during processing of the sample of sludge from UST-04, sample extraction of sample 022112-59, a large amount of foam was produced and interfered with sample analysis. This qualifier was associated with NWTPH Gasoline Range Organics (Gx) analysis. No gasoline, benzene, toluene, ethylbenzene, or xylene was reported in the sample. While unusual, no information was identified to suggest that the foam product resulted in a false laboratory result. However, given that the sample was collected for investigation purposes, not waste characterization, additional analysis should be completed during site remedial activities to repeat analysis for gasoline and BTEX components and to provide independent waste characterization analysis.

Two data qualifiers were associated with at matrix spike QC sample during which recovery of nickel and selenium were below reporting limits. The same qualifier was reported on a matrix spike duplicate analysis for the same sample. All other recoveries of other metals were within prescribed limits. No information was identified to suggest that results of samples during sample analysis were impacted by the low recoveries in the matrix spike sample.

Two data qualifiers were reported with a laboratory duplicate of sample 021412-1.7. The data for the reported sample was below method recovery limits. A review of the primary sample data confirms that no detectable concentrations of polyaromatic hydrocarbons were present in the sample. While the results are below the accepted recovery limits, this qualifier does not result in concern about the laboratory results.

One data qualifier was reported associated with detectable pyrene in the method blank. No analysis for pyrene was completed as a portion of this project. Additionally, if pyrene were an analyte evaluated during this investigation, the results associated with the laboratory detection would have overestimated the concentration of pyrene. As such, the presence of pyrene in the method blank does not change or affect the results of this investigation.

Fremont Work Order 1205138 – No data qualifiers were reported for this work order. The cooler was reported received with a temperature of 5.1˚C with custody seals intact. No concerns with sample integrity were reported by the laboratory.

Fremont Work Order 1205186 – The cooler was reported received with a temperature of 2.9˚C with custody seals intact. No concerns with sample integrity were reported by the laboratory.

Four data qualifiers for sample analysis were reported associated with the analytical run. Three of the qualifiers were reported associated with an "AMS" sample as being below the lower limit and one above the upper limit. All other associated chemical constituents were within the reported range. All surrogates added into the analyzed sample reported recoveries within the acceptable range and the data is viewed as valid.

It is Fulcrum's opinion that based on the intent of the samples; the data qualifiers identified do not invalidate or alter the evaluation or conclusions of the site characterization or Remedial Action Alternatives.

7.3 Laboratory QA/QC Review – Groundwater Investigation

Three groundwater monitoring events were completed during this investigation. During each event, seven wells were sampled and one well was selected for collection of a blind duplicate sample. The blind duplicate sample was labeled MW-08 during each event. During each event, a selection of bottle sizes and types were filled with the monitoring well water.

Review of field duplicate results to source monitoring well results for each monitoring event confirmed acceptable laboratory QA/QC.

Worker Order 1205008 – No data qualifiers were reported associated with the March 12, 2012 groundwater monitoring event. The two coolers were reported received with temperatures of 1.9 and 2.7˚C. No concerns with sample integrity were reported by the laboratory.

Worker Order 1205008 – No data qualifiers were reported associated with the April 30, 2012 groundwater monitoring event. The cooler was reported received with a temperature of 3.8˚C with custody seals intact. No concerns with sample integrity were reported by the laboratory.

Work Order 1206061 – Two data qualifiers were reported associated with the June 7, 2012 groundwater monitoring event laboratory analysis. The data qualifiers were reported with RPD outside of the accepted recovery limits. Both samples were laboratory duplicate samples used for internal QA/QC purposes. Results of this test do not affect the data validity.

The cooler was reported received with a temperature of 3.8 ˚C with custody seals intact. No concerns with sample integrity were reported by the laboratory.

7.4 Laboratory QA/QC Review – Domestic Well Sampling

One sampling event was completed associated with the domestic well. The sample was collected and submitted to Fremont for analysis. The cooler was reported received with a temperature of 4.1 ˚C with custody seals intact. No concerns with sample integrity were reported by the laboratory.

A duplicate of 052212-DW-01 was collected concurrent with the sample and was submitted as 052212-DW-02 for laboratory analysis. On only product, nitrate was identified in the two samples, with reported results of 2.30 mg/L and 2.31 mg/L respectively.

Work Order 1205124 – No data qualifiers were reported for this work order.

No concerns were identified associated with the sample collected from the domestic well.

8.0 DISCUSSION OF INVESTIGATION RESULTS

Fulcrum's investigation confirmed the presence of petroleum impacted soils in select locations to be present from the soil surface to groundwater. Two areas of petroleum contaminated soil are known to be present at the site and include:

- Former Diesel and Gasoline UST Area
- Stained Soils East of the Diesel Repair Shop

No impacts associated with UST-04 and historic areas of vehicle or equipment parking were identified.

8.1 Former Diesel and Gasoline UST Area

A smear zone of petroleum contaminated soil, consistent with long-term fluctuations in contaminated groundwater, was identified ranging from 5 to 7.5-feet bgs in the Former Diesel and Gasoline UST Area. Fulcrum's investigation identified the area of historic diesel impact containing visible petroleum staining, odor and sheen approximately 90-feet by 180-feet. However, sample results collected from the historic area of impact identified an area of residual impact less than the area of observed staining. See Appendix A, Figure 6 for the approximate extents of contaminated and impacted soil.

The following constituents were identified within sampled soils associated with the former diesel and gasoline UST area above Method A cleanup levels:

- Diesel (Fuel Oil) ranged from non-detect concentrations to 5,990 mg/Kg
- Gasoline Range Organics C6-C12 ranging from non-detect concentrations to 156 mg/Kg

Detectable concentrations of diesel and gasoline range constituents were limited to soils collected immediately above groundwater elevation and identified as samples 021412-01.7, 12.6 and 14.7. The samples represent the former UST area and downgradient soils respectively. Sample 021412-14.7 located downgradient of samples 021412-01.7 and 12.6 contained detectable concentrations of diesel and gasoline at 190 and 6.48 mg/Kg respectively and below Method A cleanup levels. Concentrations of benzene, toluene, ethylbenzene, and xylenes were below method reporting limits.

Detectable concentrations of lead were below MTCA Method A cleanup levels and consistent with naturally occurring background concentrations for central Washington (Ecology, 1994).

Samples 021412-01.7 and 12.6 were selected for analysis by EPA Method 8270 for PAHs representing the only samples identified with petroleum concentrations above MTCA Method A

cleanup levels. Concentrations of PAHs were not identified at concentrations above method reporting limits.

Screening for the presence of additional fuel range semi-volatile organic compounds and volatile organic compounds was completed for sample 021412-12.6 representing the soil with the highest concentration of petroleum range hydrocarbons. Concentrations of naphthalene were documented at 1.80 mg/Kg and below the Method A cleanup level of 5 mg/Kg. Additional fuel range volatile and semi-volatile organic compounds were well below cleanup levels where established.

8.1.1 Projected Extents of Impact

Fulcrum's investigation provided information that defines the approximate extent of petroleum contaminated soils to the south, southwest, and east of the source location. Extent of petroleum impact to the north and west is approximate as field investigation activities were limited by the presence of the scale house/residence building. Soils were excavated to the extent feasible along the perimeter of the scale house/residence foundation. Additionally, the area to the north could not be fully investigated due to the presence of the canopy structure awning. See site photographs in Appendix C.3. See Appendix A, Figure 4 for the estimated extents of petroleum contaminated soils.

Total area of petroleum impact is approximately 70-feet east to west and 140-feet north to south. Laboratory results suggest that overburden to a depth of approximately 4-feet to 4.5-feet does not have petroleum impact except in localized areas. Potential exists for petroleum contaminated soil to extent underneath the scale house/residence and diesel shop building. Total volume of petroleum contaminated soil is estimated at 900 to 1,300 cubic yards, including an allowance of up to 200 cubic yards of contaminated soil below the site buildings. Depth to groundwater is generally less than 7-feet bgs.

8.1.2 Method B Cleanup Level Evaluation

Fulcrum requested additional analysis by NWTPH-Volatile Petroleum Hydrocarbon (VPH) and NWTPH-Extractable Petroleum Hydrocarbon (EPH) for samples 021412-01.7 and 12.6 as the two samples with the highest concentrations of petroleum hydrocarbons from the former diesel and gasoline UST area. Additionally, Fulcrum requested analysis for all polyaromatic hydrocarbons and gasoline additives within sample 021412-12.6 representing the sample with the highest concentration of petroleum hydrocarbons.

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 G for individual Method B cleanup level calculations.

As petroleum sheen was identified on site groundwater during excavation activities, the site does not meet the criteria for use of Method B soil cleanup levels for protection of groundwater due to residual saturation limitations as presented in WAC 173-340-747. As such, groundwater monitoring is required.

Results identified a Method B cleanup level of 2,677 mg/Kg diesel range organics for protection of human health through direct contact and utilizing data from sample 021412-12.6 as a conservative approach. See calculation worksheet in Appendix G.

The calculated Method B cleanup level is above the documented concentration of 2,340 mg/Kg within sample 021412-01.7, located within the center of contamination. 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 have documented the presence of few contaminants, and based on proposed site use as a public service facility, Method A cleanup levels can be utilized at the site.

8.2 Stained Soils East of the Diesel Repair Shop

Sample results associated with surface soils collected from the used oil storage area located east of the diesel repair shop were identified with presence of the following constituents:

- Heavy oil results ranged from non-detect concentrations to 5,460 mg/Kg.
- Benzo(a)pyrene results ranging from non-detect concentrations to 329 micrograms per Kilogram (µg/Kg).

All samples were found to be non-detect for PCBs and hexavalent chromium.

Samples were selected from the 1-foot bgs horizon and from elevations immediately above groundwater elevation within the three test pits. Results did not identify concentrations of diesel or gasoline range hydrocarbons at or above method reporting limits within analyzed samples. Detectable concentrations of 2-methylnaphthalene, toluene, ethylbenzene, xylenes, and tert-butyl alcohol, arsenic, lead, barium, cadmium, total chromium, silver, nickel and zinc were detected at concentrations well below Method A and B cleanup levels where established.

The extent of petroleum impact east of the diesel repair shop is generally consistent with the areas of visually stained soils. Depth of impact is estimated at approximately 1-foot bgs based on hand excavation completed through the central portion of the area with the heaviest soil staining. Analytical results associated with soils collected at 1-foot bgs within the area of impact identified heavy oil concentrations at 445 mg/Kg and below the Method A cleanup level of 2,000 mg/Kg. Concentrations of volatile organic compounds were identified as non-detect and below the associated Method A and B cleanup levels where established.

Area of surface impact is approximately 80-feet north to south and 50-feet east to west. Source removal appears to be the most likely remedial approach given the elevated concentrations of petroleum hydrocarbons and associated polyaromatic hydrocarbons. Total volume of petroleum contaminated soils is estimated at approximately 350 cubic yards, including an allowance of 50 cubic yards for contaminated soil below the building.

8.3 Former Diesel Repair Shop UST-04 Area

During soil sampling, UST-04 was located, removed from site soils, and staged onsite. See Appendix A, Figure 3 for the location of UST-04. One grab sample, consisting primarily of sludge, was collected from the interior of the UST and labeled 022112-59. Sample 022112-59 was analyzed by NWTPH-Dx, NWTPH-Gx, BTEX, arsenic, cadmium, chromium, hexavalent chromium, lead, mercury, nickel, and zing. Laboratory results identified lead at 276 mg/Kg and above the MTCA Method A cleanup level; all other analytes were below MTCA Method A or Method B soil cleanup levels.

8.4 Groundwater Monitoring Events

Three groundwater monitoring events were completed during this investigation. Spaced approximately 6-weeks apart, the monitoring interval was selected to provide the greatest data collection within the available project schedule.

8.4.1 March 12, 2012 Monitoring Event

During the first monitoring event completed on March 12, 2012, samples were submitted for the following analysis based on laboratory results associated with soil investigation activities:

- Diesel and Heavy Oil Range Hydrocarbons
- Gasoline Range Hydrocarbons
- Benzene, Toluene, Ethylbenzene, and Xylenes
- Dissolved Lead

Groundwater samples identified diesel range petroleum contamination at 697 µg/L in MW-02, the monitoring well located at the center of the area of contamination. All additional constituents within the MW-02 sample were non-detect. All other monitoring wells were identified with non-detect results for all analyzed constituents.

Groundwater flow direction calculated based on the results of the first monitoring event suggests that site groundwater was flowing away from Wilson Creek in generally a southwesterly direction. See Appendix A, Figure 8 for the March 12, 2012 groundwater contour map. Groundwater elevations suggest that groundwater increases in elevation in MW-07 are consistent with seasonal increase in water discharge from Wilson Creek. Groundwater gradient was calculated at 0.02 to 0.03 ft/ft, with the greatest hydraulic gradient near MW-07.

8.4.2 April 30, 2012 Monitoring Event

The second groundwater sampling event, completed on April 30, 2012, represents groundwater subsequent to the start of regional irrigation canal flooding and irrigation application. Site-wide, an increase of approximately 0.5-feet in groundwater elevation was identified within the wells. Elevation increase was significantly greater within MW-06 and 07 in close proximity to Wilson Creek. The greatest increase in elevation was identified in MW-07 with an approximately 2.5-feet increase from March 12, 2012.

Laboratory analysis identified diesel range organics (C12-C24) at 189 µg/L in MW-02. All additional constituents within the MW-02 sample were non-detect. All other monitoring wells were identified with non-detect results for all analyzed constituents.

Groundwater flow direction calculated based on the results of the first monitoring event suggests that site groundwater was flowing away from Wilson Creek in generally a southwesterly direction. See Appendix A, Figure 9 for groundwater contour map. Groundwater elevations suggest that groundwater increases in elevation in MW-07 are consistent with seasonal increase in water discharge from Wilson Creek. Groundwater gradient was calculated at 0.03 to 0.04 ft/ft, with the greatest hydraulic gradient near MW-07.

8.4.3 June 7, 2012 Monitoring Event

The third groundwater sampling event was completed on June 7, 2012. Site-wide groundwater elevations were consistent with those identified during the second sampling event. Results documented concentrations of diesel range organics (C12-C24) within MW-02 at 220 µg/L and below the established MTCA Method A cleanup level. All additional constituents within the MW-02 sample were non-detect. All other monitoring wells were identified with non-detect results for all analyzed constituents.

Groundwater flow direction calculated based on the results of the first monitoring event suggests that site groundwater was flowing away from Wilson Creek in generally a southwesterly direction. See Appendix A, Figure 10 for groundwater contour map. Groundwater flow direction and rate were consistent with the April 30, 2012 event. Similarly, groundwater gradient was calculated at 0.03 to 0.04 ft/ft, with the greatest hydraulic gradient near MW-07.

8.5 Domestic Well Results

Laboratory analysis found no detectable concentrations of diesel and heavy oil range organics, gasoline range organics, BTEX, or lead within the sample collected from the domestic well.

Nitrate was identified at 2.31 µg/L and below EPA's maximum contaminant level for drinking water standards of 10 µg/L.

The total well depth, screened elevation, and pump elevation were not able to be determined associated with the domestic well during onsite activities.

9.0 DATA GAPS IN THE INVESTIGATION

Areas of the site where investigation could not be completed included the portion of the assumed petroleum contaminated soil that is present under the scale house/residence and the diesel repair shop building. Direction and gradient conditions suggests that petroleum contamination extends west from the former UST locations underneath the scale house/residence. Similarly, surface petroleum contained soil is present along the east foundation wall of the diesel repair shop building and is likely to extend underneath the diesel repair shop building.

Petroleum contaminated soil has been assumed to be present in both of these locations and an estimate of the volume of contaminated soil has been included. Similarly, building reuse has not been evaluated under this investigation; however, if occupancy of the scale house/residence of diesel shop building were to occur, an evaluation of airborne contaminant concentrations as a result of vapor intrusion from petroleum contaminated soils, would be appropriate.

Additionally, portions of the site are current covered by vegetation and stored contents preventing a complete visual inspection. Potential exists for portions of the site to have localized areas of petroleum impacted soil.

During analysis of the sample of sludge collected from UST-04 a large amount of foam was produced. Specific analysis occurring was for gasoline and BTEX constituents. Given that the sample was collected for investigation purposes, not waste characterization, additional analysis should be completed during site remedial activities to repeat analysis for gasoline and BTEX components and to provide independent waste characterization analysis. These analysis may reasonably include, PCBs, PAHs, VOCs, and physical properties such as flash point.

The investigation also did not provide groundwater monitoring representative of all seasons and groundwater flow conditions. Due to the period the project, groundwater monitoring was completed in March, April, and June 2012. As such, the groundwater monitoring reasonably represents the spring and early summer periods but does not represent groundwater conditions in the later summer, fall, or winter seasons. Potential exists for groundwater flow direction and strength of the gradient to vary during these seasons.

Groundwater analysis for should also be expanded to included geochemical indicators for monitored natural attenuation (MNA). As specified by Ecology, MNA in groundwater should include oxygen reduction potential, dissolved oxygen, nitrate, manganese, ferric iron, sulfate, carbon monoxide, methane (Ecology, 2005). Evaluation of geochemical indicators to evaluate current MNA conditions at the site would provide useful information on the rate of contaminant degradation.

10.0 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) is utilized to provide an overview of the potential or suspected sources of hazardous substances, types and concentrations of hazardous substances, potentially contaminated media, and actual and potential exposure pathways and receptors. Receptors evaluated under the CSM include human and ecological that either through their presence at the site or potential access to the site may be exposed to the contamination present. Four exposure pathways are typically evaluated (1) a source and mechanism of chemical release to the environment, (2) an environmental transport medium for a released chemical, (3) a point of potential contact with the impacted medium (referred to as the exposure point), and (4) an exposure route (e.g., soil ingestion) at the exposure point. The model is used to assist in the decision making process during the review of alternative remedial approaches.

Soil, groundwater, and an adjacent surface water source, Wilson Creek, are present at the site. Groundwater flow data collected from site monitoring wells identify a strong and consistent flow gradient away from the creek in a westerly direction. As such, properties east of the site are more likely to be impacted by site groundwater than the creek.

10.1 Source Characterization

Two of the site underground storage tanks were reported in use in 1991. All of the former fuel services USTs were removed in about 2004. UST-04 was removed during the environmental investigation. It is not known specifically for how long prior to the UST removal use of UST-01, UST-02, and UST-03 ceased. The period of operation of UST-04 is not known. Environmental investigation confirmed the presence of diesel contaminated soil associated with the former location of UST-01, UST-02, and UST-03. Additionally, stained soils, consistent in color and odor with impacted soils associated with UST-01, UST-02, and UST-03, was observed during excavation and removal of UST-04.

Also identified at the site is petroleum contaminated surface staining located east of the diesel repair shop building. Surface staining has been shown to extend to a maximum depth of 18-inches bgs. Petroleum release associated with surface staining is associated with used vehicle and equipment fluid handling practices and associated used vehicle and equipment parts from which fluids drain or drip.

Petroleum contaminants have been identified in soil and groundwater.

10.2 Fate and Transport of Contaminants

The primary mechanisms likely to influence the fate and transport of chemicals at the site include natural biodegradation of organic chemicals, sorption to soil, advection and dispersion in groundwater, leaching of chemicals from soil to groundwater, and volatilization of organic chemicals from groundwater and soil. The relative importance of these processes will vary, depending on the chemical and physical properties of a released contaminant. The properties of soil and the dynamics of groundwater flow also shape contaminant fate and transport.

Presently the site is developed with four site buildings and the associated building footprints cover approximately 25% of the total property area. The remainder of the site consists of exposed site soils with localized areas of gravel. Precipitation at the site directly infiltrates into the site soils and groundwater. The areas of petroleum contaminated soils are substantially present outside of the existing building footprint. See Appendix A, Figure 6 for the extent of the soil contamination and existing building locations. See Appendix A, Figure 7 for the proposed site redevelopment and new building footprint and other impervious surfaces.

Chemicals with relatively high solubility could leach from soil to ground water, and dissolved chemicals could be transported downward to local groundwater. Once in groundwater, dissolved contaminants could be transported by diffusion and advection away from the original source. Dispersion, retardation, and biodegradation act to reduce dissolved concentrations of chemicals in

groundwater downgradient of the source area. Based on the current understanding of groundwater flow direction and gradient, impact from groundwater to Wilson Creek is unlikely.

Volatile chemicals in groundwater or in soil in the vadose zone have the potential to volatilize and migrate in the vapor phase. Chemicals such as benzene may volatilize into overlying buildings.

10.3 Potential Human Health Exposure Scenarios

Human health exposures at the site was considered for of two separate uses, the current site use with limited staff and large areas of exposed soil, and the proposed use with a site building, hard surfaces, and restored landscaping.

The current site staff consists of two mechanics associated with the diesel repair shop, customers of the diesel repair shop, and persons that store hay in site barns. Direct contact with petroleum contaminated soil and groundwater does not readily occur outside of the typical handling of vehicle and equipment fluids. Similarly, given the volatility of the contaminants present and the absence of any constructed building above the primarily areas of petroleum contamination, vapor intrusion into the current site buildings is unlikely to be a significant concern but would require further investigation.

While the current site uses consist of only a few individuals, the proposed site redevelopment will result in many more individuals being present at the site. Similarly, during development, if petroleum contaminated soil and groundwater were to remain for onsite management, direct contact exposure is likely to be managed through use of physical barriers incorporated into the site design. While the volatility of the petroleum hydrocarbons present remains low and vapor intrusion into the building unlikely, the proposed site building would be located above the contaminant plume. As such, evaluation of vapor intrusion would be required if petroleum contaminated soils were not removed prior to redevelopment. See Appendix A, Figure 11 for the location of the proposed building and estimated extents of petroleum contaminated soils.

Presently, much of the site is within the 100-year flood zone. As such, petroleum contained soils, including those located east of the diesel shop building, are subject to scouring, erosion, and offsite transport and deposition as a results of a significant flooring event. Due to the 100-year flood zone associated with Wilson Creek and the existing site grade, the areas of the site that can be constructed upon and provide sufficient area for redevelopment are generally limited to the north and northwest portions of the site. Remaining areas of the site, present within the flood zone, would be either returned to native vegetation, developed into a park space, or similar community use.

Redevelopment of the site under this IPG includes the proposed construction of a fire station, administrative offices, department crew quarters, department trainee quarters, and public meeting spaces. The facility would serve as KVFR's central station and be occupied on a continual basis. Presently, permanent KVFR firefighters work a 48-hour on, 96-hour off schedule. In addition to the permanent staff, KVFR has an agreement with Central Washington University to provide a firefighter training program. Functioning as an immersion program, college students in the program would also occupy the building on a continual basis and provide response with KVFR

permanent firefighters as their classroom schedules allow. Crew quarters will include sleeping rooms, crew common spaces, bathrooms, and food preparation areas.

The proposed site building will also include administrative offices for KVFR. Portions of the proposed use will include common meeting spaces and food preparation areas that will be accessible to the public. These areas will be present in the approximate west one-third of the building.

Considering the redevelopment area limitations, the building will likely consist of a two-story construction with administrative spaces located above the public spaces. Apparatus bay areas will likely be present in the middle of the building with crew quarters located in the east approximately two-thirds of the building. As proposed, the crew quarters will be located in an area overlying the former locations of UST-01, UST-02, and UST-03. See Appendix A, Figure 11 for the location of the proposed building and estimated extents of petroleum contaminated soils.

During the course of site redevelopment, construction workers involved in the redevelopment of the site could be exposed to the contaminants present in the site soils.

The following pathways are potentially complete human health exposure pathways:

10.3.1 Firefighters, Trainee Firefighter, KVFR Staff, and the Public

The proposed site building will be occupied on a continual basis by permanent firefighters, trainee firefighters (college students), administrative staff, and the public. These staff may be exposed to site contaminants via direct skin contact with soil, incidental ingestion of soil as a result of poor hygiene, and inhalation of soil particulates. As provided under MTCA, contaminant presence from the ground surface to a depth of 15-feet bgs is considered accessible.

Firefighters, trainee firefighters, KVFR staff, and the public may also be exposed to volatile contaminants via inhalation of chemicals migrating from vadose-zone soil or groundwater in the vapor phase and into the proposed site building. Soil gas also has the potential to migrate off site; however, given the open space surrounding the site, offsite impact is unlikely.

One domestic water well is currently present at the site and is reported to provide potable drinking and irrigation water to the site buildings and an adjacent offsite residence. A well log has not been located and the depth and construction of the well has not been established. Sampling of water from an in-line tap did not identify petroleum hydrocarbons or BTEX in the well. However, nitrates were present at a concentration of 2 µg/L suggesting that the well accesses a near surface aquifer.

Future site development proposes to make use of the domestic water well, or a newly installed well if allowed by Ecology and Kittitas County for site irrigation use. Well relocation may occur within an area that would potentially be located within an area of petroleum impacted groundwater. As such, potential exits for future site occupants to be exposed to existing site contaminants through ingestion, skin contract, or inhalation of chemicals volatilizing from site groundwater.

10.3.2 Construction Workers

There are currently no construction workers (e.g., excavation workers, trench workers) working on site. However, construction activities likely will be performed as part of site redevelopment. Construction workers could contact contaminants in soil during site work including incidental ingestion, skin contact, and inhalation of contaminated soil particulates.

10.3.3 The Public

As a public access and use facility, the site is likely to have routine access by community members for scheduled functions, and other public agency representatives during emergency management events or emergency management training events. Presently use and access of non-fire station facilities, such the vegetative floodplain is not proposed for development as a community or ecological nature park or trail, however given the importance of water and natural habitat in the Ellensburg community such development may occur.

The site is not currently proposed for fencing or other site controls beyond the areas needed for site security associated with the fire station. As such, potential exists for the public and wildlife to access and be exposed to any contaminants remaining at the site. In addition, should contaminants remain after development in the floodplain, potential exists for scouring of the site with floodwaters to lead to offsite transport and disposition of site contaminants. If site contaminants were to remain, the public could potentially be exposed during site use.

11.0 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.

11.1 Ecological Conditions

Areas of the site adjacent to Wilson Creek include large tree and associated under story vegetation. However, little of this vegetation appears to be native and undisturbed as creek maintenance has included dredging of the creek on a regular basis and has resulted in dredged silts and other stream load materials along the creek bank.

Other disturbed areas of the site include non-native vegetation including Cheat Grass *(Bromus tectorum)*, a non-native species common to the area that thrives in the climate of the area. Potential exists for other non-native and invasive species to be present during other parts of the year.

Overall density and diversity of vegetation at the site is low. While site redevelopment is primarily anticipated to consist of the construction of a new fire station, including associated areas of concrete and asphalt surfaces, other portions of the site will be returned to native vegetation or

vegetated for use as public space. Potential also exists for exposed site soil, both under current site conditions and following remediation, to be visited by local wildlife.

Although the site does not presently support natural habitats important for native plants and wildlife, for the purposes of this TEE it is assumed that terrestrial ecological receptors can contact chemicals in soil now and in the future should remediation efforts not be implemented.

11.2 TEE Exclusions

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 or a conditional point of compliance of 6-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).

Contamination at the site is present at the ground surface within the upper 15-feet of the soil profile. Additionally, groundwater is present ranging from 6 to 10-feet bgs. Under proposed project remediation, no contamination will remain at the site. However, at present the site does not qualify for an exclusion based on either the standard point of compliance or a conditional point of compliance.

Contamination at the site is present in site soils between and likely extending under site buildings. No institutional controls, such as administrative controls, physical barriers, etc. are present to prevent persons or wildlife access to site soils. The site does not qualify for an exclusion based on an incomplete exposure pathway.

The site is located on a development margin between portions of the city of Ellensburg that have been developed for nearly 100 years and the surrounding agricultural land. Additionally, the project site is bounded by Wilson Creek. The area within 0.25-miles of the site is equal to approximately 126 acres. At the site, undeveloped land or agricultural land is located south and southeast of the site. If approximately 25% of the surrounding area is undeveloped or agricultural, 31.5 acres are present within 0.25-miles of the center of the site. As such, the site is not excluded based on the proximity to ecological receptors regardless of contaminants present.

Select contaminant concentrations exceed naturally occurring background concentrations. Likely, some contaminant concentrations will also exceed naturally occurring background concentrations

following completion of the selected remedial action. As such, the site does not qualify for an exclusion based on contaminant concentrations.

Current site conditions due not meet the requirements for exclusion of TEE review under 173-340-7491. Where an exclusion is not applicable to the site, an evaluation is completed as to if a simplified TEE or a site-specific TEE is required to assess the potential ecological impact to the site.

11.3 Simplified Site Evaluation or Site-Specific TEE

The second step of the TEE process is the identification of site-specific features, that where present, demonstrate rare, unique, or protection of ecological conditions. Where any of the following are present, a site-specific evaluation is required:

- Natural areas, including green-belts, protected wetlands, forestlands, riparian areas, locally designated environmentally sensitive areas, open space areas managed for wildlife, and some parks and outside recreation areas.
- Vulnerable species, including those identified as threatened or endangered species, priority species or species of concern or endangered, threatened or sensitive plant species.
- Extensive habitat, with more than 10 acres of native vegetation within 500-feet of the site, a total that includes all fragmented areas of habitat.
- Risk to significant wildlife populations due to the presence of contamination.

At the site, no natural area, vulnerable species, extensive habitat, or risks to significant wildlife populations are present. As such, a simplified TEE is appropriate to complete ecological review for the site.

11.4 Simplified TEE

Under the Simplified TEE, three criteria are evaluated: exposure analysis, pathway analysis, and toxicity analysis. If any one of the three criteria has been met, then the TEE process can be ended.

11.4.1 Exposure Analysis

The exposure analysis is applicable where the total area of soil contamination is not more than 350 square feet or where land use at the site and surrounding area make substantial wildlife exposure unlikely.

Contaminated soils cover an area estimated at nearly 15,000 square feet, including approximately 4,000 square feet of exposed contaminated soils. As such, the total areas of land use impacted by contaminants exceed the threshold.

Current site use and proposed future site use both consist of large vehicle traffic, persons, and disruptive site conditions. Additionally, no green-belts or riparian zones are present near the site. Adjacent water bodies are limited to Wilson Creek, and no ponding or other areas of settled water are present near the site. Application of MTCA Table 749-1: *Simplified Terrestrial Ecological*

Evaluation – Exposure Analysis Procedure, results in the following points, where the acreage is 4.0 or more (12 points), the property is a commercial property (3 points), the habitat quality near is low (3 points), the undeveloped land is unlikely to attract wildlife (2 points), and no listed contaminants are present (4 points). Where the total points awarded to acreage are less than total points for all other areas, the evaluation may be ended. As such, with the points equal, the evaluation continues.

11.4.2 Pathway Analysis

Presently the site includes localized areas that are undeveloped. Impervious site features are limited to the building footprints. As such, more than 80% of the site is exposed soil.

The proposed remediation would not independently result in the establishment of additional impervious surfaces at the site. Rather as an interim condition, no impervious surfaces are likely to remain. As such, potential for wildlife exposure to remnant site contaminants would be expected to increase during the period between building demolition and remediation. Similarly, following site remediation and until site redevelopment, wildlife exposure to remnant contaminants would be uncontrolled.

Furthermore, site contaminants are present at the soil surface and in soils less than 6-feet bgs and above the threshold of 15-feet bgs. As such, a condition point of compliance or standard point of compliance would not be applicable site institutional controls.

11.4.3 Toxicity Analysis

Under the simplified TEE, exposure pathways from soil contamination to soil biota, plants, or wildlife is required. Where the site is a commercial or industrial site, only exposure for wildlife is required. Under the process, priority chemicals of ecological concern listed in MTCA Table 749-2: *Priority Contaminants of Ecological Concern for Sites that Qualify for the Simplified Terrestrial Ecological Evaluation Procedure* are evaluated. Site contaminants are presented below:

Table 1: Toxicity Analysis - Priority Contaminants

Chemical	Industrial or Commercial Soil Value	Highest Concentration in Site Soils	Site Value Exceeds Reference Value?
Arsenic III	20 mg/Kg	9.4 mg/Kg [1]	No
Cadmium	36 mg/Kg	6.17 mg/Kg	No
Chromium (total)	135 mg/Kg	54.8 mg/Kg	No
Lead	220 mg/Kg	167 mg/Kg	No
Mercury (organic)	0.7 mg/Kg	0.329 mg/Kg [3]	No
Nickel	1,850 mg/Kg	71.6 mg/Kg	No
Zinc	570 mg/Kg	627 mg/Kg	**YES**
Acenapthene	Not Established	4.91 mg/Kg	No
Benzo(a)pyrene	30 mg/Kg	0.329 mg/Kg	No
Gasoline Range Organics	12,000 mg/Kg	156 mg/Kg	No
Diesel Range Organics	15,000 mg/Kg	5,990 mg/Kg	No

[1] Provided value is for all valences of Arsenic as no speciation was completed.
[2] Hexavalent chromium was identified as non-detect at method reporting limits in all samples analysis. Provided value is for Total Chromium.
[3] The value provided is the method reporting limit.

Based on a Toxicity Analysis, zinc concentrations in site soils at sample location 022312-61 exceed the allowable threshold under Table 749-2. As such, the proposed remedial action must utilize a zinc cleanup value of 570 mg/Kg for remediation of the petroleum contaminated and metal impacted soils at location 022312-61, a location east of the diesel repair shop building. A proposed remedial action that includes removal of the soil from this location and confirmation that zinc concentrations in soil are below the Priority Contaminants standard would be protective of wildlife at the site. Until such time as remediation is completed, the site should not be considered protective of wildlife.

11.4.4 Summary of Simplified TEE

The Simplified TEE was completed as prescribed in WAC 173-340-7492. Based on a review of the Exposure Analysis, Pathway Analysis, and Toxicity Analysis, the proposed remedial action would need to utilize a cleanup standard of 570 mg/Kg for Zinc. All other proposed cleanup standards under MTCA Method A would be sufficient to address the protection of wildlife at the site. As such, the TEE process is ended with the use of the TEE indicator soil concentration for Zinc provided in Table 749-2.

Proposed remedial actions will not result in the accumulation or consolidation of contamination concentrations to a greater degree. Upon completion of the recommended remedial action alternative, site conditions are expected to meet the indicator soil concentrations for all site contaminants.

12.0 REMEDIAL ACTIONS ALTERNATIVES REVIEW

Fulcrum has completed an initial remedial alternatives review associated with each area of impact identified during the investigation, including:

- Former Diesel and Gasoline UST Area
- Stained Soils East of the Diesel Repair Shop

The review is intended to provide an initial screening evaluation of the appropriateness, cost, and feasibility for implementation of the remedial options at the site. The initial screening evaluation will quickly eliminate infeasible remedial options for the site based on available resources and site conditions. Evaluation included a review of potentially applicable remedial alternatives identified using Fulcrum's expertise and the following resources:

- Evaluation of Alternatives Treatment Technologies for CERCLA Soils and Debris Alternative Treatment Technology Information Center (ATTIC)
- Federal Remediation Technologies Roundtable

12.1 Site-Specific Remedial Conditions

The evaluation criteria of effectiveness, feasibility of implementation, and cost include the seven evaluation criteria presented in WAC 173-340-360 as follows:

1. Protective of human health and the environment
2. Compliance with Ecology defined cleanup standards
3. Compliance with applicable state and federal laws
4. Provide for compliance monitoring
5. Use permanent solutions to the maximum extent practicable
6. Provide for a reasonable restoration time frame
7. Addresses public concerns

The following additional site conditions and objectives have been utilized as a portion of the remedial alternatives evaluation and alternative selection. The conditions are based on present site features and required construction processes to complete site development.

8. Maximum appropriate remedial activity duration has been determined to be one year for soil removal, followed by not less than 8 quarterly groundwater monitoring events and Ecology review process. The proposed maximum duration for remediation is intended to facilitate the facility construction funding through public engagement, bonding and voting, and present bonding schedules.
9. Projected decrease in contamination within soils and groundwater will be to the greatest extent necessary to eliminate potential for future exposure of KVFR employees working at the facility and within future onsite structures.
10. Remedial costs associated with the site must be proportional to the value of the property, proposed future site conditions, and within project funding limitations.

Review of remedial alternatives has been completed in conformance with Ecology regulatory criteria.

12.2 Remedial Alternatives Review

Fulcrum initially completed screening of remedial methods utilizing the *Federal Remedial Technology Roundtable, Treatment Screening Matrix*, Table 3-2, Version 4.0, applicable for fuel type contaminants (FRTF, 2008). To meet site-specific objectives, Fulcrum retained only the remedial technologies with above average efficacy ratings for soil and groundwater. The above average ratings are based on technology reliability, required operations and maintenance services, time frame of remediation of less than one year for soil, and overall effectiveness. The initial screening does not evaluate site-specific geologic conditions, site-specific contaminants, site resources, or associated cost. The following remedial technologies were determined to be appropriate for fuel hydrocarbons and were retained for further evaluation:

Table 2: Summary of Remedial Alternatives

Applicable Remediation Matrix	Technology and Process	
Soil and Groundwater Remediation	▪ No Action ▪ Access Restriction ▪ Monitored Natural Attenuation	▪ Enhanced Bioremediation ▪ Induction Heating ▪ Thermally Enhanced Soil Vapor Extraction
Soil Remediation Only	▪ Bioventing ▪ Soil Vapor Extraction ▪ Steam/Hot Air Injection ▪ Biopiles ▪ Composting	▪ Landfarming ▪ Slurry Phase Biological Treatment ▪ Thermal Desorption ▪ Thermal Destruction-Incineration Disposal
Groundwater Remediation Only	▪ Physical Barriers ▪ Air Sparging ▪ Bioslurping ▪ Monitored Natural Attenuation ▪ Dual Phase Extraction ▪ Bioreactors ▪ Advanced Oxidation Processes	▪ Granulated Activated Carbon/Liquid Phase Carbon Adsorption ▪ Separation ▪ Bio-Filtration ▪ High Energy Destruction ▪ Oxidation ▪ Vapor Phase Carbon Adsorption

12.3 Discussion of Evaluated Alternatives and Cost Analysis

Of the 27 alternatives reviewed, the following were determined to meet established criteria for incorporation at the site based on known conditions and proposed site development. See Appendix H.1 for the remedial action alternative summary table. Retained alternatives were further evaluated based on projected implementation cost associated with each remedial technology. Fulcrum utilized case study data presented by the Federal Remedial Technology Roundtable, Fulcrum's experience with similar projects, and EPA case study publications to evaluate projected unit costs. The table in Appendix H.2 provides a summary estimate of cost associated with each of the retained alternatives. The summary includes the following estimated costs where applicable:

- Initial Excavation
- Offsite Transport
- System Setup
- Permitting Costs
- Design Fees
- Public Bidding Costs
- Remediation Costs
- Groundwater Monitoring
- Confirmation Sampling

Projected fees are intended to be a log-scale estimate to both determine appropriate remedial technology and to eliminate remedial technology options for application at the site.

Soil and Groundwater Remediation:

- Thermally Enhanced Soil Vapor Extraction –

Soil Remediation Only:

- Biopiles
- Thermal Desorption
- Offsite Disposal

Groundwater Remediation Only:

- Monitored Natural Attenuation
- Dual Phase Extraction
- Bioreactors
- Advanced Oxidation Processes

Cost estimates are based on the following conditions:

- Estimated quantities of contaminated soils as presented in Sections 8.1.1 and 8.2.
- Acceptance of contaminated soil to a remediation or disposal facility within a 50-mile radius of the site.
- Current estimated excavation and transportation fees.
- A conversion factor of 1.5 tons per 1 cubic yard of contaminated soil.

Remedial cost estimates do not include:

- Additional soil analysis required for soil characterization prior to transfer to a remediation of disposal facility.
- Backfill material and associated transport fees.

12.4 Recommended Remedial Alternative

Following review of the available remedial alternatives, Fulcrum recommends implementation of excavation and offsite disposal or treatment at an appropriately permitted facility. While the biopile technology provides a reasonably consistent projected cost estimate, offsite disposal or treatment provides assurance of removal of contaminated soils within a known time-frame and eliminates the possibility of unforeseen cost, or effectiveness associated with onsite biopile remediation.

Additionally, as large areas of the site are located within the floodplain, any future development is likely to require significant import of soil to elevate portion of the site and with a requirement that the overall elevation does not increase, reduction of site elevations in other portions along Wilson Creek are likely necessary. As such, insufficient land area is present for an onsite aboveground treatment process.

Excavation and offsite disposal or treatment does not address groundwater contamination. However, removal of contaminant source within the overlying soil will optimize both natural attenuation of contaminants and effectiveness of groundwater specific remedial technology.

Fulcrum recommends a minimum of two consecutive quarters of groundwater monitoring following contaminated soil removal. The purpose of groundwater monitoring would be to evaluate residual groundwater quality prior to application of groundwater remedial technology. Due to the high variability and costs associated with groundwater remediation technology, and the low concentrations and localized area of groundwater impact, two consecutive quarters of groundwater monitoring are likely sufficient to establish the effect of source removal and natural attenuation prior to large scale remediation technology investment.

Continued groundwater monitoring will require re-installation of MW-02, located within the center of the former UST area. Fulcrum recommends that the well be reinstalled with a casing sufficient to support a dual phase extraction or similar system as deemed appropriate, should it be required for implementation of groundwater remediation technology.

Groundwater monitoring is required for at least 8 quarterly groundwater monitoring events to establish conditions in compliance with MTCA criteria and closure of the site.

Fulcrum's alternative review has been conducted within the limitations of regulatory and site-specific defined objects, as well as technological limitations for implementation. While no remedial alternative is guaranteed to provide conditions sufficient for site closure, in Fulcrum's opinion, the recommended alternative provides the greatest chance for closure within the objective criteria of two years.

12.5 Applicability of Selected Remedial Alternative

The remedial method is justified as it meets the following minimum requirement for selection of a cleanup action under WAC 173-340-360(2)(a):

(1) Protect Human Health and the Environment. The selected remedy will protect human health and the environment in the short-term and long-term by removing discrete areas of localized soil contamination and preventing exposure to impacted soil via consolidation of such soil beneath impermeable concrete or asphalt structures. Additionally, management through removal will eliminate the need for future site development, such as the installation of underground utilities or building footings to impact petroleum contaminated soil and result in a potential worker exposure.

(2) Comply with Cleanup Standards. The selected remedy will comply with interim control requirements as established in WAC 173-340-440 and complete site remediation faster than any other method.

(3) Comply with Applicable State and Federal Laws. The selected remedy is expected to comply with applicable state and federal laws. In addition, with the exception of land use and excavation permits, needed for remedial action, no air source permitting,

airborne discharge permitting, or stormwater permitting will be necessary as would be required under SVE or onsite aboveground remedial strategies.

(4) Provide Compliance Monitoring. Post-construction monitoring will be completed through implementation of a site-specific Operations and Maintenance Plan (O&M Plan). It is intended that the compliance monitoring will require at least 8 quarterly groundwater monitoring events and that following monitoring the site will receive a No Further Action (NFA) determination from Ecology.

The selected remedy also meets the other requirements for selection under WAC 173-340-360(2)(b) and 360(2)(d), which include the following:

(1) Using Permanent Solutions to the Maximum Extent Practicable. The selected remedy of off-site disposal or treatment is a permanent solution. Remedial strategies that use containment of impacted soil beneath impermeable concrete or asphalt structures is generally considered permanent but also results in retarding natural attenuation and *in situ* bioremediation.

(2) Providing for a Reasonable Restoration Time Frame. Cleanup goals will be achieved at the completion of soil excavation and offsite relocation and following completion of groundwater monitoring. If groundwater contaminant remains above MTCA Method A cleanup levels following two quarters of groundwater monitoring following soil removal, groundwater remediation strategies will be completed.

Soil excavation and offsite relocation can be completed within 6 months of direction to proceed. Not less than 8 quarterly groundwater monitoring events, without contaminants present above MTCA Method A cleanup levels will be required before the site is eligible for review under Ecology's Voluntary Cleanup Program.

(3) Considering Public Concerns. The public review process is anticipated to be incorporated into VCP review process for the site. Public participation will include public notification requirements as presented in WAC 173-340-600 prior to implementation of the selected remedy.

(4) Cleanup actions for soils at current or potential future residential area and for soils at schools and child care centers. Soils with hazardous substances with concentrations above applicable cleanup levels must be treated removed or contained.

12.6 Review of Site-Specific Features and Development Timeline

In addition to the review requirements under WAC 173-340-360, additional considerations have been identified by KVFR for the proposed site development. They include timeline limitations, acceptability of residual petroleum contaminant concentrations following remedial action, and site value relative to the cost of remediation. The review of site-specific requirements includes:

(1) Duration of Remedial Process. KVFR reports that the a remedial activity duration should be not more than 1 year, allowing for 2 or more years of subsequent groundwater monitoring and Ecology review process. The proposed maximum duration for remediation is intended to facilitate the facility construction funding through bonding and present bonding schedules. The selected remedy can be accomplished within the KVFR timeline.

(2) Remaining Contaminant Concentrations. Projected decrease in contamination within soils and groundwater will be to the greatest extent necessary to eliminate potential for future exposure of KVFR employees working at the facility and within future onsite structures. The selected remedy will result in the removal of petroleum contaminated soil and the remediation of petroleum contaminated groundwater. While future site construction should still utilize vapor resistive building design and methods of construction, no residual liquid or vapor phase contaminants will be present in site soils or groundwater.

(3) Property Value. Remedial costs associated with the site must be proportional to the value of the property, proposed future site conditions, and within project funding limitations. The selected remedy does not impact the property value except to provide a site that following remediation is free of contamination above MTCA Method A cleanup levels.

Based on Fulcrum's review of KVFR identified site development requirements, the selected remedy is the mostly likely remedial strategy to meet these site-specific requirements.

13.0 CONCLUSIONS

Based on information from this investigation, the following conclusions can be made:

- Petroleum contaminated soils are present associated with the Former Diesel and Gasoline UST Area.
- Groundwater was shown to be impacted with concentrations identified above MTCA Method A cleanup levels as a result of releases from the Former Diesel and Gasoline UST systems during the March 12, 2012 groundwater monitoring event.
- Groundwater monitoring events completed on April 30, 2012 and June 7, 2012 identified concentrations of diesel range petroleum hydrocarbons at concentrations below MTCA Method A cleanup levels.
- Groundwater contamination does not appear to extend beyond perimeter wells located approximately 50-feet beyond known areas of petroleum contaminated soil.
- Laboratory results for the Former Diesel and Gasoline UST Area suggests that the release has aged and degraded substantially.
- Surface contamination was identified associated with the Stained Soils East of the diesel repair shop.

- Recommendations for remediation include excavation and offsite disposal or treatment, followed by groundwater sampling and implementation of groundwater remedial technology, if required.

14.0 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.

15.0 REFERENCES

Ecology, 1991. *Site Visit Data Sheet*, Washington State Department of Ecology, M. Cochran, Central Region Office Site File, April 15.

Ecology, 1994. *Natural Background Soil Metals Concentrations in Washington State, Publication #94-115*, Washington State Department of Ecology, https://fortress.wa.gov/ecy/publications/summarypages/94115.html, October.

Ecology, 1998, *Underground Storage Tank Regulations*, Washington Administrative Code 173-360, http://apps.leg.wa.gov/WAC/default.aspx?cite=173-360, July 14.

Ecology, 2003. *Guidance for Site Checks and Site Assessments for Underground Storage Tanks*, Publication No. 90-52, Washington State Department of Ecology, https://fortress.wa.gov/ecy/publications/summarypages/9052.html, May.

Ecology, 2004, *Technical Memorandum, Collecting and Preparing Soil Samples for VOC Analysis*, Washington State Department of Ecology, https://fortress.wa.gov/ecy/publications/summarypages/0409087.html, June.

Ecology, 2005. *Guidance on Remediation of Petroleum-Containing Ground Water by Natural Attenuation*, Washington State Department of Ecology. Publication No. 05-09-091, https://fortress.wa.gov/ecy/publications/summarypages/0509091.html. July.

Ecology, 2007a. *Model Toxics Control Act – Cleanup*, Chapter 173-340 Washington Administrative Code. Washington State Department of Ecology, http://apps.leg.wa.gov/wac/default.aspx?cite=173-340, October 12.

Ecology 2007b. *MTCATPH Workbook*, http://www.ecy.wa.gov/programs/tcp/tools/toolmain.html, December.

Ecology, 2008a. *Policy 840: Data Submittal Requirements*, Toxics Cleanup Program Policy, Washington State Department of Ecology, http://www.ecy.wa.gov/programs/tcp/policies/tcppoly.html, March 31.

Ecology, 2008b. *Minimum Standards for Construction and Maintenance of Wells*, Chapter 173-160 Washington Administrative Code, Washington State Department of Ecology, http://apps.leg.wa.gov/wac/default.aspx?cite=173-160, December 19.

Ecology, 2009. *Dangerous Waste Regulation*, Chapter 173-303 Washington Administrative Code, Washington State Department of Ecology, http://apps.leg.wa.gov/wac/default.aspx?cite=173-303&full=true, June 30.

Ecology, 2011. *Guidance for Remediation of Petroleum Contaminated Sites*, Publication 10-09-057, Washington State Department of Ecology, https://fortress.wa.gov/ecy/publications/summarypages/1009057.html, September.

Ecology, 2012. *Cleanup Levels and Risk Calculations*, Washington State Department of Ecology, https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx, June.

FRTR, 2008. *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0*, Federal Remediation Technologies Roundtable (FRTR), http://www.frtr.gov/matrix2/top_page.html, July 14.

Fulcrum, 2012: *Phase I Environmental Site Assessment*, Mountain View Brownfield Site, Fulcrum Environmental Consulting, Inc. July 31.

PLSA, 2005. *Results of Soil and Water Sampling Analysis, 400 East Mountain View Ave. Ellensburg, WA.* PLSA Engineering & Surveying. November 28.

USDA, 2012. Web Soil Survey , United States Department of Agriculture (USDA) National Resource Conservation Service (NRCS) http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm, February 17.

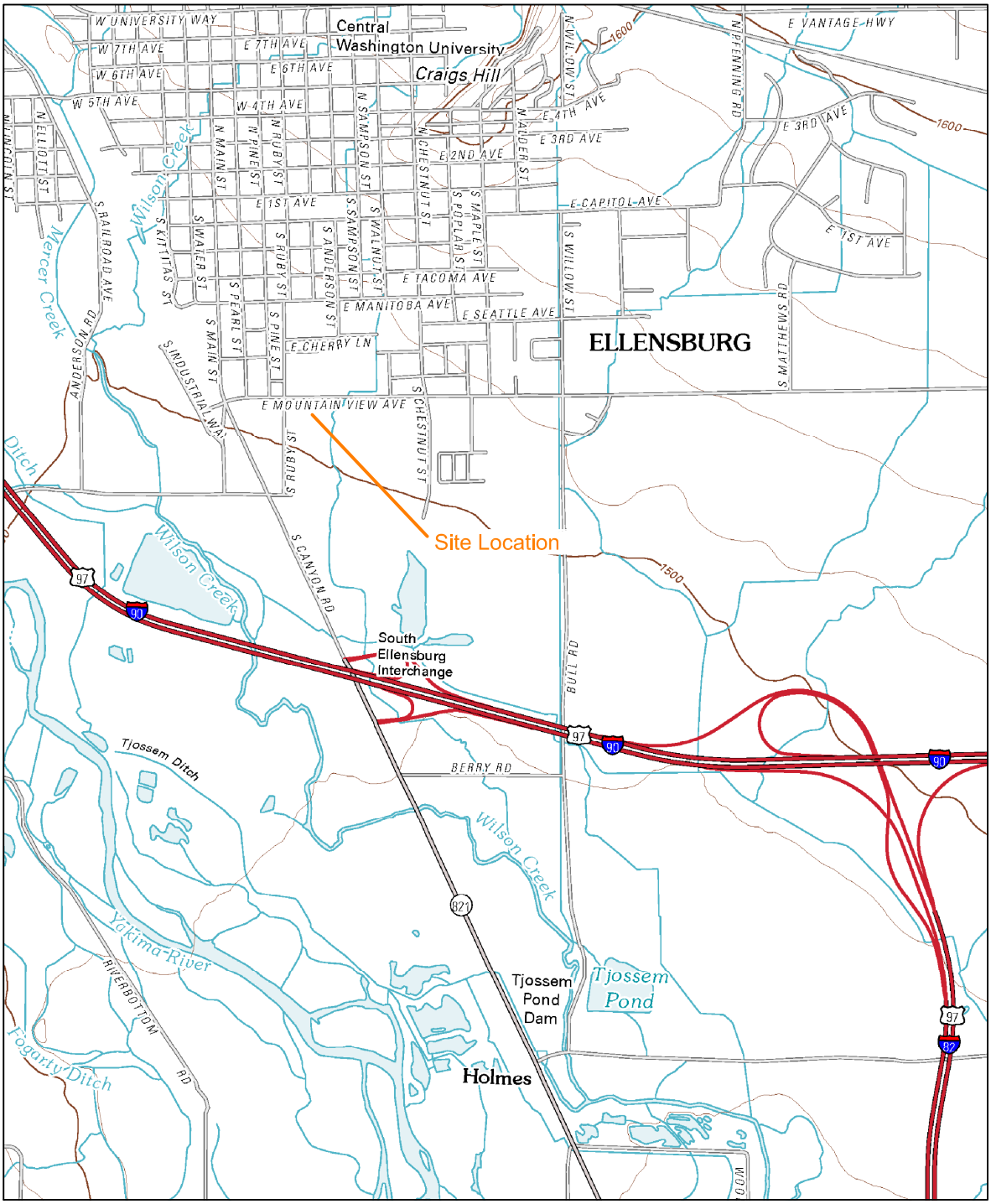
USGS, 2006: *Hydrogeologic Framework of Sedimentary Deposits in Six Structural Basins, Yakima River Basin, Washington.* Scientific Investigation Report 2006-5116, United States Geological Survey, May 20.

USGS, 2011, Ellensburg South, WA. 7.5 Minute Quadrangle Map, 1:24,000 scale. United States Geological Survey, http://store.usgs.gov/b2c_usgs/usgs/maplocator/(xcm=r3standardpitrex_prd&layout=6_1_61_48&uiarea=2&ctype=areaDetails&carea=%24ROOT)/.do.

APPENDIX A

Figures

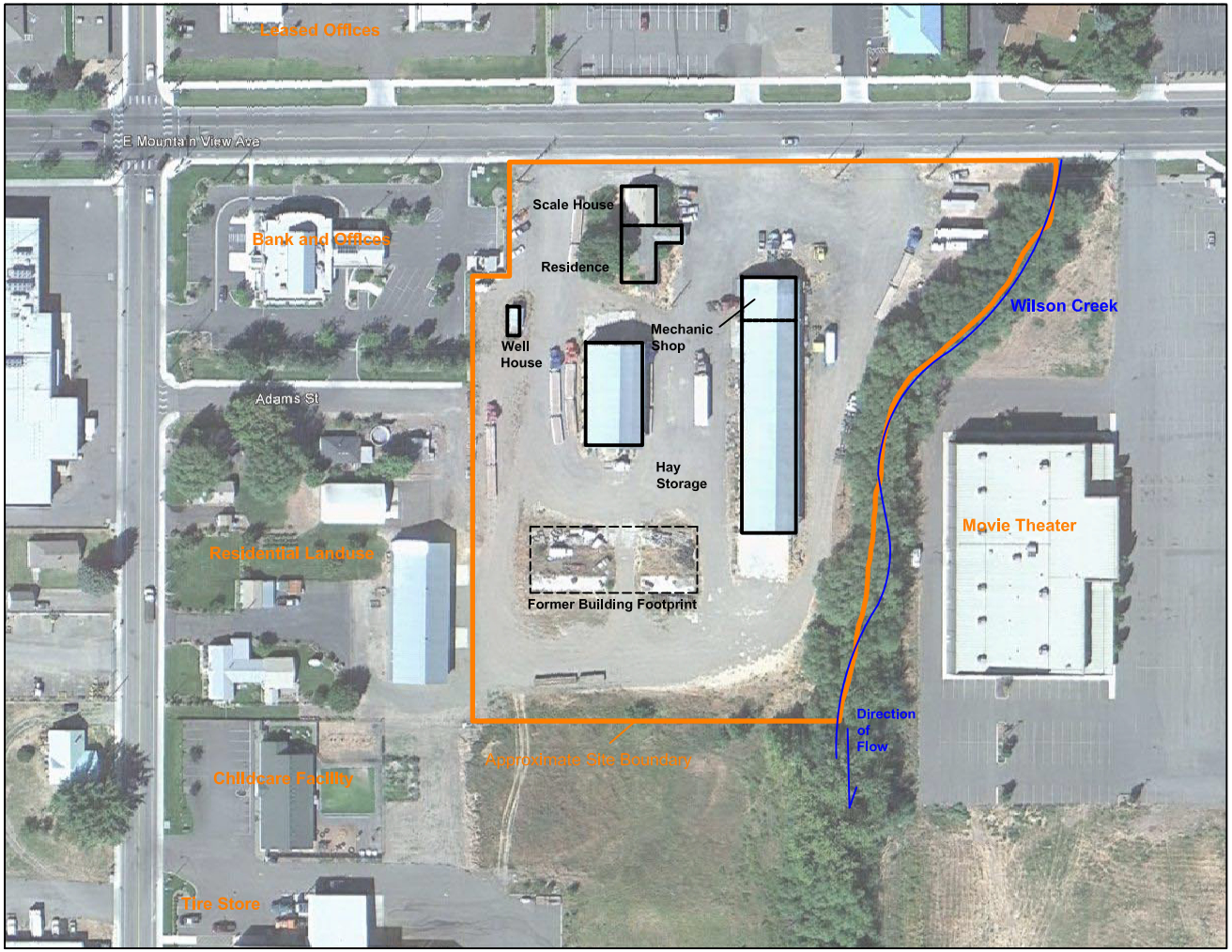
FULCRUM environmental consulting



N

Fulcrum Environmental Consulting, Inc. 406 North Second Street, Yakima, Washington 98901 p: 509.574.0839 f: 509.575.8453 efulcrum.net Mountain View Brownfield . 11570 . SPB . 040312	Mountain View Brownfield 400 East Mountain View Avenue Ellensburg, Washington	General Site Location Map FIGURE 1

FULCRUM environmental consulting



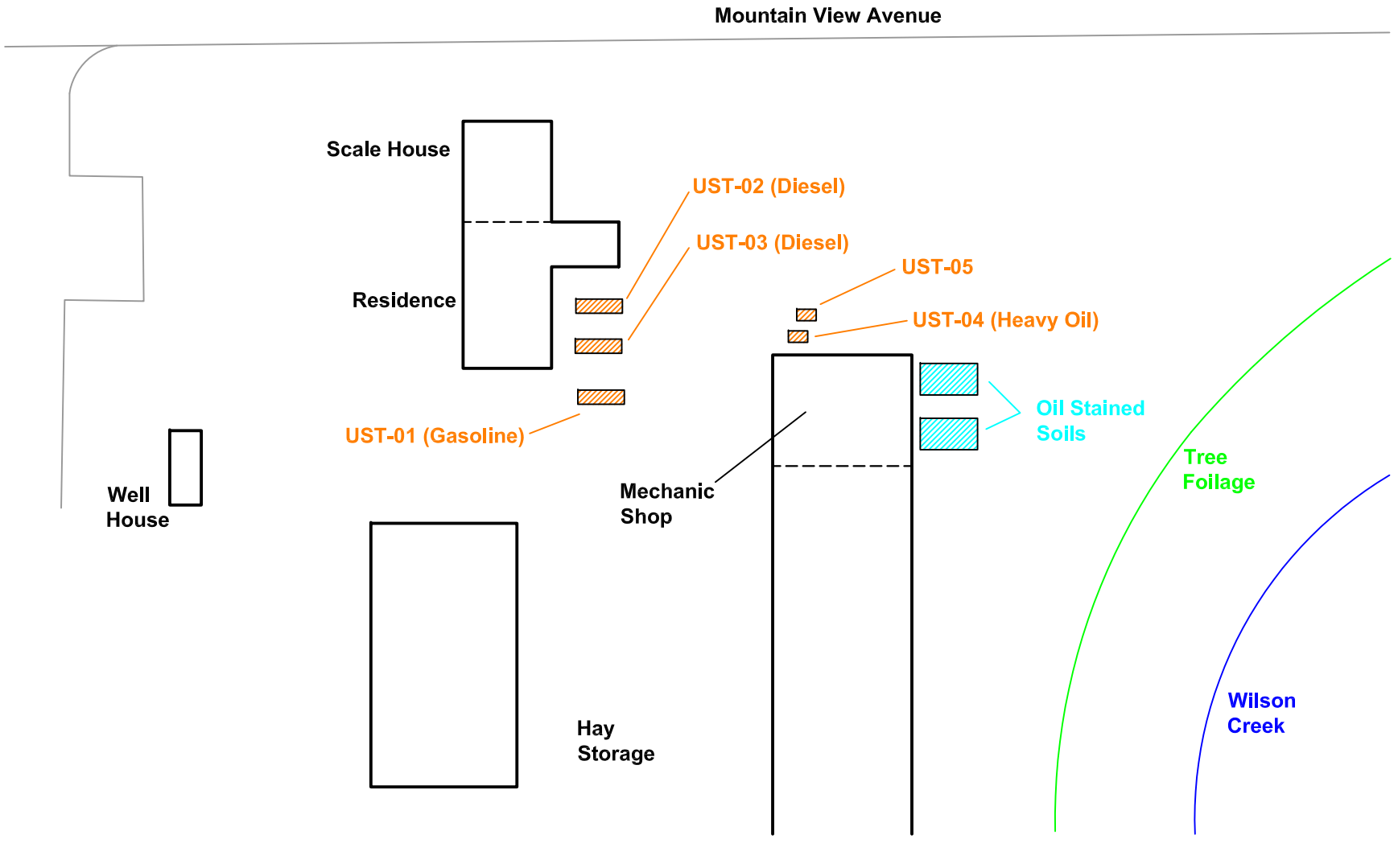
Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453 efulcrum.net
Mountain View Brownfield. 11570. SPB. 050812

Mountain View Brownfield
400 East Mountain View Avenue
Ellensburg, Washington

General Site Features

FIGURE
2

FULCRUM environmental consulting

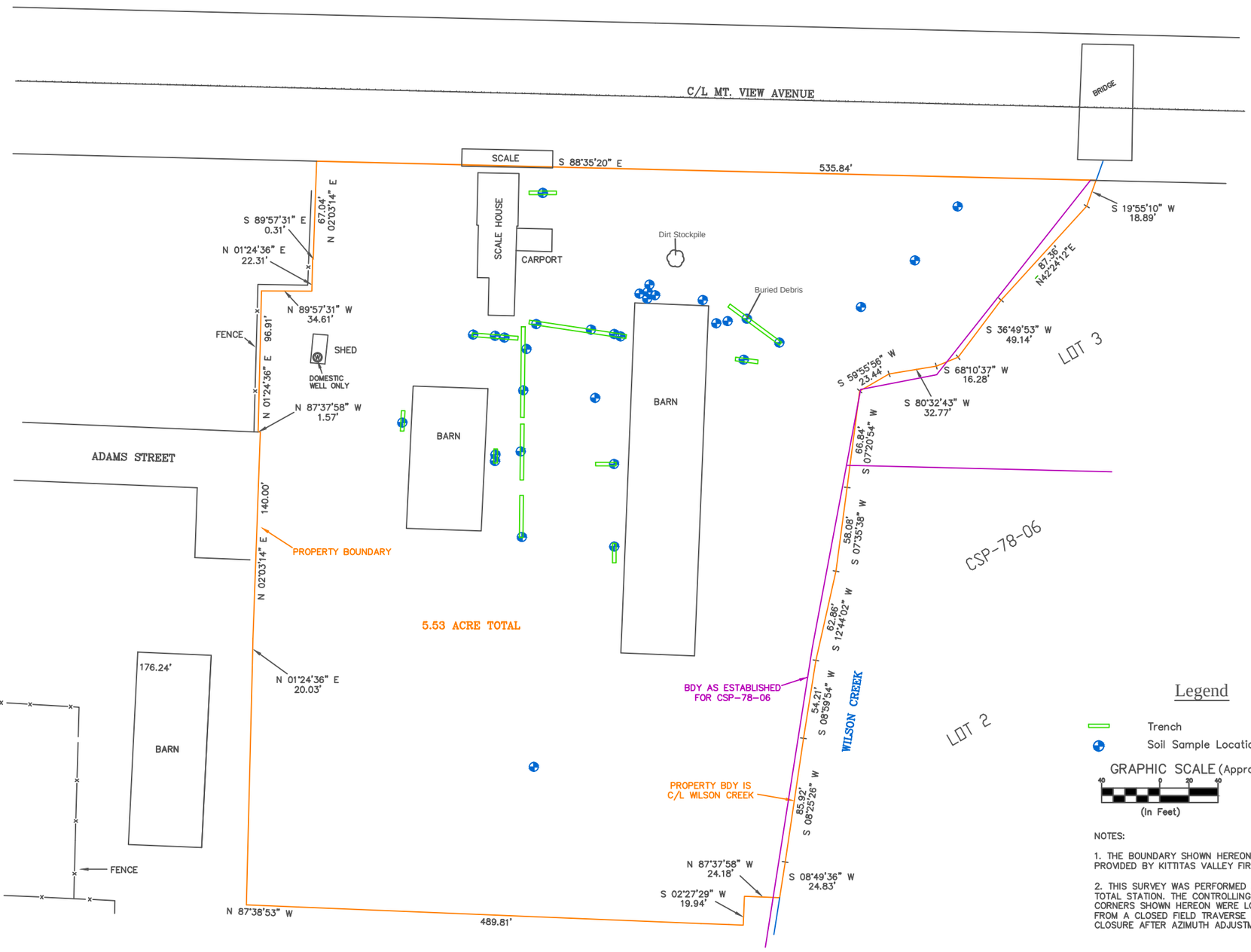


Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453 efulcrum.net
Mountain View Brownfield. 11570. SPB. 050812

Mountain View Brownfield
400 East Mountain View Avenue
Ellensburg, Washington

UST and Stained Soil Locations

FIGURE 3



Legend

- Trench
- Soil Sample Location

GRAPHIC SCALE (Approximate)

40 0 20 40

(In Feet)

NOTES:

1. THE BOUNDARY SHOWN HEREON IS BASED ON A TITLE REPORT PROVIDED BY KITTITAS VALLEY FIRE & RESCUE.

2. THIS SURVEY WAS PERFORMED USING A TOPCON GTS SERIES TOTAL STATION. THE CONTROLLING MONUMENTS AND PROPERTY CORNERS SHOWN HEREON WERE LOCATED, STAKED AND CHECKED FROM A CLOSED FIELD TRAVERSE IN EXCESS OF 1:10,000 LINEAR CLOSURE AFTER AZIMUTH ADJUSTMENT.

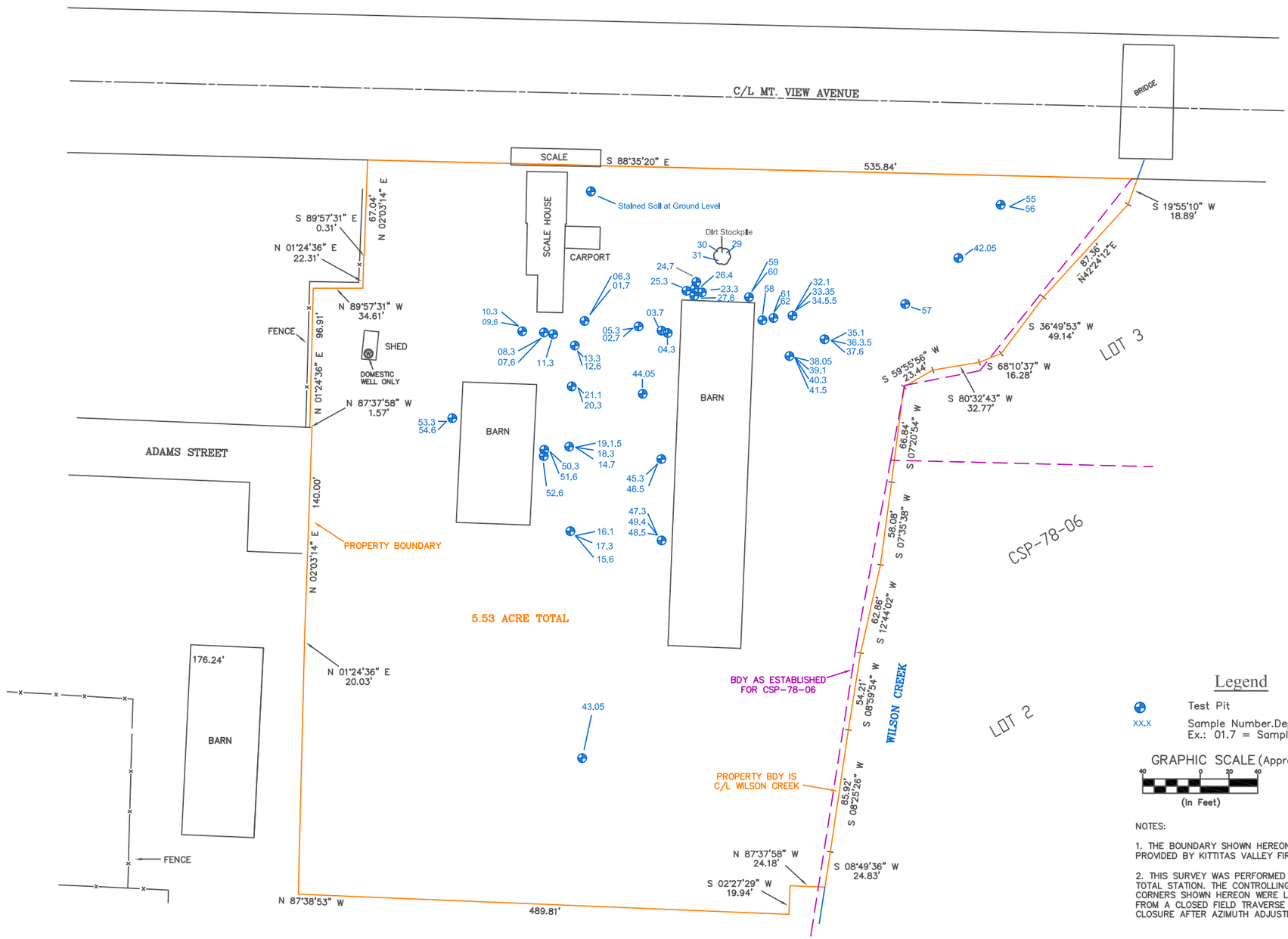
Base Drawing by Cruse & Associates, Ellensburg, WA

Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453 efulcrum.net
Mountain View Brownfield. 11570 . SPB . 040312

Mountain View Brownfield
400 East Mountain View Avenue
Ellensburg, Washington

Trench Excavation Map

FIGURE
4



Legend

- Test Pit
- XX.X — Sample Number.Depth (in feet) Ex.: 01.7 = Sample #1 at 7 feet

GRAPHIC SCALE (Approximate)

40 0 20 40

(In Feet)

NOTES:

1. THE BOUNDARY SHOWN HEREON IS BASED ON A TITLE REPORT PROVIDED BY KITTITAS VALLEY FIRE & RESCUE.

2. THIS SURVEY WAS PERFORMED USING A TOPCON GTS SERIES TOTAL STATION. THE CONTROLLING MONUMENTS AND PROPERTY CORNERS SHOWN HEREON WERE LOCATED, STAKED AND CHECKED FROM A CLOSED FIELD TRAVERSE IN EXCESS OF 1:10,000 LINEAR CLOSURE AFTER AZIMUTH ADJUSTMENT.

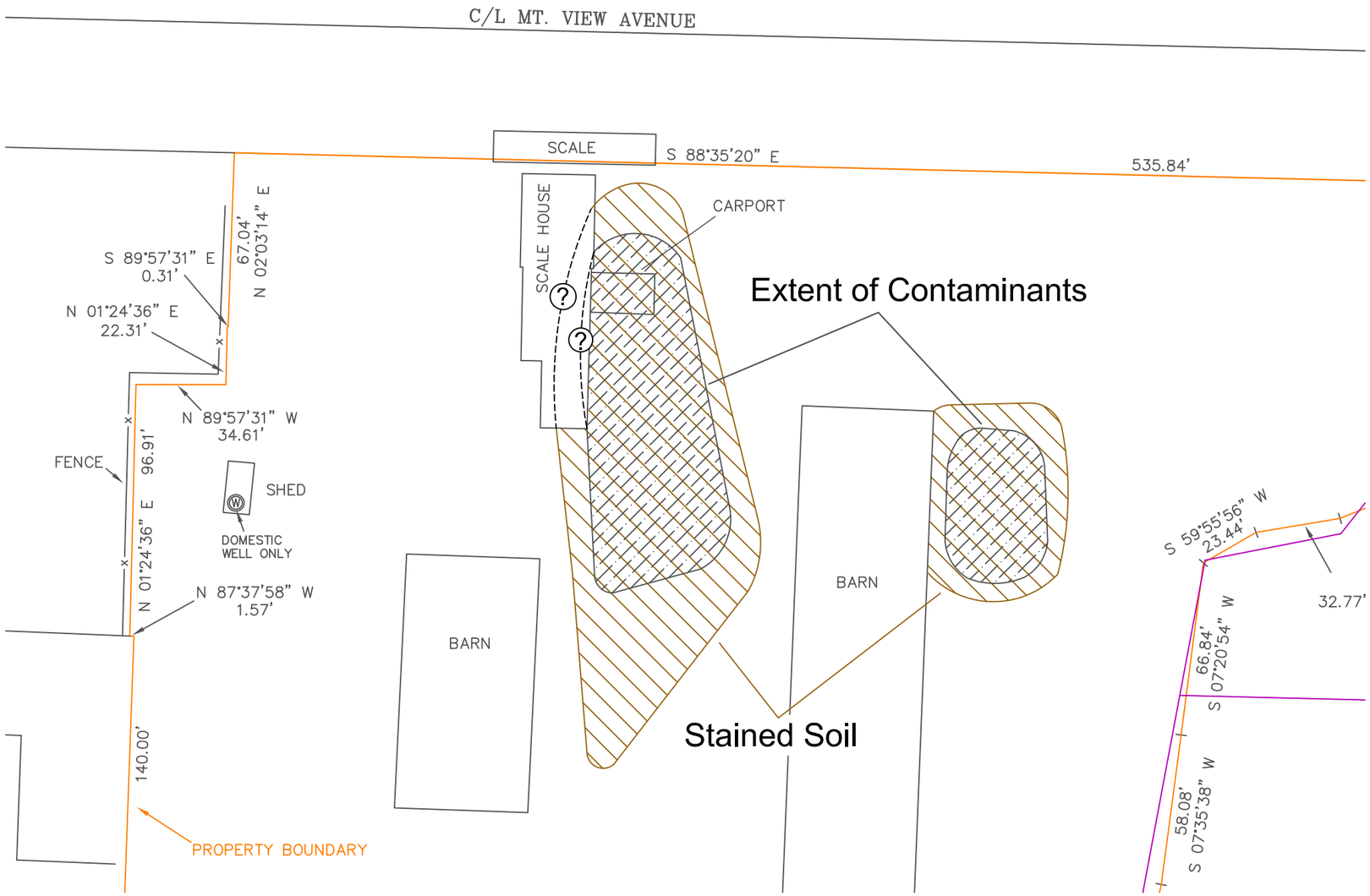
Base Drawing by Cruse & Associates, Ellensburg, WA

Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453 efulcrum.net
Mountain View Brownfield. 11570 . SPB . 032612

Mountain View Brownfield
400 East Mountain View Avenue
Ellensburg, Washington

Soil Sample Location Map

FIGURE
5



NOT TO SCALE

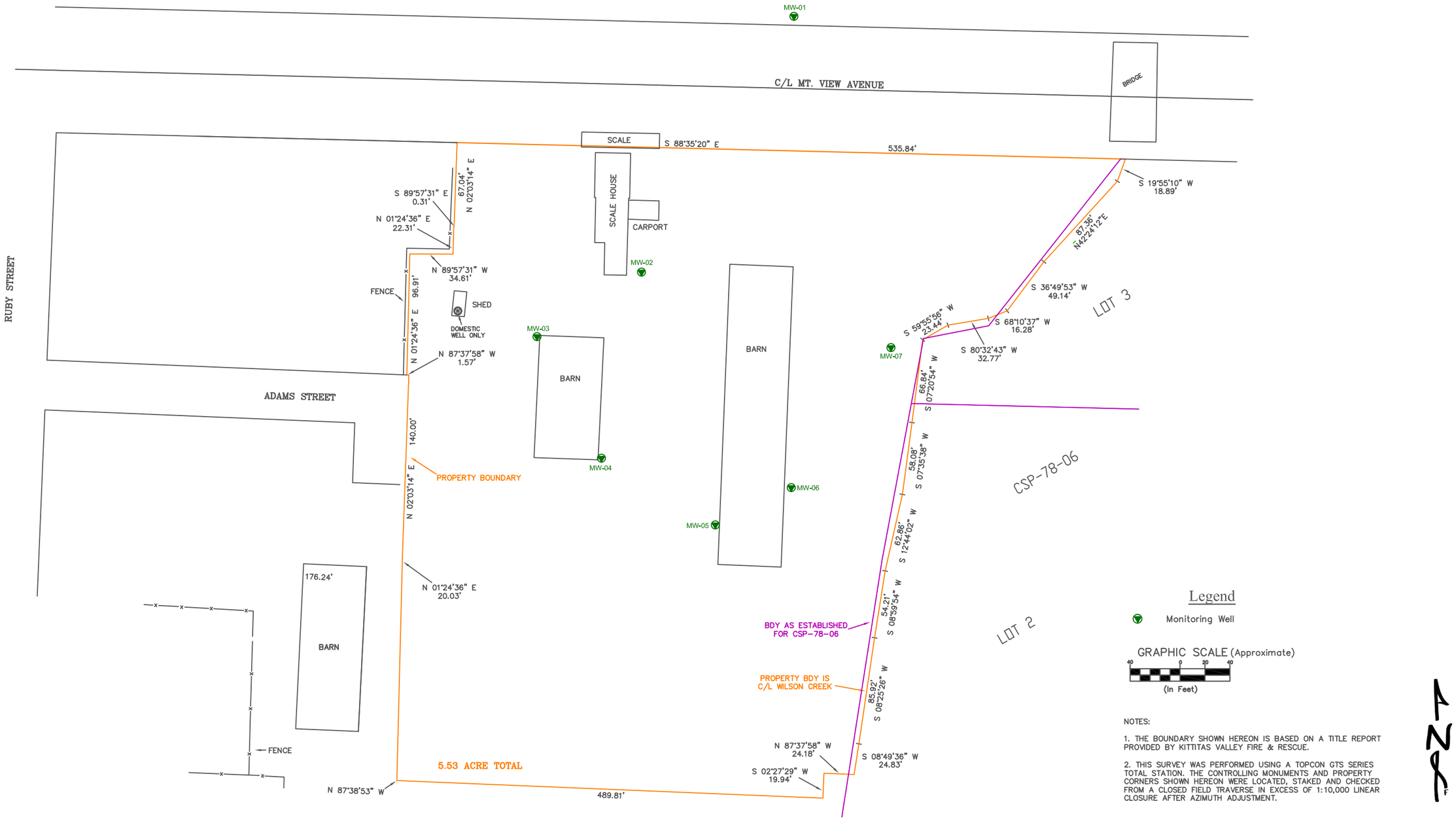
Base Drawing by Cruse & Associates, Ellensburg, WA

Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453 efulcrum.net
Mountain View Brownfield. 11570 . SPB . 050812

Mountain View Brownfield
400 East Mountain View Avenue
Ellensburg, Washington

Contaminant Extent Map

FIGURE
6



Legend

Monitoring Well

GRAPHIC SCALE (Approximate)

40 0 20 40

(In Feet)

NOTES:

1. THE BOUNDARY SHOWN HEREON IS BASED ON A TITLE REPORT PROVIDED BY KITTITAS VALLEY FIRE & RESCUE.

2. THIS SURVEY WAS PERFORMED USING A TOPCON GTS SERIES TOTAL STATION. THE CONTROLLING MONUMENTS AND PROPERTY CORNERS SHOWN HEREON WERE LOCATED, STAKED AND CHECKED FROM A CLOSED FIELD TRAVERSE IN EXCESS OF 1:10,000 LINEAR CLOSURE AFTER AZIMUTH ADJUSTMENT.

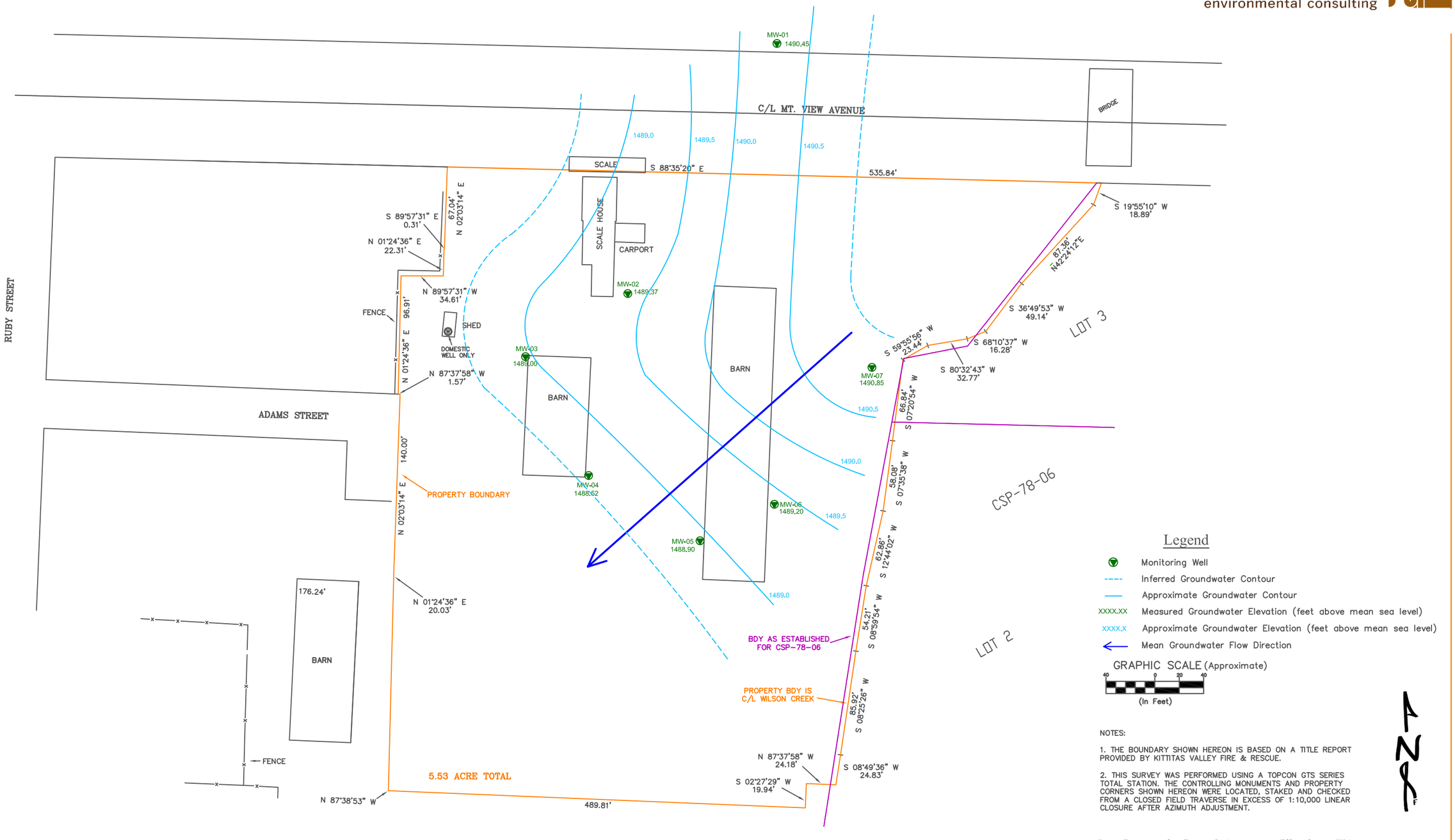
Base Drawing by Cruse & Associates, Ellensburg, WA

Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453 efulcrum.net
Mountain View Brownfield. 11570 . SPB . 033012

Mountain View Brownfield
400 East Mountain View Avenue
Ellensburg, Washington

Monitoring Well Locations

FIGURE
7



Legend

- Monitoring Well
- Inferred Groundwater Contour
- Approximate Groundwater Contour
- XXXX.XX Measured Groundwater Elevation (feet above mean sea level)
- XXXX.X Approximate Groundwater Elevation (feet above mean sea level)
- Mean Groundwater Flow Direction

GRAPHIC SCALE (Approximate)

40 0 20 40

(In Feet)

NOTES:

1. THE BOUNDARY SHOWN HEREON IS BASED ON A TITLE REPORT PROVIDED BY KITTITAS VALLEY FIRE & RESCUE.

2. THIS SURVEY WAS PERFORMED USING A TOPCON GTS SERIES TOTAL STATION. THE CONTROLLING MONUMENTS AND PROPERTY CORNERS SHOWN HEREON WERE LOCATED, STAKED AND CHECKED FROM A CLOSED FIELD TRAVERSE IN EXCESS OF 1:10,000 LINEAR CLOSURE AFTER AZIMUTH ADJUSTMENT.

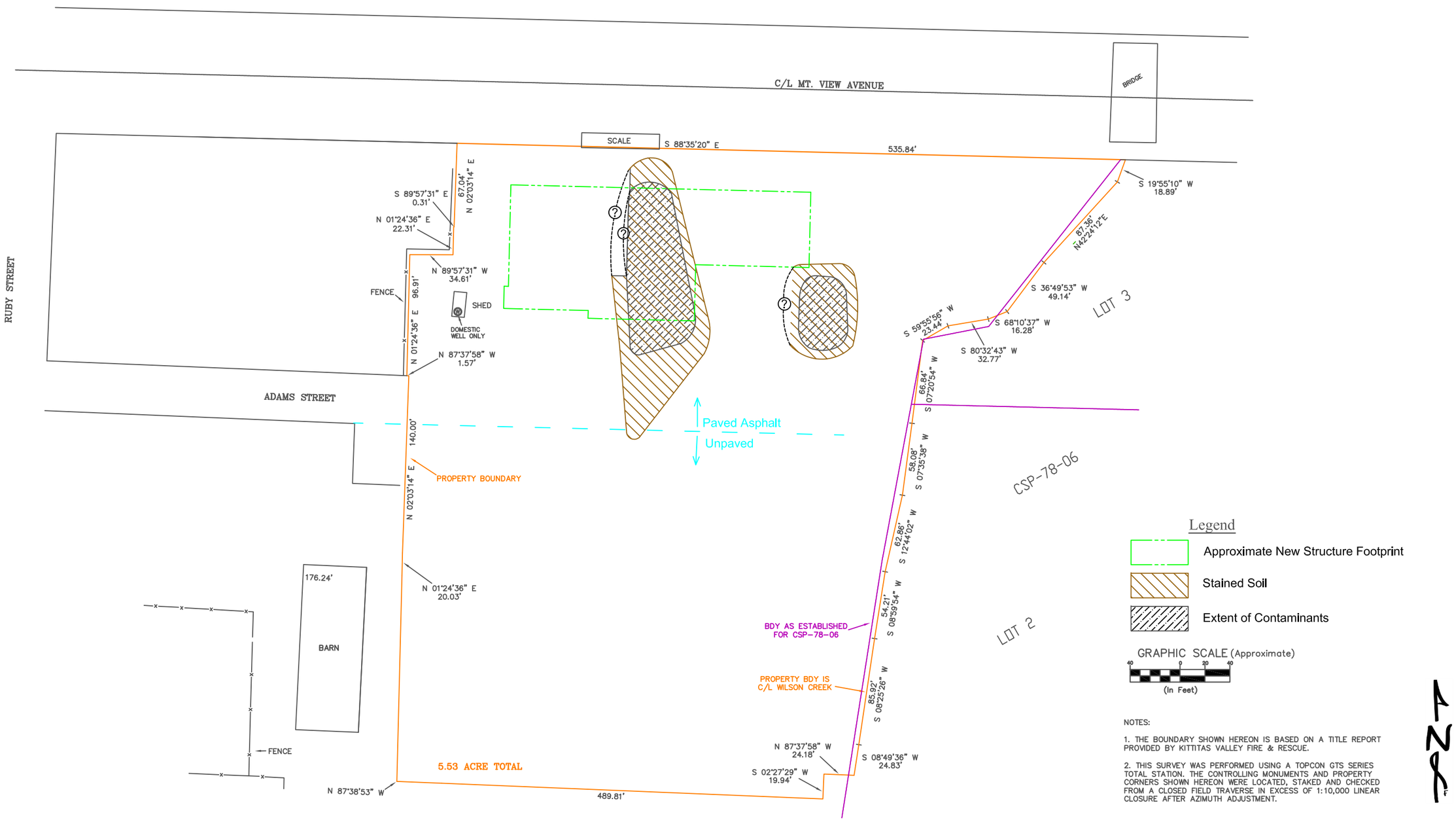
Base Drawing by Cruse & Associates, Ellensburg, WA

Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453 efulcrum.net
Mountain View Brownfield. 11570 . SPB . 033012

Mountain View Brownfield
400 East Mountain View Avenue
Ellensburg, Washington

Ground Water Contour Map
March 12, 2012

FIGURE
8



Legend

- Approximate New Structure Footprint
- Stained Soil
- Extent of Contaminants

GRAPHIC SCALE (Approximate)

40 0 20 40

(In Feet)

NOTES:

1. THE BOUNDARY SHOWN HEREON IS BASED ON A TITLE REPORT PROVIDED BY KITTITAS VALLEY FIRE & RESCUE.

2. THIS SURVEY WAS PERFORMED USING A TOPCON GTS SERIES TOTAL STATION. THE CONTROLLING MONUMENTS AND PROPERTY CORNERS SHOWN HEREON WERE LOCATED, STAKED AND CHECKED FROM A CLOSED FIELD TRAVERSE IN EXCESS OF 1:10,000 LINEAR CLOSURE AFTER AZIMUTH ADJUSTMENT.

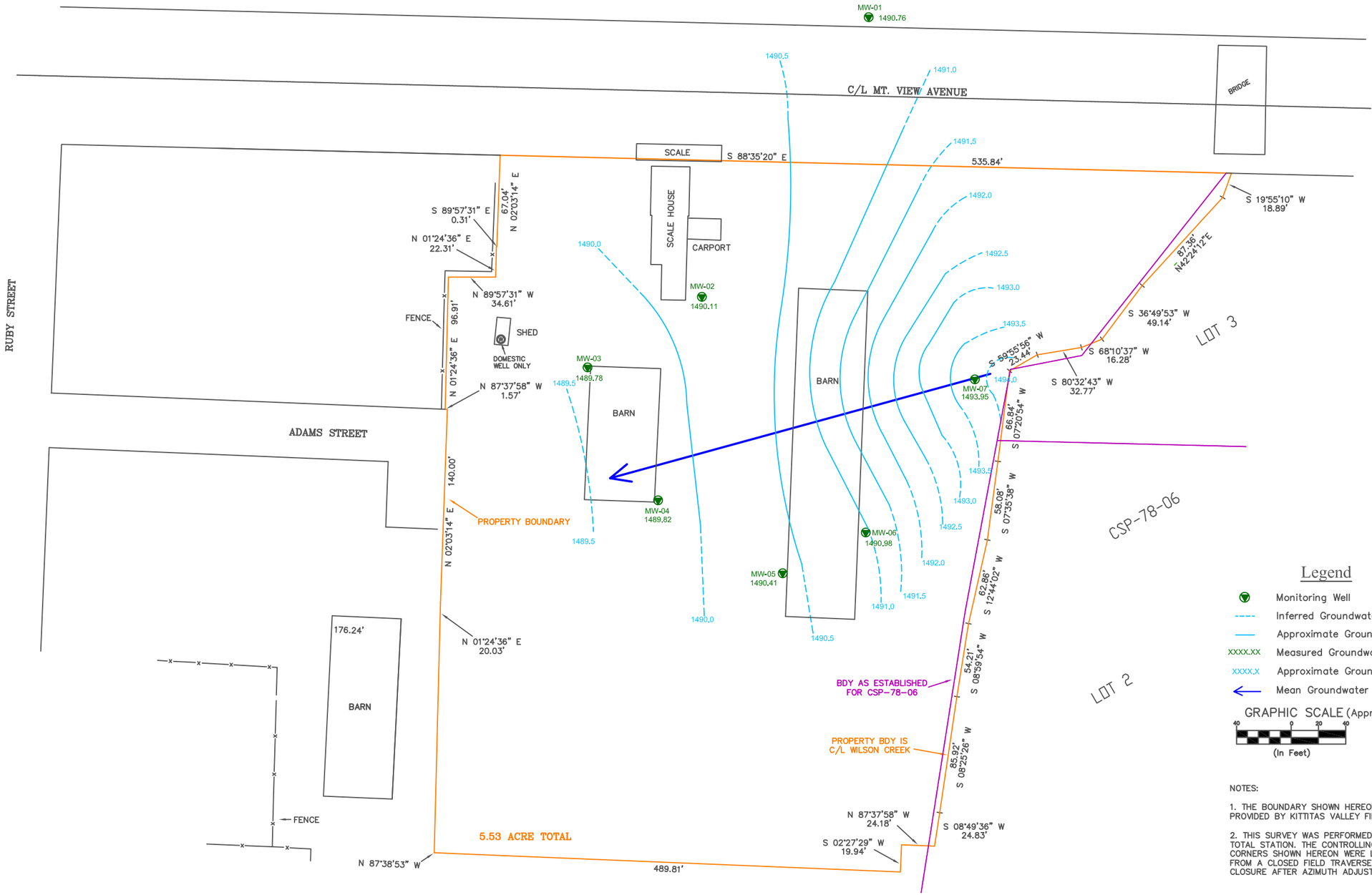
Base Drawing by Cruse & Associates, Ellensburg, WA

Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453 efulcrum.net
Mountain View Brownfield. 11570 . SPB . 060112

Mountain View Brownfield
400 East Mountain View Avenue
Ellensburg, Washington

Proposed Structure Footprint

FIGURE
9



Legend

- Monitoring Well
- Inferred Groundwater Contour
- Approximate Groundwater Contour
- XXXX.XX — Measured Groundwater Elevation (feet above mean sea level)
- XXXX.X — Approximate Groundwater Elevation (feet above mean sea level)
- Mean Groundwater Flow Direction

GRAPHIC SCALE (Approximate)

40 0 20 40

(In Feet)

NOTES:

1. THE BOUNDARY SHOWN HEREON IS BASED ON A TITLE REPORT PROVIDED BY KITTITAS VALLEY FIRE & RESCUE.

2. THIS SURVEY WAS PERFORMED USING A TOPCON GTS SERIES TOTAL STATION. THE CONTROLLING MONUMENTS AND PROPERTY CORNERS SHOWN HEREON WERE LOCATED, STAKED AND CHECKED FROM A CLOSED FIELD TRAVERSE IN EXCESS OF 1:10,000 LINEAR CLOSURE AFTER AZIMUTH ADJUSTMENT.

Base Drawing by Cruse & Associates, Ellensburg, WA

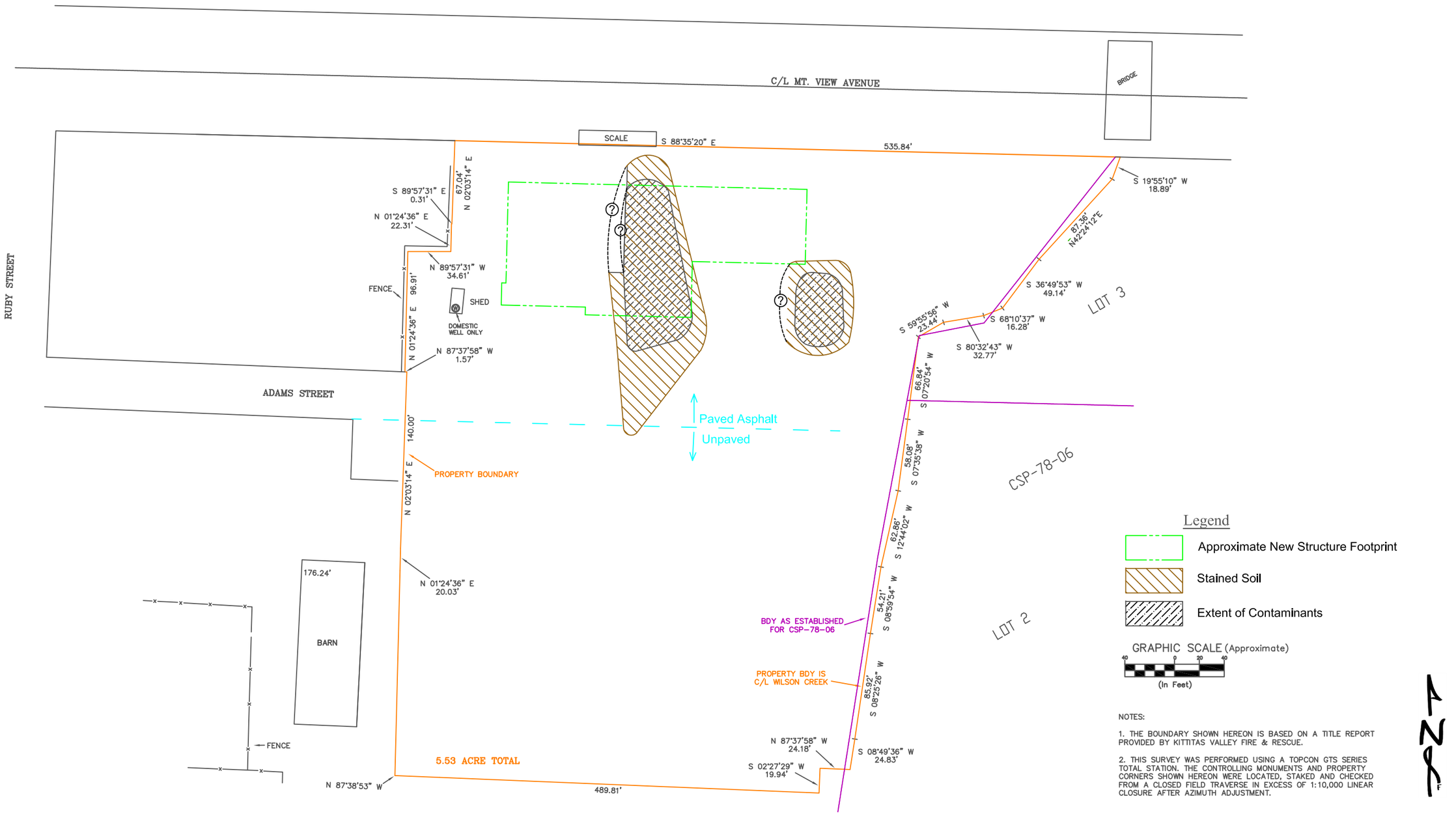
Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453 efulcrum.net
Mountain View Brownfield. 11570 . SPB . 033012

Mountain View Brownfield
400 East Mountain View Avenue
Ellensburg, Washington

Groundwater Contour Map
June 7, 2012

FIGURE
10

FULCRUM environmental consulting



Legend

- Approximate New Structure Footprint
- Stained Soil
- Extent of Contaminants

GRAPHIC SCALE (Approximate)

40 0 20 40

(In Feet)

NOTES:

1. THE BOUNDARY SHOWN HEREON IS BASED ON A TITLE REPORT PROVIDED BY KITTITAS VALLEY FIRE & RESCUE.

2. THIS SURVEY WAS PERFORMED USING A TOPCON GTS SERIES TOTAL STATION. THE CONTROLLING MONUMENTS AND PROPERTY CORNERS SHOWN HEREON WERE LOCATED, STAKED AND CHECKED FROM A CLOSED FIELD TRAVERSE IN EXCESS OF 1:10,000 LINEAR CLOSURE AFTER AZIMUTH ADJUSTMENT.

Base Drawing by Cruse & Associates, Ellensburg, WA

Fulcrum Environmental Consulting, Inc.
406 North Second Street, Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453 efulcrum.net
Mountain View Brownfield. 11570 . SPB . 060112

Mountain View Brownfield
400 East Mountain View Avenue
Ellensburg, Washington

Proposed Structure Footprint

FIGURE
11

APPENDIX B

SAP/QAPP

FULCRUM
environmental consulting

SAMPLING ANALYSIS PLAN/ QUALITY ASSURANCE PROJECT PLAN

IPG #G120098
400 East Mountain View Avenue
Ellensburg, Washington

Project Number: 11570

March 30, 2012

Prepared for:

Kittitas Valley Fire & Rescue (Station 21)
Attn: John Sinclair
2020 Vantage Highway
Ellensburg, Washington 98926

Traho Architects, Inc.
Attn: Nancy Charron
1460 North 16th Avenue, Suite A
Yakima, Washington 98902

Prepared by:

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

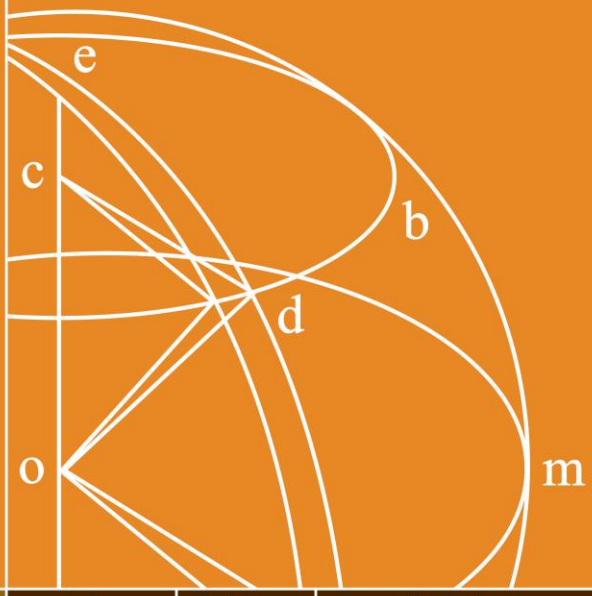


TABLE OF CONTENTS

TABLES

1.0 BACKGROUND

The Mountain View Brownfield site is located at 400 East Mountain View Avenue in Ellensburg, Washington (subject property). Formerly referred to as Mackner's Transport, the site is currently being evaluated for beneficial reuse and redevelopment under Washington State Department of Ecology's (Ecology) Integrated Planning Grant (IPG) #G120098. The IPG is a tool by which Ecology can support the evaluation of identified brownfield sites for potential redevelopment by or through the assistance of local governments or districts. This IPG was awarded to the Kittitas County Fire District #2 (commonly referred to as Kittitas Valley Fire & Rescue (KVFR)) to assist in evaluation of the property for potential acquisition and redevelopment as a fire station. Additional considerations include the siting of a community center at the property.

This subject property is located south of the downtown area and borders the east branch of Wilson Creek. The subject property is along Mountain View Avenue, a newly updated and revived arterial in Ellensburg. Neighboring properties are mostly highway commercial with banks, retail stores, medical offices and senior housing. The majority of development along Mountain View is new or has been improved within the last 10 years. The subject property is an obvious blight in the area as the only non-redeveloped section along the road.

Though limited, the investigation completed at the site by PLSA, Inc. in 2005 (PLSA, 2005) identified the presence of petroleum contamination in groundwater at the site. Review of the Ecology site file indicates that in 1991, three underground storage tanks (UST), including one gasoline and two diesel fuel tanks, were known to be present at the site. In addition, the PLSA investigation identified the presence of a fourth UST. During the initial site inspection, Fulcrum Environmental Consulting, Inc. (Fulcrum) staff observed the presence of petroleum impacted soils.

2.0 PROJECT DESCRIPTION

The primary goal of this project is to provide an investigation for the presence and nature of petroleum hydrocarbon impact to site soils and groundwater. Contaminants of concern include total petroleum hydrocarbons, volatile organic compounds, and heavy metals. In addition, per Ecology criteria, assessment will include evaluation of petroleum stained soils for polyaromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) from areas where the generation of petroleum products may be mixed with other vehicle or equipment fluids. This data will enable Fulcrum to assist KVFR in establishing extent of contaminant impact; potential liability associated with site acquisition; redevelopment options and remedial strategies; and remediation costs. In addition, this investigation will provide additional information to supplement the limited understanding of site contamination.

Tasks to meet this objective are:

- Complete a site soil investigation of the former underground storage tank locations and the present areas of petroleum impacted soils.

- Install groundwater monitoring wells in one upgradient and numerous downgradient locations.
- Complete up to three quarterly groundwater monitoring events for contaminants identified in site soils.
- Prepare in-progress reporting and a final report for the project. The final project 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 potential significant findings.

3.0 ORRGANIZATION & SCHEDULE

3.1 Organization

This project is a coordination of the efforts of KVFR, Ecology, and Traho Architects, Inc. Fulcrum will complete the site investigation activity to assist with completion of the IPG. 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
Chief John Sinclair Kittitas Valley Fire & Rescue sinclairj@kvfr.org 509.933.7231	KVFR is the recipient of the IPG under which the property is being evaluated for redevelopment. KVFR will be presented the results of this investigation and the level of environmental contamination prior to continued evaluation of the site.
Jill Arango, Grant Manager Forterra jarango@foretrra.org 509.962.1654	Serves as the grant manager for the IPG under contract to KVFR. Provides project monitoring, budgeting, and completes milestone reporting required under the grant.
Nancy Charron, Architect Traho Architects, Inc. nancy@traho.com, 509.452.0609	Clarifies scope of the project, manages the project budget, and provides internal review of the QAPP.
John Means, Brownfield Grant Manager Washington State Department of Ecology jmea461@ecy.wa.gov, 360. 407.7188	Represents Ecology's interested related to the relative scope of the investigation, IPG funding, and evaluates remedial option budgeting and future grant funding.
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.
Mary Monahan, Site Manager, Central Region, Washington State Department of Ecology mmon461@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.

Person/Agency or Firm	Role/Responsibility
Chris Cruse, P.L.S. Cruse & Associates, Inc. cruseandassoc@kvalley.com, 509.962.8242	Provides survey services for the IPG. 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.
Ryan Mathews, CIH, CHMM, Principal Fulcrum Environmental Consulting, Inc. rmathews@efulcrum.net, 509.574.0839	Reviews the project scope and budget, tacks progress, reviews the draft QAPP and approves the final QAPP. Referenced herein as the "project manager".
Jeremy Lynn, P.G., Environmental Geologist Fulcrum Environmental Consulting, Inc. jlynn@efulcrum.net, 509.574.0839	Responsible for completion of the investigation, including field sampling, selection of groundwater monitoring well placement. Conducts review of data, analyzes and interprets data. Writes the draft report and final report.
Peter Snider, Environmental Technician Fulcrum Environmental Consulting, Inc. psnider@efulcrum.net 509.574.0839	Assists with the site investigation and completes groundwater monitoring under the direction of Fulcrum's Environmental Geologist.
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.
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.

3.2 Schedule

Final project schedule has not been determined. Generally, as site and weather conditions allow, the soil investigation will be completed. Approximately 3 weeks following completion of the soil investigation, and upon receipt and review of laboratory analysis, groundwater monitoring well installation will occur. The initial groundwater monitoring well event will occur approximately 3 days following well installation. Additional groundwater monitoring events will occur at approximately quarterly intervals through the end of the project.

4.0 QUALITY OBJECTIVES

The primary goal of this project is to determine if the Mountain View Brownfield site soils and groundwater are contaminated by petroleum hydrocarbons, volatile organic compounds, and heavy metals. In addition limited evaluation of polyaromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) from areas where the generation of petroleum products may be mixed with other vehicle or equipment fluids will be completed. To do this, samples collected may be representative of site soil and groundwater conditions. However, variations in the level of

site soil impact and variations in groundwater chemistry can occur due to natural environmental heterogeneity or alternates caused by the sampling and analytical procedures.

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.

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 Model Toxic Control Act (MTCA) cleanup regulations. 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.

Intent of this investigation is not specifically to demonstrate that any areas of the site are free of contamination. Rather, the intent is to identify the presence and magnitude of impact to the environment. Fulcrum intends that samples collected during this investigation will include those from worst case locations and others will likely represent samples without any identified analytes.

These goals are based on performance characteristics of measurements done by the project laboratory. Analytical and field quality control samples are discussed in Section 8 *Quality Control Procedures*.

Table 2: Laboratory Analyte Measurements Quality Objectives

Parameter	LCS% Recovery Limits	Laboratory Replicates (RPD)	Matrix Spikes% Recoveries	Matrix Spikes Duplicates (RPD)	Project Laboratory Reporting Limit
NWTPH-Gx	65-135%	30%	-	-	5.0 mg/Kg
NWTPH-Dx Ext					
Diesel Range Organics	65-135%	30%	-	-	20 mg/Kg
Heavy Oil Range Organics	65-135%	30%	-	-	50 mg/Kg
EPH	50-150%	30%	50-150%	30%	5 mg/Kg
VPH	50-150%	30%	50-150%	30%	5 mg/Kg
BTEX (8260)					
Benzene	69.1-133%	30%	67.3-125%	30%	0.02 mg/Kg
Toluene	65.9-134%	30%	56.2-138%	30%	0.02 mg/Kg
Ethylbenzene	-	-	-	30%	0.03 mg/Kg
m,p-Xylene	-	-	-	30%	0.02 mg/Kg
o-Xylene	-	-	-	30%	0.02 mg/Kg
Napthalene	65-135%	30%	65-135%	30%	0.03 mg/Kg
VOC					
1,1-Dichloroethene	59-136%	30%	52.6-134%	30%	0.05 mg/kg
Benzene	69.1-133%	30%	67.3-125%	30%	0.02 mg/Kg
Chlorobenzene	67.7-125%	30%	59.9-123%	30%	0.02 mg/Kg
Tetrachloroethene	52.1-139%	30%	53.2-138%	30%	0.02 mg/Kg
Toluene	65.9-134%	30%	56.2-138%	30%	0.02 mg/Kg
Trichloroethene	59.7-127%	30%	60.8-120%	30%	0.03 mg/Kg
PAHs					
Acenaphthene	50.4-130%	30%	50.6-126%	30%	50 µg/kg
Pyrene	50.3-141%	30%	50.4-139%	30%	50 µg/kg
Benzo(a) pyrene	40 to 120%	30%	40 tp 120%	30%	50 µg/kg
PCBs	70.7-118%	30%	70.7-118%	30%	0.1 mg/Kg
Metals					
Arsenic (As)	80-120%	30%	75-125%	30%	1 mg/Kg
Barium (Ba)	80-120%	30%	75-125%	30%	1 mg/Kg
Cadmium (Cd)	80-120%	30%	75-125%	30%	1 mg/Kg
Chromium (Cr)	80-120%	30%	75-125%	30%	1 mg/Kg
Lead (Pb)	80-120%	30%	75-125%	30%	1 mg/Kg
Mercury (Hg)	80-120%	30%	75-125%	30%	0.5 mg/Kg
Nickel (N)	80-120%	30%	75-125%	30%	1 mg/Kg
Selenium (Se)	80-120%	30%	75-125%	30%	1 mg/Kg
Silver (Ag)	80-120%	30%	75-125%	30%	1 mg/Kg
Zinc (Zn)	80-120%	30%	75-125%	30%	1 mg/Kg

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

5.0 SAMPLING PROCESS DESIGN (Experimental Design)

Site investigation will consist of an initial phase of site soil sampling, subsequent installation of groundwater monitoring wells, and quarterly monitoring of site groundwater. If additional soil sampling is determined to be appropriate, such sampling will be completed concurrent with well installation.

5.1 Known Potential Environmental Concerns

Initial site activities have consisted of a review of existing site investigation reports, initial interviews with the diesel mechanic operating at the site, and an initial site walk. Previous site investigation reports include a 1991 Site Investigation by Ecology (Ecology, 1991) and a limited soil sampling event completed by PLSA, Inc. in 2005 (PLSA, 2005). Both records are available in Ecology's site file. In addition, Fulcrum has begun the historical research associated with an ASTM E-1527-05 and U.S. Environmental Protection Agency (EPA) compliant All Appropriate Inquiries Phase I Environmental Site Assessment for the site.

While the historical review of the site continues, initial assessment has identified five potential environmental concerns:

- Underground Storage Tanks
- Reported Groundwater Contamination
- Heavily Stained Surface Soils
- General Parking of Trucks and Equipment at the Site
- Solid Waste and Universal Waste

Underground Storage Tanks

A total of four underground storage tanks and associated dispensers are known to have been present at the site during the 1991 and 2005 investigations completed by Ecology and PLSA respectively. These USTs include one gasoline and two diesel fuel tanks as presented in Section 1.0, and one additional fuel oil vessel associated with the shop building, all of which are no longer in use.

Three of the tanks, UST-01, UST-02, and UST-03 were located on the east side of the residence/scale house at the site. Approximate location is shown in site photographs collected during a 1991 Ecology site inspection. The UST-04 location is at the northwest corner of the shop building.

- UST-01 (Gasoline Fuel) – Identified in 1991 Ecology Site Visit as a 500 gallon, 20 year old UST - Tank not in service in 1991.
- UST-02 (Diesel Fuel) – Identified in 1991 Ecology Site Visit as a 5,000 gallon, 15 year old UST.
- UST-03 (Diesel Fuel) – Identified in 1991 Ecology Site Visit as a 2,000 gallon, 18 year old UST.
- UST-04 (Fuel Oil) – Identified during 2005 PLSA Inspection.

Reported Groundwater Contamination

In 2005, PLSA reported collection of a "Groundwater" sample during site investigation activities. The sample appeared to consist of “pit water”, a sampling method that is historically unreliable. However, the laboratory reported a concentration of 130,000 ug/L of Heating Oil Range petroleum hydrocarbons at an excavation near the scale house (excavation associated with UST 02 & 03). Laboratory quality assurance/quality control further suggest that the result may not be reliable, as the result reports that the detection of oil was a “gasoline range hydrocarbon” and the laboratory could not provide sample gas chromatography upon request by Fulcrum in December 2011.

In the report (PLSA, 2005), the author opines that the groundwater sample may be within the plume of contaminate groundwater sourced independent of the known USTs. Specific basis for this opinion or additional information was not provided. No other sources of petroleum hydrocarbon use, such as a fuel oil tank associated with the residence, were observed. Regardless, existing data in the public record suggests that groundwater at the site may be contaminated with petroleum hydrocarbons.

Heavily Stained Surface Soils

During the initial site walk, Fulcrum representatives observed the presence of heavily stained site soils. Staining appeared to be the result of poor housekeeping associated with used vehicle and equipment parts; and storage of used oil and other vehicle and equipment fluids. Stained soils were primarily located on the east side of the shop building and appeared to be related to both historic and current site use by the mechanic.

General Parking of Trucks and Equipment at the Site

Based on historical aerial photographs, primary areas of vehicle and equipment parking have been located at the northwest corner of the site, the northeast corner of the site, and between the residence and the shop. While no areas of significant petroleum staining, greater than 3 square feet in area, potential exists for historic releases to the gravel covered areas of the site used for vehicle and equipment parking to be impacted by petroleum releases.

Solid Waste and Universal Wastes

Items such as tires, aerosol cans, etc. were identified at the site. No visual evidence of a release to the environment or other factors indicative of a release were noted. Presence of solid and universal wastes is best managed as a component of general site housekeeping.

5.2 Investigation Strategy

The selected investigation strategy is designed to provide sampling and analysis of worst case contamination in site soils, some samples that will evaluate the potential for impact to the environment, and other samples that delineate the approximate extent of existing contamination.

Underground Storage Tanks

To investigate the potential for environmental contamination associated with the four onsite USTs, as well as associated underground piping and dispensers, Fulcrum will complete four trench investigations in the approximate locations of the former components.

Three trenches will be completed within the location of UST-01, 02, and 03 adjacent to the residence/scale house. Three to six soil samples will be collected from each of the three trenches. One sample from each trench will be collected from the area observed to have the highest petroleum or contaminant impact. Samples will be completed to identified the extents of contamination and include samples targeted to represent the lower elevation of the USTs, or about 8-feet below ground surface. Samples associated with UST-01, 02, and 03 will be analyzed for the following:

- Diesel and heavy oil range organics
- Gasoline range organics
- Benzene, toluene, ethylbenzene, and xylenes
- Lead

In addition, analysis will be completed for Polyaromatic Hydrocarbons (PAHs) from at least one sample with documented elevated concentrations of contaminates to identify the absence or presence of PAHs within released product.

The fourth trench will be excavated adjacent to UST-04. Based on the location near the mechanic shop and the apparent historic use of fuel oil for heating of the shop, potential exists for vehicle and equipment fluids to have been placed into UST-04 for onsite consumption (burning). As such, contamination to site soils may include other vehicle and equipment fluids and sampling and analysis of site soils will be completed as though the UST may be considered a waste oil, or unknown used oil, UST per Ecology guidance. Soil samples collected from the UST-04 trench will be analyzed for the following:

- Diesel and heavy oil range organics
- Gasoline range organics
- Volatile organic compounds
- Polychlorinated biphenyls (PCBs)
- Polyaromatic hydrocarbons (PAHs)
- Arsenic, cadmium, chromium, lead and mercury

See Section 6.4 for selected analytical methodologies.

Heavily Stained Surface Soils

Heavily stained surface soils are present on the east side of the shop building and appear to be the result of poor housekeeping activities. Two excavations will be completed through the contamination, extending east away from the building. One sample (worst case) from each trench will be collected from the area observed to have the highest petroleum or contaminant impact.

Two to three soil samples will be collected from each trench. Samples will be completed to identified the extents of contamination and include samples targeted to represent the lower elevation of the USTs, or about 8-feet below ground surface. Contamination to site soils may include other vehicle and equipment fluids and sampling and analysis of site soils will be completed as though the UST may be considered a waste oil, or unknown used oil, per Ecology guidance.

Soil samples collected from the heavily stained surface soil trench will be analyzed for the following:

- Diesel and heavy oil range organics
- Gasoline range organics
- Volatile organic compounds
- Polychlorinated biphenyls (PCBs)
- Polyaromatic hydrocarbons (PAHs)
- Arsenic, cadmium, chromium, lead and mercury

In addition, worst case soil samples collected from the most heavily stained soils will be submitted for a toxicity leachability cleanup procedure (TCLP) for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver (collectively the Resource Conservation Recovery Act eight regulated metals (RCRA 8)), for waste characterization analysis. See Section 6.4 for selected analytical methodologies.

Reported Groundwater Contamination

Three potential sources of groundwater contamination are present at the Mountain View Brownfield site. The three sources have been grouped by type and location at the site for investigation design purposes and include:

- UST-01, 02, and 03 adjacent to the residence/scale house
- UST-04 adjacent to the mechanic shop
- Heavily stained surface soils east of the mechanic shop

PLSA's investigation suggests that groundwater impact was associated with UST-04. Based on the information in Ecology's files, evaluation of groundwater specifically related to UST-04 will be required.

Soil sampling completed during the initial phase of site investigation will guide the installation and placement of groundwater wells. Similarly, the presence of contaminants in site soils, even if present below MTCA cleanup levels, will dictate laboratory analysis of groundwater samples. Based on the general site information, monitoring wells will be analyzed for not less than the following

- Diesel and heavy range organics
- Gasoline range organics
- Benzene, toluene, ethylbenzene, and xylenes

- Lead

However, additional analytes of volatile organic compounds; polychlorinated biphenyls (PCBs); polyaromatic hydrocarbons (PAHs); and arsenic, cadmium, chromium, lead and mercury may be completed based on soil sample results.

Field evaluation of temperature, pH, ferrous iron (Fe^{2+}), total suspended solids, dissolved oxygen, and reduction-oxidation will be completed during monitoring events. Evaluation of soil or groundwater factors for monitoring natural attenuation (MNA) will not be completed at this time.

Groundwater flow direction is inferred to be a south-southwesterly direction and generally parallel to the adjacent Wilson Creek. To evaluate groundwater flow at the site, monitoring of groundwater levels will be completed during quarterly field events and during the project through *in situ* data loggers. The groundwater depth measurements will be used in conjunction with land survey of the well casings provided by Cruse & Associates as the project Professional Land Surveyor.

General Parking of Trucks and Equipment at the Site

Three areas of the site have been primarily used for vehicle and equipment parking and long-term storage. Near surface soil samples will be collected of stained soils in these three areas. A minimum of one sample will be collected from each of the three areas. Near surface soil samples will be analyzed for diesel range organics; and arsenic, cadmium, chromium, lead, and mercury.

Solid Waste and Universal Wastes

No sampling or laboratory analysis is expected to be utilized to assess solid wastes and universal wastes at the site. Rather, site activities will identify and categorize solid waste at the site and likely disposition of wastes (landfill, recycling, wrecking yard, universal waste, dangerous waste, etc.).

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 and public 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 subject site. Where MTCA Method A cleanup levels are not provided, Fulcrum will utilize Method B levels.

6.0 SOIL SAMPLING PROCEDURES

Soil sampling procedures were selected based upon observed and anticipated field conditions. Sampling will be consistent with 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*.

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 either direct collection from the desired location, spoon sampling collected by a hand auger, or by grab sampling from a backhoe bucket of soil collected from the desired location. All samples will be collected by hand using new nitrile gloves. Grab samples will be obtained from the relatively undisturbed soil between the teeth of the backhoe bucket. 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.

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 may 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.

Soil samples collected by hand-methods will be collected from selected depth interval using dedicated plastic spoons or trowels and bowls, where feasible. At each confirmation sample location, the soil sample will be collected from approximately 0.5-foot below grade to assure representation of remaining soil conditions and avoid potential cross contamination from incidental surface activities such as grading, walking, etc. A Fulcrum geologist will record a

physical description of the soil including grain proportions, color, odor, etc. The sample will be placed in a container appropriate to preservation requirements specific to intended laboratory analysis (if appropriate). Description of the site location and condition will be recorded 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 protective gloves during sampling activities. Preserve samples as described in Table 3 and required by the analytical method being requested. Check the sample lid to ensure cleanliness and that it is secured. Carefully label the sample bottle 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. Pertinent information will be recorded in the field logbook and chain-of-custody forms. Pertinent information may include:

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/sediment color, grain size
6. Soil/shallow sediment pH measurements
7. Soil/sediment sample interval/depth
8. Water conditions during sediment sampling; including color, pH, flow, suspended sediments
9. Time of sample collection
10. Initials of samplers
11. Laboratory analysis to be performed
12. 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, 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 the equipment. 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 toweling 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.

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 contaminate concentration of concern as defined by this SAP.

Table 3 presents the sample types, location, analytical parameters and methods, sample preservation, and specific requirements for sample container size and type for samples collected. Table 4 summarizes number of QA/QC samples to be submitted according to method requirements.

Table 3: 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 BTEX by NWTPH-Gx by EPA Method 8021B or 8260	Cool to 4° C	40 millimeter glass with septum lid	Preserve with 48-hours, Analyze within 14-days
Polyaromatic Hydrocarbons by EPA Method 8270	Cool to 4° C	4 oz glass jar with Teflon lined lid	Extract within 14-days, Analyze within 40-days of extraction
Polychlorinated Biphenyls/Aroclor by EPA Method 8082	Cool to 4° C	4 oz glass jar with Teflon lined lid	Extract within 14-days, Analyze within 40-days of extraction
Total Metals by EPA Method 6020 (except Mercury)	Cool to 4° C	4 oz glass jar with Teflon lined lid	Analyze within 180 days
Mercury by EPA Method 6800/7471	Cool to 4° C	4 oz glass jar with Teflon lined lid	Analyze with 28 days

Table 4: QA/QC Requirements for Soils 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.	28 to 36 + d	1/1	NA	NA	None
Gasoline and BTEX by NWTPH-Gx by EPA Method 8021B or 8260	28 to 36 + d	1/1	NA	NA	None
Polyaromatic Hydrocarbons by EPA Method 8270	6 to 10 + d	1/1	NA	NA	None
Polychlorinated Biphenyls/Aroclor by EPA Method 8082	2 to 6 + d	1/1	NA	NA	None
Total Metals by EPA Method 6020 (except Mercury)	22 to 44 + d	NA	1/1	NA	None
Mercury by EPA Method 6800/7471	7 to 9 + d	NA	1/1	NA	None

[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 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/sediment 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.

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 5 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 5: 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. 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 packed in 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.
11. 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 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 sediment 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, pH paper for soil and water, color chart for soil/sediments and water)
4. Camera
5. Sample containers
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

Following installation and development of groundwater wells, Fulcrum will complete up to three groundwater monitoring events at approximately quarterly intervals from the wells. All wells will be constructed of 2-inch polyvinyl chloride piping. The intent is that the well depth will range from 15 to 20-feet in total depth, with a 10-foot screened length. Samples collected from the monitoring wells will be assumed 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. 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 liters per minute. The wells will be purged through a continuous flow where pH, temperature, specific conductance, and dissolved oxygen will be monitored and recorded at approximate intervals of 1/3 of total purge volume. Purging will continue until field parameter readings stabilize as shown in Table 6.

7.1 Groundwater Monitoring Well Purging procedure

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

- Unlock well, remove compression plug, allow groundwater to equilibrate for 15 minutes.
- Measure water level to the nearest 0.01-feet using water level 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 liter per minute during the purge event.
- Collect field parameters at approximately 1/3, 2/3, and near total purge volume.
- Test replicate samples for pH, temperature, and total dissolved solids after minimum purge volume has been achieved to confirm stabilization of discharge water.
- Collect a sample to be tested for field parameters.
- Decrease purge rate to 0.5 liters per minute for sample collection.
- Collect samples for laboratory analysis.
- Secure the wells and demobilize from location.

7.2 Field Instrument Calibration and Frequency

Field instruments that will require calibration are total dissolved solids (TDS)/electrical conductivity (EC), pH, temperature, dissolved oxygen and reduction-oxidation. 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.

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.

7.3 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

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 nitrile gloves will be used while collecting samples. New disposable gloves will be used for each sample location.

Purge water will be initially collected and stored onsite in a 55-gallon barrel. Disposal of purge water shall occur in accordance with WAC 173-303. If no analytes are identified in a well during the initial monitoring event, subsequent purge water from that well during follow-up events will be discharged to ground.

7.4 Groundwater Sample Collection

The following general procedures will be utilized during sample collection and preparations. New protective gloves will be worn during water sampling activities. 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 at 4° C, if 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, such as:

- 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 6 are met:

Table 6: 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. See Table 4 for sample containers. Filtered samples will be field filtered, with a clean high-capacity, in-line 0.45 micron membrane filters.

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 7 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 sample 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. To avoid aeration, an alternative method is to insert the tubing into the container and draw the tubing up as the water rises.

- 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 4-9 above for QA/QC duplicates, blanks and split samples, if necessary.

Wrap the glass containers in a bubble pack or other type of padded packing material to prevent breakage. Store the samples in an ice filled cooler at 4° C until delivery to the laboratory.

7.5 Groundwater Analytical Methods

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

Table 7: 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 by EPA Method 8021B or 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 Metals by EPA Method 6020/200.8 (except Mercury)	No	500 mL polyethylene bottle	Pre-acidified with 1:1 HNO_3 Cool to 4ºC	Analyze within 180 days
Mercury by EPA Method 200.8/24.1/7470	No	500 mL polyethylene bottle	Pre-acidified with 1:1 HNO_3 Cool to 4ºC	Analyze within 28 days
Dissolved Metals by EPA Method 6020/200.8 (Except Mercury)	Yes[1]	500 mL polyethylene bottle	Pre-acidified with 1:1 HNO_3 Cool to 4ºC	Analyze within 180 days

1 All dissolved metals will be field filtered with a 0.45 µm pore filter.

Table 8: 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	4 to 8 + d	1/1	NA	NA	None
Gasoline and BTEX by NWTPH-Gx by EPA Method 8021B or 8260	4 to 8 + d	1/1	NA	NA	None
Diesel and Heavy Oil Range Organics by NWTPH-DX Ext.	4 to 8 + d	1/1	NA	NA	None
Total Metals by EPA Method 6020/200.8 (except Mercury)	None	NA	1/1	NA	None
Mercury by EPA Method 200.8/24.1/7470	None	NA	1/1	NA	None
Dissolved Metals by EPA Method 6020/200.8 [1] (Except Mercury)	4 to 8 + 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 even and analyzed for all analytes under evaluation.

7.6 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 012212-MW01 would represent monitoring well 01, sampled on January 22, 2012. Sample number

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 packed in 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.
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.

7.7 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 the pertinent laboratory 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, sampling location, 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 trained technicians. Daily observation reports will be generated by Fulcrum and submitted for internal review. Hard copies of the laboratory analytical reports will be transmitted to Fulcrum. The project laboratory will review and validate analytical data in accordance with their internal QA/QC program.

The project manager will review field notebooks and the project laboratory's analytical data to assure that all pertinent information is accounted for and is correlated. The project manager will review sample collection data and 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. Upon project completion, summary records will be archived for a period of 30 years beyond final project completion date. Support and backup data will be archived for 5 years beyond date of data generation.

9.0 QUALITY CONTROL REQUIREMENTS

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 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 groundwater sample collection.

Duplicates and split samples will be collected as part of sampling activities. The number, type and handling of QA/QC samples are specified in Table 4 for soil samples and Table 8 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. Collect duplicate samples from the sample location that is believed to have elevated levels of a particular compound.

Duplicates will be collected on a frequency of one per analysis being completed for soil samples and one per event for groundwater monitoring.

Laboratory QA/QC Requirements

Routine quality control procedures will suffice to demonstrate that the Measurement Quality Objectives (MQOs) for this project have been met. 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 project 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.
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 quality objectives listed in Table 2.

Laboratory-generated data review and reporting will follow the procedures outlined in the project laboratory's quality assurance program. Lab 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 sent to the project manager for each sampling event.

If the data review and verification suggests widespread problems with QA/QC for a sample event, the sample event or individual sample may be repeated at the discretion of the project client and manager.

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 project laboratory's performance and system audits of their routine procedures are available 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 IPG.

Draft versions of the report will be prepared to relevant project team members, including Ecology's' site manager, prior to report finalization. Data will be completed in EIM as a component of report finalization.

12.0 DATA VERIFICATION AND VALIATION

As part of data review, field notes and data from the project laboratory will be reviewed for errors and omissions and to ensure that data are correct, complete, and 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.

Analytical data generated by the project laboratory will be reviewed and verified by comparison with acceptance criteria according to the data review procedures outlined in the laboratory's quality assurance program. Results that do not meet quality assurance requirements will be labeled with appropriate qualifiers, and an explanation will be described in a quality assurance memorandum attached to the data package.

After receiving the data package, the field manager will verify that the results have met the measurement quality objectives 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 study area showing sample sites, 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. Comparison of results to the cleanup standards for the constituents of concern that will be used to evaluate the effectiveness of the cleanup action.
- Significant or potentially significant findings.
- Recommendations based on project goals.

13.0 DATA QUALITY (USABILITY) ASSESSMENT

All field and laboratory data will be entered and stored in Ecology's Environmental Information Management database (EIM) 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 coordinate 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 according by Fulcrum.

14.0 REFERENCES

ASTM Standards on Environmental Sampling, Designation: D2270 – Standard Practices for Sampling Water, Pages 110-116, 1995.

EPA Guidance Documents on Preparing Quality Assurance Project Plans, U.S. Environmental Protection Agency, EPA/600/4-98/018, EPA QA/G5, February 1998.

Guidance for Data Quality Assessment – Practical Methods for Data Analysis, U.S. Environmental Protection Agency, EPA 600/R-96/084, EPA EZ/G9, QA97 Version, January 1998.

Guidance for Remediation of Petroleum Contaminated Sites, Washington State Department of Ecology, Publication 10-09-057, September 2011.

Guidance for the Preparation of Standard Operation Procedures (SOPs) for Quality-Related Documents, U.S. Environmental Protection Agency, EPA 600/R-96/027, EPA QA/G6, November 1995.

Guidance on Preparation of Laboratory Quality Assurance Plans, U.S. Environmental Protection Agency, EPA 910/9-92-032, October 1992.

Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies, Washington State Department of Ecology, Publication No. 04-03-030, July 2004.

Model Toxics Control Act, Washington State Department of Ecology, Washington Administrative Code 173-340.

Preparation of Soil Sampling Protocols: Sampling Techniques and Strategies, 600/R-92/128, U.S. Environmental Protection Agency, July 1992.

Samplers Guide to the Contract Laboratory Program, U.S. Environmental Protection Agency, EPA/540/R-06/032, PB 96-963411.

Standard Methods for the Examination of Water and Wastewater, 18th Edition, U.S. Environmental Protection Agency approved, prepared by the American Public Health Association, the American Water Works Association, and the Water Environment Federation.

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, U.S. Environmental Protection Agency, EPA SW-846.

APPENDIX C

Soil Investigation

Appendix C.1

Health and Safety Plan – Soil Investigation

DRAFT 02.13.2012

SITE-SPECIFIC HEALTH AND SAFETY PLAN – SOIL INVESTIGATION PHASE

IPG #G120098
400 East Mountain View Avenue
Ellensburg, Washington

Project Number: 11570

February 13, 2012

Prepared for:

Kittitas Valley Fire & Rescue (Station 21)
Attn: John Sinclair
2020 Vantage Highway
Ellensburg, Washington 98926

Traho Architects, Inc.
Attn: Nancy Charron
1460 North 16th Avenue, Suite A
Yakima, Washington 98902

Prepared by:

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

TABLE OF CONTENTS

SECTION PAGE

Report Title: Site-Specific Health and Safety Plan – Soil Investigation Phase
Mountain View Brownfield Project, Formerly Mackner Scales
Ecology Integrated Planning Grant # G120098

Project Number: 11570.01

Date: February 13, 2012

Site: 400 East Mountain View Avenue, Ellensburg, Washington

Prepared for: Kittitas Valley Fire & Rescue (Station 21)
Attn: John Sinclair
2020 Vantage Highway
Ellensburg, Washington 98926

Traho Architects, Inc.
Attn: Nancy Charron
1460 North 16th Avenue, Suite A
Yakima, Washington 98902

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:** 02/13/2012

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

Reviewed by: _____ **Date:** 02/13/2012

Ryan K. Mathews, CIH, CHMM
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 SAFETY AND HEALTH PLAN

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

2.0 GENERAL DESCRIPTION OF PROJECT ACTIVITIES

2.1 Background

The Mountain View Brownfield site is located at 400 East Mountain View Avenue in Ellensburg, Washington (subject property). Formerly referred to as Mackner's Transport, the site is currently being evaluated for beneficial reuse and redevelopment under Washington State Department of Ecology's (Ecology) Integrated Planning Grant (IPG) #G120098. The IPG is a tool by which Ecology can support the evaluation of identified brownfield sites for potential redevelopment by or through the assistance of local governments or districts. This IPG was awarded to the Kittitas County Fire District #2 (commonly referred to as Kittitas Valley Fire & Rescue (KVFR)) to assist in evaluation of the property for potential acquisition and redevelopment as a fire station. Additional considerations include the siting of a community center at the property.

This subject property is located south of the downtown area and borders the east branch of Wilson Creek. The subject property is along Mountain View Avenue, a newly updated and revived arterial in Ellensburg. Neighboring properties are mostly highway commercial with banks, retail stores, medical offices and senior housing. The majority of development along Mountain View is new or has been improved within the last 10 years. The subject property is an obvious blight in the area as the only non-redeveloped section along the road.

Though limited, the investigation completed at the site by PLSA, Inc. in 2005 (PLSA, 2005) identified the presence of petroleum contamination in groundwater at the site. Review of the Ecology site file indicates that in 1991, three underground storage tanks (UST), including one gasoline and two diesel fuel tanks, were known to be present at the site. In addition, the PLSA investigation identified the presence of a fourth UST. During the initial site inspection, Fulcrum Environmental Consulting, Inc. (Fulcrum) staff observed the presence of petroleum impacted soils.

2.2 Description of Soil Investigation Activities

This soil investigation represents the first phase in site environmental investigation under the IPG. The purpose, intent, and approach of the overall site investigation are presented in the project *Sampling and Analysis Plan/Quality Assurance Project Plan*, February 8, 2012. During

this soil investigation, mechanical excavation will be completed and from excavated trenches soil samples will be collected for laboratory analysis.

Laboratory analysis includes, but may not be limited to, petroleum hydrocarbons, volatile organic compounds, semi-volatile organic compounds, and metals. All activities shall be completed in a competent manner with controlled process of investigation and material handling.

2.3 Site Location and Description

The Mountain View Brownfield site is located at 400 East Mountain View Avenue in Ellensburg, Washington. Mountain View Avenue, a primary east to west arterial within the south portion of the City of Ellensburg, forms the north boundary of the site. Approximately 0.6-miles south and 1-mile west of the site is U.S. Interstate 90. The Yakima River is located southwest and beyond U.S. Interstate 90 approximately 1-mile from the site.

The site consists of an approximately 4.94 acre parcel of real property. The site is bordered on the east by Wilson Creek, a tributary of the Yakima River. The south and west property boundaries are adjacent to mixed residential and commercial properties. Mountain View Avenue is present along the north property boundary.

Site buildings include a residence/scale house, a well house, a hay shed, and a hay shed/diesel repair shop. The residence/scale house consists of wood framing and cement block construction. The well house consists primarily of wood framing. Both the hay shed and the hay shed/diesel repair shop building are pole buildings with concrete slab floors and areas of metal siding. Site buildings were constructed in the 1950s and 1960s.

Historic site features include a drinking water well located in the well house, an in-ground scale at the scale house, and four known underground storage tanks. An additional hay shed was located near the south center of the site and is reported to have collapsed under snow during the heavy snow fall in either 1996 or 1997.

Also assumed to be present at the site are at least two septic tank and drain fields, one associated with the residence/scale house and the second associated with the diesel repair shop.

2.4 Underground Utilities

Fulcrum has completed one-call locate requests through the online *811 system (one-call) specifically for this phase of investigation. Ticket number 12919069 was received on February 3, 2012 for the site. Per the one-call process, locates are to be completed within 48-hours unless extenuating circumstances force a delay. As such, locates are effective beginning February 5, 2012 and extending ten days, February 15, 2012. If site investigation is to extend beyond February 15, 2012, an update to the one-call locates is required.

Fulcrum has previously completed two one-call locates for the site to assess the presence of underground utilities relative to the intended site environmental investigations and to provide for the identification of utilities by Cruse & Associates, a surveyor for the IPG project.

Also completed during the project was a private locate by Utilities Plus, LLC. Purpose of the private locate was to assess the site for other potential utilities that occur after the control point established by the utility. Typically the control point is the meter, valve, or other delineated mark where the ownership and maintenance of the utility service transfers to the responsibility of the property owner. Additionally, site-specific features, such as data transmission cables, private water well systems, and other similar features are not subject to the one-call public locate responsibilities.

Following completion of the first two public locates and the private locate, Cruse & Associates complete a site survey and recorded all identified utility markings at the site. See Figure 2 for a copy of the site survey and known utilities.

While all efforts have been made to identify public and private site utilities, care shall be made throughout the project to observe site conditions for the presence of unmarked or non-located utilities. If underground utilities are identified during excavation, work shall stop until the utility can be assessed and its operation determined. Consistent with the one-call regulations, of a public utility is damaged or exposed during excavation, the utility shall be contacted and requested to assess the utility for damage or repair.

2.5 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.

2.6 Contact List

This project is a coordination of the efforts of KVFR, Ecology, and Traho Architects, Inc. Fulcrum will complete the site investigation activity to assist with completion of the IPG.

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
Jill Arango, Grant Manager Forterra, 509.962.1654	Grant manager for the IPG.
Nancy Charron, Architect Traho Architects, Inc., 509.452.0609	Project Manager for the IPG.
Mary Monahan, Site Manager, Central Region, Washington State Department of Ecology, 509.454.7840	Ecology's technical assistance representative for the project.

Person/Agency or Firm	Role/Responsibility
Chris Cruse, P.L.S. Cruse & Associates, Inc., 509.962.8242	Will provide survey services following the soil investigation.
Ryan Mathews, CIH, CHMM, Principal Fulcrum Environmental Consulting, Inc. 509.728.2424	Fulcrum's safety manager for the project.
Jeremy Lynn, P.G., Environmental Geologist Fulcrum Environmental Consulting, Inc. 509.728.4994	Fulcrum's Site Health & Safety Officer and Field Services Lead.
Peter Snider, Environmental Technician Fulcrum Environmental Consulting, Inc. 509.895.4341	Site investigator under the direction of Mr. Lynn.
Russ Belsaas, President Belsaas & Smith, Inc., 509.925.9747	Will complete site excavation services as requested by Fulcrum staff.
Jerry Goodrich, Owner Utilities Plus, LLC, 509.945.9840	Will provide private locate services if additional private utilities are identified during the soil investigation.

2.7 Proposed Start Date:

February 13, 2012

2.8 Overall Hazard Ranking

Low

The Mountain View Brownfield is located on private property with limited onsite hazards. 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

4.1 Site History

Initial site activities have consisted of a review of existing site investigation reports, initial interviews with the diesel mechanic operating at the site, and an initial site walk. Previous site investigation reports include a 1991 Site Investigation by Ecology (Ecology, 1991) and a limited soil sampling event completed by PLSA, Inc. in 2005 (PLSA, 2005). Both records are available in Ecology's site file. In addition, Fulcrum has begun the historical research associated with an ASTM E-1527-05 and U.S. Environmental Protection Agency (EPA) compliant All Appropriate Inquiries Phase I Environmental Site Assessment for the site.

While the historical review of the site continues, initial assessment has identified five potential environmental concerns:

- Underground Storage Tanks
- Reported Groundwater Contamination
- Heavily Stained Surface Soils
- General Parking of Trucks and Equipment at the Site
- Solid Waste and Universal Waste

Underground Storage Tanks

A total of four underground storage tanks and associated dispensers are known to have been present at the site during the 1991 and 2005 investigations completed by Ecology and PLSA respectively. These USTs include one gasoline and two diesel fuel tanks as presented in Section 1.0, and one additional fuel oil vessel associated with the shop building, all of which are no longer in use.

Three of the tanks, UST-01, UST-02, and UST-03 were located on the east side of the residence/scale house at the site. Approximate location is shown in site photographs collected during a 1991 Ecology site inspection. The UST-04 location is at the northwest corner of the shop building.

- UST-01 (Gasoline Fuel) – Identified in 1991 Ecology Site Visit as a 500 gallon, 20 year old UST - Tank not in service in 1991.
- UST-02 (Diesel Fuel) – Identified in 1991 Ecology Site Visit as a 5,000 gallon, 15 year old UST.
- UST-03 (Diesel Fuel) – Identified in 1991 Ecology Site Visit as a 2,000 gallon, 18 year old UST.
- UST-04 (Fuel Oil) – Identified during 2005 PLSA Inspection.

Reported Groundwater Contamination

In 2005, PLSA reported collection of a "Groundwater" sample during site investigation activities. The sample appeared to consist of "pit water", a sampling method that is historically unreliable, from an excavation near the scale house (excavation associated with UST 02 & 03). Laboratory results reported a concentration of 130,000 ug/L of Heating Oil Range petroleum hydrocarbons within the pit water sample. Laboratory quality assurance/quality control further suggest that the result may not be reliable, as the result reports that the detection of oil was a "gasoline range hydrocarbon" and the laboratory could not provide sample gas chromatography upon request by Fulcrum in December 2011.

In the report (PLSA, 2005), the author opines that the groundwater sample may be within the plume of contaminated groundwater sourced independent of the known USTs. Specific basis for this opinion or additional information was not provided. No other sources of petroleum hydrocarbon use, such as a fuel oil tank associated with the residence, were observed. Regardless, existing data in the public record suggests that groundwater at the site may be contaminated with petroleum hydrocarbons.

Heavily Stained Surface Soils

During the initial site walk, Fulcrum representatives observed the presence of heavily stained site soils. Staining appeared to be the result of poor housekeeping associated with used vehicle and equipment parts; and storage of used oil and other vehicle and equipment fluids. Stained soils were primarily located on the east side of the shop building and appeared to be related to both historic and current site use by the mechanic.

General Parking of Trucks and Equipment at the Site

Based on historical aerial photographs, primary areas of vehicle and equipment parking have been located at the northwest corner of the site, the northeast corner of the site, and between the residence and the shop. While no areas of significant petroleum staining, greater than 3 square feet in area, potential exists for historic releases to the gravel covered areas of the site used for vehicle and equipment parking to be impacted by petroleum releases.

Solid and Universal Waste

Based on site observations, containing solid and universal categorized wastes are present at the site. Materials include, but are not limited to, equipment and vehicle parts within the shop building; used vehicle fluid storage on the northwest exterior portion of the shop; and used tires stockpiled south of the shop building. Removal and evaluation of the materials is not included within the project scope of services and is therefore not included within this site specific health and safety plan.

4.2 Planned Duration of Activities

It is anticipated that soil remediation activities will require approximately 2 days of onsite work. During decommissioning activities, all site workers will observe excavation activities for indications of residual oil, diesel, and gasoline range hydrocarbons and volatile organic compounds within site soils.

4.3 General Area of Investigation

Mechanical excavation will be completed within the following areas:

- Areas containing UST-01, 02, and 03 adjacent to the residence
- Area containing UST-04 adjacent to the shop building
- Areas of stained soil east of the shop building
- General parking and equipment storage area within the northeast portion of the site

In all locations excavation pit and suspect petroleum and metal contaminated soil areas to be excavated and sampled excavation site walls and pit bottom.

4.4 Site Accessibility

Site security is comprised of chain-link fencing on the perimeter of the site with access through the main gate present 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 a track-hoe type excavator to remove soil. All Fulcrum staff shall have completed excavation safety training prior to the project.

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

Underground utilities are expected to be present within the bounds of the subject site. See Section 2.4 for a review of underground public and private utilities.

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 its 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 Solvents and Degreasers

Solvents and degreasers are commonly found with other petroleum products in environmental investigation of sites with automotive and equipment maintenance. Typically solvents and degreasers will be found at low concentrations in site soils or groundwater and not as free products with significant volatilization. However, even at low concentrations, solvents and degreaser can represent significant hazards to site workers.

This group includes the family of chemical compounds generally known as organic compounds or hydrocarbons. Although some aqueous (water-based) compounds also could be included here, the hydrocarbon compounds are most prevalent and generally are more hazardous, so this section deals with them exclusively.

Health Hazards

Solvents can represent health hazards to skin: eyes, nose, throat, lungs, nervous system, heart, liver, kidneys, and blood. These can result in cancer, blood disorders, reproductive effects, and other medically significant health hazards.

Solvents dissolve the oils and fats in the skin's protective barrier, causing dermatitis (inflammation of the skin). Symptoms of dermatitis include dryness, redness, itching, burning, and cracking of the skin. Some solvents are irritants, causing pain, burning, or discomfort, and with long contact, damage to the skin. Others are sensitizers, causing an allergic dermatitis. If an individual becomes sensitized to a particular solvent, exposure even to small amounts can produce a rash. Remember that the skin affected by dermatitis is more likely to allow chemicals to be absorbed into the body through the skin.

As solvent vapors come into contact with sensitive mucous tissues, they may cause irritation, resulting in tearing eyes, dry and burning nose and throat, and coughing. Strong irritation occasionally may result in headaches, nausea, and vomiting. Repeated irritation of the respiratory tract may result in bronchitis, with symptoms of coughing and production of phlegm. Inhalation of very high concentrations of solvents may result in severe irritation of the lungs and a condition called pulmonary edema, or fluid in the lungs. Symptoms of pulmonary edema include coughing and difficulty in breathing. This condition requires prompt medical attention.

Most organic solvents affect the central nervous system, primarily the brain, in the same way that alcohol does. The effects are called anesthetic, depressant, or narcotic. With increasing levels of exposure, these effects include euphoria (feeling "high"), irritability, nervousness, depression, weakness, tiredness, headaches, dizziness, sleepiness, nausea, vomiting, disorientation, confusion, and even unconsciousness. The symptoms usually decrease when leaving the workplace, although with some solvents the effects may linger due to slow elimination from the body. There is evidence that prolonged overexposure to solvents may result in persistent effects on the brain, such as difficulty in thinking, poor coordination, and personality changes.

A few solvents, such as n-hexane and methyl n-butyl ketone, can damage the peripheral nerves, which are nerves to sensory organs and muscles. Symptoms of nerve damage include pain, loss of sensation, and weakness, usually beginning in the toes, then the fingers, and moving up the legs and arms.

Solvents, particularly those with chlorine ("chloro" in their chemical names) can affect the heart and produce a rapid or irregular heartbeat, felt as palpitation, "skipped heartbeats," or dizziness. This condition is increased with physical exertion and can result in sudden death. Usually, very

high solvent levels must exist to product this effect and frequently other symptoms such as headache or dizziness will occur first.

Some solvents, particularly those with chlorine, can damage the liver, causing a type of hepatitis. There may be no symptoms. If there are, symptoms may include: nausea, pain the right side, yellow skin and eyes, dark urine, and light colored bower movements. Hepatitis may be detected by blood tests of liver function.

Some solvents may damage the kidneys. Because there usually are no symptoms, detection occurs through blood or urine tests.

A few solvents, such as glycol ethers, (sometimes called "cellosolves") affect the blood, either by damaging circulating blood cells or decreasing the production of new blood cells. There usually are no symptoms. Detection occurs through blood or urine tests.

Physical Hazards

Solvents, strippers, and degreasers may be combustible or flammable and represent serious fire and explosion hazards if not handled correctly. In general, all organic solvents are flammable or combustible except halogenated (chlorinated or fluorinated) compounds.

These organic compounds usually do not pose any instability or reactivity problems. Most of them are volatile; that is, they will vaporize to some extent at room temperature. Upon vaporization, vapors may build up to toxic or flammable levels. Vapors of some compounds may be heavier than air and will concentrate in low-lying areas if there is inadequate air movement.

Detection of Release

If you are exposed to a solvent vapor, you may smell an odor or your nose or eyes may be irritated. A solvent that can be detected by most persons at levels below those that are harmful is said to have good warning properties. Conversely, a solvent which can be detected only above potentially harmful levels has poor warning properties.

Don’t depend on odor to warn you. The odor thresholds (lowest level that can be detected) for most solvents vary widely from person to person. Some solvents produce "olfactory fatigue": the rapid loss of ability to smell the odor. Exposure to some solvents may permanently decrease or cause you to lose your sense of smell and taste.

Vapors of solvents, strippers, and degreasers may be detected by using specialized equipment. A quick method is to use colorimetric indicator ("detector") tubes, which show the concentration of particular compounds by the length of an indicating stain on the tube. Other, more accurate, methods are to collect workshift samples on charcoal tubes or badges and analyze them in a laboratory. These methods usually are performed by the Industrial Hygienist.

Control of Exposures

Everyone working with solvents should know the names, toxicity, and hazards of the solvents they use. This information should be available through employee training programs. A worker may obtain information regarding a solvent's compositions, physical characteristics, and toxicity from the MSDS for that solvent.

Unfortunately, the precise chemical composition often is proprietary (trade secret) information, and the toxicity information shown on many MSDS's may be incomplete. The Industrial Hygienist can help you identify a solvent and determine its toxicity.

These are the preferred methods used to control exposure. They include substituting a less toxic solvent, isolating or enclosing a process, using local exhaust ventilation to remove the contaminant source, or providing general ventilation to dilute the contaminant.

Personal Protective Equipment

Respiratory protective equipment is a device that reduces the likelihood that contaminants in the air are not inhaled by a worker. SCBA's, supplied air, and air purifying respirators should be used only when engineering controls are: 1) not feasible, 2) are available but cannot adequately reduce exposures, or 3) when equipment breakdowns or emergencies occur.

Protective clothing includes gloves, aprons, goggles, and face shields. However, protective creams are not recommended as a permanent substitute for gloves. Creams can help prevent loss of skin oils.

5.3.4 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 commonly investigated in site soils include arsenic, cadmium, chromium, lead, mercury, silver, selenium, and zinc. Mercury may be present in a liquid form but is more commonly found bound to soil particulates.

Health Hazards

Except for mercury, 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 are similar to the management for dust or other airborne particulate. Use of water sprays to mist dry soils and prevent dust generation are 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.

5.3.5 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.

5.3.6 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)

Directions from the Mountain View Brownfield site to Kittitas Valley Community Hospital:

- Exit the site and travel east on Mountain View Avenue 4 blocks to South Chestnut Street.
- Turn left (north) on Chestnut Street and travel 3 blocks.
- The hospital is on your left (west) and the Emergency Department is on the north side of the building.

Estimated Time: 4 minutes

I have read the above Safety and Health Plan for the Soil Investigation, Mountain View Brownfield Project, Formerly Mackner Scales, Ecology Integrated Planning Grant # G120098, Fulcrum project number 11570.01. I am aware of the risks associated with this project as discussed both verbally and as stated in the aforementioned Health and Safety plan, 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		2/14/12	Fulcrum
P.D. Schneebly		2/14/12	BES&AS
Peter Snider		2/14/12	Fulcrum
Jeremy Lynn		2/15/2012	Fulcrum
Peter Snider		2/15/2012	Fulcrum
P.D. Schneebly		2/15/2012	BES&AS

Appendix C.2

Site Observation Reports

Site Observation Report

Report # 11419.01 Page 1 of 1

Project: Mountain View Soil Work Area: 401 East Mountain View

Fulcrum Personnel: Jeremy Lynn, Peter Snider Date: 02/14/12 Time: ~0900

Contractor	Belssas and Smith
Work Area	Trenches between scale house and east barn, stained soil between creek and east barn, and south of scale house.
Work Tasks	Excavate investigative test pits and trenches according to Sampling and Analysis Plan

Contractor Employees: P.D. Schnebly

Summary of Work: Fulcrum guided excavation of test pits and trenches and collected samples in locations and at depths as specified in the Sampling and Analysis Plan (SAP). Samples were collected from excavator bucket and placed into 4-ounce glass sample jars and 40-milliliter septum-top vials (two of each container per sample).

Work Area Controls: Class D PPE including steel-toe boots, high visibility vests, and hardhats. New nitrile gloves were used at each sample location. Initial hydrocarbon vapors were monitored with Photo Ionization Device (PID).

Schedule: Trench excavation and soil sampling will continue on 02/15/2012. Suspected underground storage tank (UST) north of east barn to be investigated as well.

Delays: None.

Comments: Locations near former diesel and gasoline USTs exhibited high soil staining at approximately 7-feet below ground surface. Petroleum hydrocarbon odor present in stained soil.

Signature: Peter Snider Date: 2/14/2012 Approved: Peter Snider

Site Observation Report

Report # 11419.01 Page 1 of 1

Project: Mountain View Soil Work Area: 401 East Mountain View

Fulcrum Personnel: Jeremy Lynn, Peter Snider Date: 02/15/12 Time: ~0800

Contractor	Belssas and Smith
Work Area	Trench in northern portion of scale house, suspected underground storage tank (UST) location, and additional trenches between east and west barn. Surface samples throughout location.
Work Tasks	Excavate investigative test pits and trenches according to Sampling and Analysis Plan

Contractor Employees: P.D. Schnebly

Summary of Work: Fulcrum guided excavation of test pits and trenches and collected samples in locations and at depths as specified in the Sampling and Analysis Plan (SAP). Samples were collected from excavator bucket and placed into 4-ounce glass sample jars and 40-milliliter septum-top vials (two of each container per sample).

Fulcrum also provided oversight services and sampling associated with the removal of a heavily damaged UST from the north portion of the east barn. The UST was excavated and removed. Subsequently, Fulcrum collected samples from the sidewall and pit bottom of the UST excavation, and placed the removed UST on 6-mil poly and covered.

Work Area Controls: Class D PPE including steel-toe boots, high visibility vests, and hardhats. New nitrile gloves were used at each sample location. Initial hydrocarbon vapors were monitored with Photo Ionization Device (PID).

Schedule: Initial soil sampling event complete.

Delays: None.

Comments: Locations near former diesel and gasoline USTs exhibited high soil staining at approximately 7-feet below ground surface. Petroleum hydrocarbon odor present in stained soil.

Signature: Peter Snider Date: 02/15/2012 Approved: Peter Snider

Appendix C.3

Site Photographs

Initial trench excavation was completed between the scale house/residence and the adjunct shop building.

The telephone pole is a remnant of the site history and is also present in Ecology's 1991 Site Investigation Photographs.

Excavated soils through the former UST basin and south of the telephone pole were heavy discolored with a noticeable odor.

The primary north-south trench excavation extended from the UST basin on the north to the south end of the center hay barn.

Surface staining was observed to include approximately 1-foot of stained surface soils with underlying clean soil

South extent of the trench excavation that extended from the UST basin on the north to the south end of the center hay barn.

Groundwater accumulation was visible in portions of the site during excavation activities.

The east side of the shop building includes equipment, parts, and storage of used vehicle and equipment fluids.

First trench excavation, beginning at the scale house/residence and continuing east towards the shop building.

UST-04 following removal from site soils. Heavy corrosion was apparent.

Localized trench excavation completed north of the canopy cover on the east side of the scale house/residence.

Petroleum stained soils were visible associated with used parts and stored fluids on the east side of the shop building.

Surface staining was present to a depth approximately 1-foot of with underlying clean soil on the east side of the shop building.

Heavily stained soils were present in localized areas of the site.

Well development utilized a peristaltic pump for purging of water from each monitoring well.

Appendix C.4

Site Descriptions and Observations

Table C.4: Soil Descriptions

Sample	Location	Depth	Soil Description	Field Observations	Laboratory Analysis
Former Diesel and Gasoline UST Area					
021412-01.7	East trench; east portion	7-feet	Cobbly, sandy loam.	Heavy petroleum staining and odor.	Analyzed
021412-06.3		3-feet	Sandy, gravelly loam.	No observed staining or odor.	Analyzed
021412-02.7	East trench; midpoint	7-feet	Cobbly, sandy loam.	Heavy petroleum staining and odor.	Analyzed
021412-05.3		3-feet	Sandy, gravelly loam.	No observed staining or odor.	Not Analyzed
021412-03.7	East trench; west portion	7-feet	Cobbly, sandy loam.	Heavy petroleum staining and odor.	Not Analyzed
021412-04.3		3-feet	Sandy, gravelly loam.	No observed staining or odor.	Not Analyzed
021412-07.6	West trench; east portion	6-feet	Cobbly, sandy loam.	Heavy petroleum staining and odor.	Analyzed
021412-08.3		3-feet	Sandy, clay loam.	No observed staining or odor.	Not Analyzed
021412-11.3			Sandy, clay loam.	No observed staining or odor.	Not Analyzed
021412-10.3	West trench; west portion	3-feet	Sandy, clay loam.	No observed staining or odor.	Not Analyzed
021412-09.6		6-feet	Cobbly, sandy loam.	No observed staining or odor.	Not Analyzed
021412-12.6	South trench; north portion	6-feet	Medium brown sandy clay loam; no rock.	Heavy petroleum staining and odor.	Analyzed
021412-13.3		3-feet	Sandy, gravelly loam.	No observed staining or odor.	Not Analyzed
021412-14.7	South trench; midpoint	7-feet	Cobbly, sandy loam.	Heavy petroleum staining and odor.	Analyzed
021412-18.3		3-feet	Sandy clay loam.	No observed staining or odor.	Not Analyzed
021412-19.1.5		1.5-feet	Sandy gravel loam.	No observed staining or odor.	Not Analyzed
021412-15.6	South trench; south portion	6-feet	Sandy gravel loam.	No observed staining or odor.	Analyzed
021412-16.1		1-foot	Sandy gravel loam.	No observed staining or odor.	Not Analyzed
021412-17.3		3-feet	Sandy gravel loam.	No observed staining or odor.	Not Analyzed
021412-20.3	South trench; north-midpoint	3-feet	Sandy gravel loam.	No observed staining or odor.	Not Analyzed
021412-21.1		1-foot		No observed staining or odor.	Analyzed
021512-22.10	North test pit	10-feet	Brown sandy clay loam.	No observed staining or odor.	Analyzed
021512-45.3	North east test pit	3-feet	Gravelly clay loam with sand.	No observed staining or odor.	Not Analyzed
021512-46.5		5-feet	Sandy gravelly loam.	No observed staining or odor.	Analyzed
021512-47.3	South east test pit	3-feet	Black/gray clay loam.	No observed staining or odor.	Not Analyzed
021512-48.5		5-feet	Cobbles; no fines.	No observed staining or odor.	Not Analyzed
021512-49.4		4-feet	Black/gray clay loam.	No observed staining or odor.	Not Analyzed

Sample	Location	Depth	Soil Description	Field Observations	Laboratory Analysis
021512-50.3	Center test pit	3-feet	Gray clay loam.	No observed staining or odor.	Not Analyzed
021512-52.6		6-feet	Sandy, gravelly loam.	Petroleum staining and odor.	Not Analyzed
021512-51.6	Center test pit; slight south	6-feet	Sandy, gravelly loam.	No observed staining or odor.	Not Analyzed
021512-53.3	West test pit	3-feet	Gray clay loam.	No observed staining or odor.	Not Analyzed
021512-54.6		6-feet	Sandy, gravelly loam.	No observed staining or odor.	Analyzed
Former Diesel Repair Shop UST Area					
021512-23.3	East sidewall (UST end)	3-feet	Medium brown sandy cobbly gravel.	No observed staining or odor.	Not Analyzed
021512-24.7	North pit bottom	7-feet	Medium brown sandy clay loam.	No observed staining or odor.	Not Analyzed
021512-25.3	West sidewall (UST end)	3-feet	Medium brown sandy cobbly gravel.	No observed staining or odor.	Analyzed
021512-26.4	North sidewall (UST side)	4-feet	Medium brown sandy cobbly gravel.	No observed staining or odor.	Not Analyzed
021512-27.6	East pit bottom	6-feet	Medium brown sandy clay loam.	No observed staining or odor.	Analyzed
021512-28.3	South sidewall (UST side)	3-feet	Medium brown sandy cobbly gravel.	No observed staining or odor.	Analyzed
021512-29	UST Excavation Soil Stockpile	Surface	Soil type is a composite of all excavation soil. Predominantly sand and clay size particles with some cobbles.	No observed staining or odor. Samples laboratory composited prior to analysis.	Analyzed
021512-30					
021512-31					
022312-59	UST Interior		Sludge consisting of residual product from UST as well as some soil materials.	No discernible soil type.	Analyzed
022312-60	UST Interior		Sludge consisting of residual product from UST as well as some soil materials.	No discernible soil type.	Not Analyzed
Stained Soils East of Diesel Repair Shop					
021512-32.1	North test pit; west portion	1-foot	Clay loam.	No observed staining or odor.	Analyzed
021512-33.3.5		3.5-feet	Clay loam.	No observed staining or odor.	Not Analyzed
021512-34.5.5		5.5-feet			Analyzed
021512-35.1	North test pit; east portion	1-foot	Clay loam.	No observed staining or odor.	Analyzed
021512-36.3.5		3.5-feet	Clay loam.	No observed staining or odor.	Not Analyzed
021512-37.6		6-feet	Gray sandy gravel loam.	Slight decomposition odor.	Analyzed
021512-38.05	South test pit	0.5-feet		Petroleum stained surface gravel.	Not Analyzed
021512-39.1		1-foot	Clay loam.	No observed staining or odor.	Not Analyzed
021512-40.3		3-feet	Clay loam.	No observed staining or odor.	Analyzed
021512-41.5		5-feet	Gray sandy gravel loam.	Slight decomposition odor.	Analyzed

Sample	Location	Depth	Soil Description	Field Observations	Laboratory Analysis
Historic Areas of Vehicle and Equipment Parking					
021512-42.05	Northeast; mid portion	0.5-feet	Import surface gravels present to approximately 6 to 12-inches below grade. Sandy gravel soil.	Petroleum staining observed.	Analyzed
021512-43.05	Southern portion of site	0.5-feet	Import surface gravels present to approximately 6 to 12-inches below grade. Sandy gravel soil.	Petroleum staining observed.	Analyzed
021512-44.05	East of repair shop	0.5-feet	Import surface gravels present to approximately 6 to 12-inches below grade. Sandy gravel soil.	Petroleum staining observed.	Analyzed
022112-55.0.5	Northeast; north portion	0.5-feet	Import surface gravels present to approximately 6 to 12-inches below grade. Sandy gravel soil.	Petroleum staining observed.	Analyzed
022112-56.0.5		0.5-feet	Import surface gravels present to approximately 6 to 12-inches below grade. Sandy gravel soil.	Petroleum staining observed.	Analyzed
022112-57.0.5	Northeast; south portion	0.5-feet	Import surface gravels present to approximately 6 to 12-inches below grade. Sandy gravel soil.	No observed staining or odors.	Analyzed
022112-58.0.5	Oil storage area	0.5-feet	Import surface gravels present to approximately 6 to 12-inches below grade. Sandy gravel soil.	Petroleum staining observed.	Not Analyzed
022112-61		Surface	Import surface gravels present to approximately 6 to 12-inches below grade. Sandy gravel soil.	Petroleum staining observed.	Analyzed
022112-62		Surface	Import surface gravels present to approximately 6 to 12-inches below grade. Sandy gravel soil.	Petroleum staining observed.	Analyzed

Appendix C.5

Soil Investigation Summary Table

Table C.5: Summary of Soil Sampling Data from Mountain View Brownfield

Analyte	Sample Number	021412-01.7	021412-02.7	021412-03.6	021412-04.3	021412-05.3	021412-06.3	021412-07.6	021412-08.3	021412-09.6	021412-10.3	021412-11.3	021412-12.6	021412-13.3	021412-14.7	021412-15.6	021412-16.1	021412-17.3	021412-18.3	021412-19.1.5	021412-20.3	021412-21.1	022112-55.0.5	022112-56.0.5	022112-57.0.5	022112-58.0.5	022112-59	022112-60	021512-22.10	021512-23.3	021512-24.7	021512-25.3	021512-26.4	021512-27.6	021512-28.3	021512-29	021512-30	021512-31	021512-32.1	021512-33.3.5	021512-34.5.5	021512-35.1	021512-36.3.5	021512-37.6	021512-38.05	021512-39.1	021512-40.3	021512-41.5	021512-42.0.5	021512-43.0.5	021512-44.0.5	021512-45.3	021512-46.5	021512-47.3	021512-48.5	021512-49.4	021512-50.3	021512-51.6	021512-52.6	021512-53.3	021512-54.6	021512-29,30,31 (Composite)	022312-61	022312-62	052212-01	MTCA Method A	MTCA Method B Carcinogenic	MTCA Method B Non-Carcinogenic
	Depth (Feet)	7	7	6	3	3	3	6	3	6	3	3	6	3	7	6	1	3	3	1.5	3	1	0.5	0.5	0.5	0.5	U	G	10	3	7	3	4	6	3	G	G	G	1	3.5	5.5	1	3.5	6	0.5	1	3	5	0.5	0.5	0.5	3	5	3	5	4	3	6	6	3	6	G	G	G	1			
Petroleum Hydrocarbons	Diesel (Fuel Oil)	**2,340**	ND	-	-	-	ND	ND	-	-	-	-	**5,990**	-	190	ND	-	-	-	-	-	ND	ND	ND	ND	-	ND	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	ND	-	ND	-	ND	-	ND	ND	ND	197	-	ND	-	-	-	-	-	-	-	ND	ND	676	1,030	ND	2000	NE	NE
	Kerosene (Diesel 1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2000	NE	NE
	Heavy Oil	ND	ND	-	-	-	ND	ND	-	-	-	-	ND	-	ND	ND	-	-	-	-	-	ND	ND	ND	73.6	-	118	-	ND	-	-	ND	-	99	164	-	-	-	ND	-	ND	ND	-	ND	-	ND	-	ND	ND	235	ND	-	ND	-	-	-	-	-	-	-	ND	ND	3,370	-	445	2000	NE	NE
	Gasoline	ND	ND	-	-	-	ND	ND	-	-	-	-	ND	-	ND	ND	-	-	-	-	-	ND	ND	ND	ND	-	ND	-	ND	-	-	ND	-	ND	5.05	-	-	-	ND	-	ND	ND	-	ND	-	ND	-	ND	ND	ND	ND	-	ND	-	-	-	-	-	-	-	ND	ND	ND	ND	-	30/100	NE	NE
	Gasoline Range Organics (C_6-C_{12})	95.4	-	-	-	-	-	-	-	-	-	-	156	-	6.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30/100	NE	NE
	Naphthalene	-	-	-	-	-	ND	-	-	-	-	-	1.8/0.439	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	0.111	-	ND	ND	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	ND	ND	ND	ND	5	NE	1600
Polyaromatic Hydrocarbons	2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	25.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE	NE	320
	1-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE	35	NE
	Acenaphthylene	-	-	-	-	-	-		-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				NE	NE	NE
	Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	4.91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE	NE	4800
	Fluorene	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE	NE	3200
	Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	9.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE	NE	NE
	Anthracene			-	-	-			-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			NE	NE	24000
	Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	0.239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE	NE	3200
	Pyrene	-	-	-	-	-	-	-	-	-	-	-	0.508	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE	NE	2400
	Benzo(a) anthracene	ND	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	-	NE	1.4	NE
	Chrysene	ND	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	-	NE	140	NE
	Benzo(b)fluoranthene	ND	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	-	NE	1.4	NE
	Benzo(k)fluoranthene	ND	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	-	NE	14	NE
	Benzo(a)pyrene	ND	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	214	329	-	0.1	0.14	NE
	Indeno (1,2,3-cd)pyrene	ND	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	-	NE	1.4	NE
	Dibenz(a,h)anthracene	ND		-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	-	NE	0.14	NE
	Benzo(g,h,i)perylene	-		-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE	NE	NE
Gasoline Additatives or Components	Ethyl tert-Butyl ether (ETBE)	-	-	-	-	-	ND	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	ND	-	ND	-	ND	-	ND	-	-	-	-	ND	-	-	-	-	-	-	-	ND	ND	ND	ND	ND	NE	NE	NE
	tert-Amyl Methyl Ether (TAME)	-	-	-	-	-	ND	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	ND	-	ND	-	ND	-	ND	-	-	-	-	ND	-	-	-	-	-	-	-	ND	ND	ND	ND	ND	NE	NE	NE
	Tert-butyl alcohol	-	-	-	-	-	ND	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	0.88	-	ND	ND	-	ND	-	ND	-	ND	-	-	-	-	ND	-	-	-	-	-	-	-	ND	ND	ND	ND	ND	NE	NE	NE
	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	0.1	NE	NE
	1,2-Dichloroethane	-	-	-	-	-	ND	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	ND	-	ND	-	ND	-	ND	-	-	-	-	ND	-	-	-	-	-	-	-	ND	ND	ND	ND	ND	NE	11	1600
	Benzene	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	0.03	18	320
	Toluene	ND	ND	-	-	-	ND	ND	-	-	-	-	ND	-	ND	ND	-	-	-	-	-	ND	ND	ND	####	-	ND	-	ND	-	-	ND	-	0.04	**0.18**	-	-	-	0.062	-	ND	ND	-	ND	-	ND	-	ND	ND	ND	ND	-	ND	-	-	-	-	-	-	-	ND	ND	ND	ND	ND	7	NE	6400
	1,2-Dibromomethane (EDB)	-	-	-	-	-	ND	-	-	-	-	-	ND	-	ND	-	-	-	-	-	-	ND	-	-	-	-	-	-	ND	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	ND	-	ND	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	ND	ND	0.005	0.5	720
	Ethylbenzene	ND	ND	-	-	-	ND	ND	-	-	-	-	ND	-	ND	ND	-	-	-	-	-	ND	ND	ND	ND	-	ND	-	ND	-	-	ND	-	ND	ND	-	-	-	0.089	-	ND	ND	-	ND	-	ND	-	ND	ND	ND	ND	-	ND	-	-	-	-	-	-	-	ND	ND	ND	ND	ND	6	NE	8000
	m, p-Xylene	ND	ND	-	-	-	ND	ND	-	-	-	-	ND	-	ND	ND	-	-	-	-	-	####	ND	ND	0.055	-	ND	-	ND	-	-	ND	-	ND	ND	-	-	-	0.210	-	ND	ND	-	ND	-	ND	-	ND	ND	ND	ND	-	ND	-	-	-	-	-	-	-	0.0221	ND	ND	ND	ND	9	NE	16000
	o-Xylene	ND	ND	-	-	-	ND	ND	-	-	-	-	ND	-	ND	ND	-	-	-	-	-	ND	ND	ND	0.03	-	ND	-	ND	-	-	ND	-	ND	ND	-	-	-	0.125	-	ND	ND	-	ND	-	ND	-	ND	ND	ND	ND	-	ND	-	-	-	-	-	-	-	ND	ND	ND	ND	ND	9	NE	1600
Polychlorinated Biphenyls (PCBs)	Aroclor 1016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	NE	14	5.6
	Aroclor 1221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	NE	NE	NE
	Aroclor 1232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	NE	NE	NE
	Aroclor 1242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	NE	NE	NE
	Aroclor 1248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	NE	NE	NE
	Aroclor 1254	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	NE	0.5	1.6
	Aroclor 1260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	NE	0.5	NE
	Aroclor 1262	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	NE	NE	NE
	Aroclor 1268	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	NE	NE	NE
	Total Polychlorinated Biphenyls	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	1	0.5	NE
Metals	Arsenic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.03	0.995	2.67	-	6	-	-	-	-	1.08	-	4.65	2.63	-	-	-	4.27	-	1.11	-	-	-	-	1.62	-	0.850	1.89	2.29	2.61	-	-	-	-	-	-	-	-	-	-	1.32	9.4	12.3	12.3	20	0.67	24
	Barium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	167	-	173	-	-	-	-	129	-	147	-	-	-	-	-	-	-	-	-	-	-	-	-	-	275	334	334	NE	NE	16000
	Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.457	0.534	1.05	-	2.2	-	-	-	-	0.573	-	1.16	0.912	-	-	-	0.485	-	0.597	-	-	-	-	0.477	-	0.442	0.639	0.412	0.190	-	-	-	-	-	-	-	-	-	-	0.497	6.17	4.85	4.85	2	NE	NE
	Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27.7	23	27.2	-	125	-	-	-	-	25.5	-	34.3	41.6	-	-	-	42.6	-	25.3	-	-	-	-	25.6	-	25.8	22.5	32.2	34.9	-	-	-	-	-	-	-	-	-	-	20.8	51.4	54.8	54.8	NE	NE	NE
	Hexavalent Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	ND	-	-	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	ND	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	NE	240
	Lead	3.40	1.66	-	-	-	-	2.08	-	-	-	-	-	-	3.77	2.04	-	-	-	-	-	5.48	18.1	8.17	167	-	**276**	-	-	-	-	10.5	-	56.7	45.3	-	-	-	34.4	-	78.8	-	-	-	-	15.6	-	6.46	14.9	30.7	3.00	-	2.85	-	-	-	-	-	-	-	2.73	26.7	120	140	140	250	NE	NE
	Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	-	ND	-	-	-	-	ND	-	ND	ND	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	ND	ND	ND	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	ND	2	NE	NE
	Nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38.5	17.5	37.2	-	99	-	-	-	-	19.8	-	39.6	65.8	-	-	-	71.6	-	17.2	-	-	-	-	28.5	-	25.8	19.3	50.8	71.4	-	-	-	-	-	-	-	-	-	-	22.1	63.1	63.3	63.3	NE	NE	NE
	Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	-	-	ND	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND	NE	NE	400
	Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.148	-	0.157	-	-	-	-	0.116	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.127	0.141	0.14	NE	NE	400
	Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75.3	76.7	198	-	579	-	-	-	-	128	-	257	265	-	-	-	93.6	-	92.2	-	-	-	-	69.6	-	69.7	83.3	91.9	42.8	-	-	-	-	-	-	-	-	-	-	106	627	612	612	NE	NE	24000

1. All results reported in mg/Kg.
2. Napthalene is analyzed by two methodologies SW846-8260 and SW846-8270C. The analytical methodologies have difference limits of detection and reporting limits. Where identified in both methodologies, the highest concentration is reported.

G = grab sample U = UST sludge sample
ND= analyte not detected at method reporting limit
- = analysis not completed
NE - not evaluated

Appendix C.6

EPH and VPH Laboratory Analysis

Extractable Petroleum Hydrocarbons and Volatile Petroleum Hydrocarbons

021412-01.7

Extractable Petroleum Hydrocarbons	mg/Kg
Aliphatic Hydrocarbon C8-C10	5.64
Aliphatic Hydrocarbon C10-C12	76.2
Aliphatic Hydrocarbon C12-C16	539
Aliphatic Hydrocarbon C16-C21	577
Aliphatic Hydrocarbon C21-C34	82.4
Aromatic Hydrocarbon C8-C10	ND
Aromatic Hydrocarbon C10-C12	ND
Aromatic Hydrocarbon C12-C16	ND
Aromatic Hydrocarbon C16-C21	73.2
Aromatic Hydrocarbon C21-C34	13.2
NWTPH-Diesel	2,340
NWTPH-Heavy Oil	ND

021412.01-7

Volatile Petroleum Hydrocarbons	mg/Kg
Aliphatic Hydrocarbons C5-C6	ND
Aliphatic Hydrocarbons C6-C8	ND
Aliphatic Hydrocarbons C8-C10	ND
Aliphatic Hydrocarbons C10-C12	2.98
Aromatic Hydrocarbons C8-C10	3.49
Aromatic Hydrocarbons C10-C12	58.7
Aromatic Hydrocarbons C12-C13	129
NTWPH-Gasoline	ND
NWTPH-Diesel	2,340
NWTPH-Heavy Oil	ND

021412-12.6

Extractable Petroleum Hydrocarbons	mg/Kg
Aliphatic Hydrocarbon C8-C10	21.4
Aliphatic Hydrocarbon C10-C12	270
Aliphatic Hydrocarbon C12-C16	1,540
Aliphatic Hydrocarbon C16-C21	1,260
Aliphatic Hydrocarbon C21-C34	ND
Aromatic Hydrocarbon C8-C10	ND
Aromatic Hydrocarbon C10-C12	ND
Aromatic Hydrocarbon C12-C16	36.5
Aromatic Hydrocarbon C16-C21	213
Aromatic Hydrocarbon C21-C34	25.4
NTWPH-Gasoline	156
NWTPH-Diesel	5,990
NWTPH-Heavy Oil	ND

021412.12-6

Volatile Petroleum Hydrocarbons	mg/Kg
Aliphatic Hydrocarbons C5-C6	ND
Aliphatic Hydrocarbons C6-C8	ND
Aliphatic Hydrocarbons C8-C10	ND
Aliphatic Hydrocarbons C10-C12	3.13
Aromatic Hydrocarbons C8-C10	3.51
Aromatic Hydrocarbons C10-C12	56.4
Aromatic Hydrocarbons C12-C13	113
NTWPH-Gasoline	156
NWTPH-Diesel	5,990
NWTPH-Heavy Oil	ND

Appendix C.7

Laboratory Analysis

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: Mountain View Brownfield
Lab ID: 1202091

March 21, 2012

Attention Jeremy Lynn:

Fremont Analytical, Inc. received 63 sample(s) on 2/15/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Extractable Petroleum Hydrocarbons by NWEPH
Gasoline by NWTPH-Gx
Hexavalent Chromium by EPA Method 7196
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Polychlorinated Biphenyls (PCB) by EPA 8082
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: *03/21/2012*

CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield
Lab Order: 1202091

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1202091-001	021412-01.7	02/14/2012 8:40 AM	02/15/2012 9:40 AM
1202091-002	021412-2.7	02/14/2012 9:10 AM	02/15/2012 9:40 AM
1202091-003	021412-3.6	02/14/2012 9:30 AM	02/15/2012 9:40 AM
1202091-004	021412-4.3	02/14/2012 9:43 AM	02/15/2012 9:40 AM
1202091-005	021412-5.3	02/14/2012 10:00 AM	02/15/2012 9:40 AM
1202091-006	021412-6.3	02/14/2012 10:20 AM	02/15/2012 9:40 AM
1202091-007	021412-7.6	02/14/2012 11:06 AM	02/15/2012 9:40 AM
1202091-008	021412-8.3	02/14/2012 11:08 AM	02/15/2012 9:40 AM
1202091-009	021412-9.6	02/14/2012 11:24 AM	02/15/2012 9:40 AM
1202091-010	021412-10.3	02/14/2012 11:28 AM	02/15/2012 9:40 AM
1202091-011	021412-11.3	02/14/2012 11:35 AM	02/15/2012 9:40 AM
1202091-012	021412-12.6	02/14/2012 12:50 PM	02/15/2012 9:40 AM
1202091-013	021412-13.3	02/14/2012 12:55 PM	02/15/2012 9:40 AM
1202091-014	021412-14.7	02/14/2012 1:50 PM	02/15/2012 9:40 AM
1202091-015	021412-15.6	02/14/2012 2:00 PM	02/15/2012 9:40 AM
1202091-016	021412-16.1	02/14/2012 2:05 PM	02/15/2012 9:40 AM
1202091-017	021412-17.3	02/14/2012 2:06 PM	02/15/2012 9:40 AM
1202091-018	021412-18.3	02/14/2012 2:30 PM	02/15/2012 9:40 AM
1202091-019	021412-19.1.5	02/14/2012 2:35 PM	02/15/2012 9:40 AM
1202091-020	021412-20.3	02/14/2012 2:50 PM	02/15/2012 9:40 AM
1202091-021	021412-21.1	02/14/2012 2:57 PM	02/15/2012 9:40 AM
1202091-022	022112-55.0.5	02/21/2012 12:30 PM	02/22/2012 9:56 AM
1202091-023	022112-56.0.5	02/21/2012 12:45 PM	02/22/2012 9:56 AM
1202091-024	022112-57.0.5	02/21/2012 1:00 PM	02/22/2012 9:56 AM
1202091-025	022112-58.0.5	02/21/2012 1:30 PM	02/22/2012 9:56 AM
1202091-026	022112-59	02/21/2012 1:40 PM	02/22/2012 9:56 AM
1202091-027	022112-60	02/21/2012 2:00 PM	02/22/2012 9:56 AM
1202091-028	021512-22.10	02/15/2012 8:15 AM	02/15/2012 9:40 AM
1202091-029	021512-23.3	02/15/2012 9:15 AM	02/16/2012 9:45 AM
1202091-030	021512-24.7	02/15/2012 9:40 AM	02/16/2012 9:45 AM
1202091-031	021512-25.3	02/15/2012 10:19 AM	02/16/2012 9:45 AM
1202091-032	021512-26.4	02/15/2012 10:22 AM	02/16/2012 9:45 AM
1202091-033	021512-27.6	02/15/2012 10:28 AM	02/16/2012 9:45 AM
1202091-034	021512-28.3	02/15/2012 10:35 AM	02/16/2012 9:45 AM
1202091-035	021512-29	02/15/2012 10:45 AM	02/16/2012 9:45 AM
1202091-036	021512-30	02/15/2012 10:48 AM	02/16/2012 9:45 AM

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

CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield
Lab Order: 1202091

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1202091-037	021512-31	02/15/2012 10:50 AM	02/16/2012 9:45 AM
1202091-038	021512-32.1	02/15/2012 11:25 AM	02/16/2012 9:45 AM
1202091-039	021512-33.3.5	02/15/2012 11:30 AM	02/16/2012 9:45 AM
1202091-040	021512-34.5.5	02/15/2012 11:40 AM	02/16/2012 9:45 AM
1202091-041	021512-35.1	02/15/2012 12:54 PM	02/16/2012 9:45 AM
1202091-042	021512-36.3.5	02/15/2012 12:59 PM	02/16/2012 9:45 AM
1202091-043	021512-37.6	02/15/2012 1:05 PM	02/16/2012 9:45 AM
1202091-044	021512-38.05	02/15/2012 1:25 PM	02/16/2012 9:45 AM
1202091-045	021512-39.1	02/15/2012 1:30 PM	02/16/2012 9:45 AM
1202091-046	021512-40.3	02/15/2012 1:40 PM	02/16/2012 9:45 AM
1202091-047	021512-41.5	02/15/2012 1:45 PM	02/16/2012 9:45 AM
1202091-048	021512-42.05	02/15/2012 2:00 PM	02/16/2012 9:45 AM
1202091-049	021512-43.0.5	02/15/2012 2:13 PM	02/16/2012 9:45 AM
1202091-050	021512-44.0.5	02/15/2012 2:30 PM	02/16/2012 9:45 AM
1202091-051	021512-45.3	02/15/2012 2:40 PM	02/16/2012 9:45 AM
1202091-052	021512-46.5	02/15/2012 2:50 PM	02/16/2012 9:45 AM
1202091-053	021512-47.3	02/15/2012 3:05 PM	02/16/2012 9:45 AM
1202091-054	021512-48.5	02/15/2012 3:10 PM	02/16/2012 9:45 AM
1202091-055	021512-49.4	02/15/2012 3:15 PM	02/16/2012 9:45 AM
1202091-056	021512-50.3	02/15/2012 3:27 PM	02/16/2012 9:45 AM
1202091-057	021512-51.6	02/15/2012 3:30 PM	02/16/2012 9:45 AM
1202091-058	021512-52.6	02/15/2012 3:35 PM	02/16/2012 9:45 AM
1202091-059	021512-53.3	02/15/2012 3:57 PM	02/16/2012 9:45 AM
1202091-060	021512-54.6	02/15/2012 4:00 PM	02/16/2012 9:45 AM
1202091-061	021512-29,30,31 (Composite)	02/15/2012 10:50 AM	02/16/2012 10:30 AM
1202091-062	022312-61	02/23/2012 12:00 PM	02/24/2012 10:30 AM
1202091-063	022312-62	02/23/2012 12:10 PM	02/24/2012 10:30 AM

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

Case Narrative

WO#: **1202091**
Date: **3/21/2012**

CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

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-DX-S, Sample 1202091-009B: Sample contained many large rocks.
Prep Comments for PREP-DX-S, Sample 1202091-012B: Sample contained many large rocks
Prep Comments for PREP-DX-S, Sample 1202091-009B: Sample contained many large rocks.
Prep Comments for PREP-DX-S, Sample 1202091-012B: Sample contained many large rocks

Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202091-038B) required Cleanup Procedure.
Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202091-040B) required Cleanup Procedure.
Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202091-045B) required Cleanup Procedure.
Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202091-047B) required Cleanup Procedure.
Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202091-062B) required Cleanup Procedure.
Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202091-063B) required Cleanup Procedure.

Analytical Report

WO#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 8:40:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-001
Matrix: Soil
Client Sample ID: 021412-01.7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1904		Analyst: EM
Diesel (Fuel Oil)	2,340	218	D	mg/Kg-dry	10	2/17/2012 10:32:00 PM
Heavy Oil	ND	54.4		mg/Kg-dry	1	2/16/2012 8:08:00 PM
Surr: 2-Fluorobiphenyl	120	75-135	D	%REC	10	2/17/2012 10:32:00 PM
Surr: o-Terphenyl	109	71.2-128		%REC	1	2/16/2012 8:08:00 PM
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 2087		Analyst: EM
Aliphatic Hydrocarbon (C8-C10)	5.64	5.34	H	mg/Kg-dry	1	3/21/2012 5:22:00 AM
Aliphatic Hydrocarbon (C10-C12)	76.2	5.34	H	mg/Kg-dry	1	3/21/2012 5:22:00 AM
Aliphatic Hydrocarbon (C12-C16)	539	53.4	DH	mg/Kg-dry	10	3/21/2012 12:55:00 PM
Aliphatic Hydrocarbon (C16-C21)	577	53.4	DH	mg/Kg-dry	10	3/21/2012 12:55:00 PM
Aliphatic Hydrocarbon (C21-C34)	82.4	5.34	H	mg/Kg-dry	1	3/21/2012 5:22:00 AM
Aromatic Hydrocarbon (C8-C10)	ND	5.34	H	mg/Kg-dry	1	3/21/2012 9:00:00 AM
Aromatic Hydrocarbon (C10-C12)	ND	5.34	H	mg/Kg-dry	1	3/21/2012 9:00:00 AM
Aromatic Hydrocarbon (C12-C16)	ND	5.34	H	mg/Kg-dry	1	3/21/2012 9:00:00 AM
Aromatic Hydrocarbon (C16-C21)	73.2	5.34	H	mg/Kg-dry	1	3/21/2012 9:00:00 AM
Aromatic Hydrocarbon (C21-C34)	13.2	5.34	H	mg/Kg-dry	1	3/21/2012 9:00:00 AM
Surr: 1-Chlorooctadecane	97.5	65-140	H	%REC	1	3/21/2012 5:22:00 AM
Surr: o-Terphenyl	86.6	65-140	H	%REC	1	3/21/2012 9:00:00 AM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 2054		Analyst: PH
Aliphatic Hydrocarbon (C5-C6)	ND	0.584	H	mg/Kg-dry	1	3/14/2012 4:32:00 PM
Aliphatic Hydrocarbon (C6-C8)	ND	0.584	H	mg/Kg-dry	1	3/14/2012 4:32:00 PM
Aliphatic Hydrocarbon (C8-C10)	ND	0.584	H	mg/Kg-dry	1	3/14/2012 4:32:00 PM
Aliphatic Hydrocarbon (C10-C12)	2.98	0.584	H	mg/Kg-dry	1	3/14/2012 4:32:00 PM
Aromatic Hydrocarbon (C8-C10)	3.49	0.584	H	mg/Kg-dry	1	3/14/2012 4:32:00 PM
Aromatic Hydrocarbon (C10-C12)	58.7	0.584	H	mg/Kg-dry	1	3/14/2012 4:32:00 PM
Aromatic Hydrocarbon (C12-C13)	129	0.584	H	mg/Kg-dry	1	3/14/2012 4:32:00 PM
Surr: Bromoflourobeneze	114	65-140	H	%REC	1	3/14/2012 4:32:00 PM
Surr: Trifluorotoluene	102	65-140	H	%REC	1	3/14/2012 4:32:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1903		Analyst: SG
Benz(a)anthracene	ND	56.2		µg/Kg-dry	1	2/16/2012 9:09:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 8:40:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-001
Matrix: Soil
Client Sample ID: 021412-01.7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1903		Analyst: SG
Chrysene	ND	56.2		µg/Kg-dry	1	2/16/2012 9:09:00 PM
Benzo(b)fluoranthene	ND	56.2		µg/Kg-dry	1	2/16/2012 9:09:00 PM
Benzo(k)fluoranthene	ND	56.2		µg/Kg-dry	1	2/16/2012 9:09:00 PM
Benzo(a)pyrene	ND	56.2		µg/Kg-dry	1	2/16/2012 9:09:00 PM
Indeno(1,2,3-cd)pyrene	ND	56.2		µg/Kg-dry	1	2/16/2012 9:09:00 PM
Dibenz(a,h)anthracene	ND	56.2		µg/Kg-dry	1	2/16/2012 9:09:00 PM
Surr: 2-Fluorobiphenyl	138	53.5-148		%REC	1	2/16/2012 9:09:00 PM
Surr: Terphenyl-d14 (surr)	129	67.2-149		%REC	1	2/16/2012 9:09:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3385		Analyst: PH
Gasoline	ND	5.84		mg/Kg-dry	1	2/15/2012 10:18:00 PM
Gasoline Range Organics C6-C12	95.4	5.84		mg/Kg-dry	1	2/15/2012 10:18:00 PM
Surr: 1,2-Dichloroethane-d4	117	65-135		%REC	1	2/15/2012 10:18:00 PM
Surr: Fluorobenzene	109	65-135		%REC	1	2/15/2012 10:18:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1898		Analyst: PH
Benzene	ND	0.0233		mg/Kg-dry	1	2/15/2012 10:18:00 PM
Toluene	ND	0.0233		mg/Kg-dry	1	2/15/2012 10:18:00 PM
Ethylbenzene	ND	0.0350		mg/Kg-dry	1	2/15/2012 10:18:00 PM
m,p-Xylene	ND	0.0233		mg/Kg-dry	1	2/15/2012 10:18:00 PM
o-Xylene	ND	0.0233		mg/Kg-dry	1	2/15/2012 10:18:00 PM
Surr: 1-Bromo-4-fluorobenzene	112	63.1-141		%REC	1	2/15/2012 10:18:00 PM
Surr: Dibromofluoromethane	100	67.6-119		%REC	1	2/15/2012 10:18:00 PM
Surr: Toluene-d8	108	78.5-126		%REC	1	2/15/2012 10:18:00 PM
Total Metals by EPA Method 6020				Batch ID: 1907		Analyst: BR
Lead	3.40	0.185		mg/Kg-dry	1	2/16/2012 10:11:32 PM
Sample Moisture (Percent Moisture)				Batch ID: R3388		Analyst: EM
Percent Moisture	21.2			wt%	1	2/16/2012 10:50:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 9:10:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-002
Matrix: Soil
Client Sample ID: 021412-2.7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1904		Analyst: EM
Diesel (Fuel Oil)	ND	19.2		mg/Kg-dry	1	2/16/2012 9:03:00 PM
Heavy Oil	ND	48.1		mg/Kg-dry	1	2/16/2012 9:03:00 PM
Surr: 2-Fluorobiphenyl	102	75-135		%REC	1	2/16/2012 9:03:00 PM
Surr: o-Terphenyl	101	71.2-128		%REC	1	2/16/2012 9:03:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3385		Analyst: PH
Gasoline	ND	4.26		mg/Kg-dry	1	2/15/2012 9:18:00 PM
Surr: 1,2-Dichloroethane-d4	118	65-135		%REC	1	2/15/2012 9:18:00 PM
Surr: Fluorobenzene	109	65-135		%REC	1	2/15/2012 9:18:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1898		Analyst: PH
Benzene	ND	0.0170		mg/Kg-dry	1	2/15/2012 9:18:00 PM
Toluene	ND	0.0170		mg/Kg-dry	1	2/15/2012 9:18:00 PM
Ethylbenzene	ND	0.0255		mg/Kg-dry	1	2/15/2012 9:18:00 PM
m,p-Xylene	ND	0.0170		mg/Kg-dry	1	2/15/2012 9:18:00 PM
o-Xylene	ND	0.0170		mg/Kg-dry	1	2/15/2012 9:18:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.0	63.1-141		%REC	1	2/15/2012 9:18:00 PM
Surr: Dibromofluoromethane	97.9	67.6-119		%REC	1	2/15/2012 9:18:00 PM
Surr: Toluene-d8	107	78.5-126		%REC	1	2/15/2012 9:18:00 PM
Total Metals by EPA Method 6020				Batch ID: 1907		Analyst: BR
Lead	1.66	0.163		mg/Kg-dry	1	2/16/2012 10:20:19 PM
Sample Moisture (Percent Moisture)				Batch ID: R3388		Analyst: EM
Percent Moisture	11.0			wt%	1	2/16/2012 10:50:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 10:20:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-006
Matrix: Soil
Client Sample ID: 021412-6.3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1951		Analyst: EM
Diesel (Fuel Oil)	ND	23.1		mg/Kg-dry	1	2/27/2012 11:31:00 PM
Heavy Oil	ND	57.7		mg/Kg-dry	1	2/27/2012 11:31:00 PM
Surr: 2-Fluorobiphenyl	97.6	84.2-137		%REC	1	2/27/2012 11:31:00 PM
Surr: o-Terphenyl	109	87.1-138		%REC	1	2/27/2012 11:31:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3513		Analyst: PH
Gasoline	ND	5.82		mg/Kg-dry	1	2/25/2012 7:26:00 PM
Surr: 1,2-Dichloroethane-d4	107	65-135		%REC	1	2/25/2012 7:26:00 PM
Surr: Fluorobenzene	111	65-135		%REC	1	2/25/2012 7:26:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1950		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0582		mg/Kg-dry	1	2/25/2012 7:26:00 PM
tert-Amyl Methyl Ether (TAME)	ND	0.0582		mg/Kg-dry	1	2/25/2012 7:26:00 PM
Tert-butyl alcohol	ND	0.291		mg/Kg-dry	1	2/25/2012 7:26:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0582		mg/Kg-dry	1	2/25/2012 7:26:00 PM
1,2-Dichloroethane	ND	0.0349		mg/Kg-dry	1	2/25/2012 7:26:00 PM
Benzene	ND	0.0233		mg/Kg-dry	1	2/25/2012 7:26:00 PM
Toluene	ND	0.0233		mg/Kg-dry	1	2/25/2012 7:26:00 PM
1,2-Dibromoethane (EDB)	ND	0.00582		mg/Kg-dry	1	2/25/2012 7:26:00 PM
Ethylbenzene	ND	0.0349		mg/Kg-dry	1	2/25/2012 7:26:00 PM
m,p-Xylene	ND	0.0233		mg/Kg-dry	1	2/25/2012 7:26:00 PM
o-Xylene	ND	0.0233		mg/Kg-dry	1	2/25/2012 7:26:00 PM
Naphthalene	ND	0.0349		mg/Kg-dry	1	2/25/2012 7:26:00 PM
Surr: 1-Bromo-4-fluorobenzene	95.3	63.1-141		%REC	1	2/25/2012 7:26:00 PM
Surr: Dibromofluoromethane	97.3	67.6-119		%REC	1	2/25/2012 7:26:00 PM
Surr: Toluene-d8	107	78.5-126		%REC	1	2/25/2012 7:26:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	21.1			wt%	1	2/29/2012 10:37:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 11:06:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-007
Matrix: Soil
Client Sample ID: 021412-7.6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1904		Analyst: EM
Diesel (Fuel Oil)	ND	20.5		mg/Kg-dry	1	2/16/2012 9:58:00 PM
Heavy Oil	ND	51.2		mg/Kg-dry	1	2/16/2012 9:58:00 PM
Surr: 2-Fluorobiphenyl	109	75-135		%REC	1	2/16/2012 9:58:00 PM
Surr: o-Terphenyl	98.9	71.2-128		%REC	1	2/16/2012 9:58:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3385		Analyst: PH
Gasoline	ND	3.55		mg/Kg-dry	1	2/15/2012 8:48:00 PM
Surr: 1,2-Dichloroethane-d4	117	65-135		%REC	1	2/15/2012 8:48:00 PM
Surr: Fluorobenzene	108	65-135		%REC	1	2/15/2012 8:48:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1898		Analyst: PH
Benzene	ND	0.0142		mg/Kg-dry	1	2/15/2012 8:48:00 PM
Toluene	ND	0.0142		mg/Kg-dry	1	2/15/2012 8:48:00 PM
Ethylbenzene	ND	0.0213		mg/Kg-dry	1	2/15/2012 8:48:00 PM
m,p-Xylene	ND	0.0142		mg/Kg-dry	1	2/15/2012 8:48:00 PM
o-Xylene	ND	0.0142		mg/Kg-dry	1	2/15/2012 8:48:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.9	63.1-141		%REC	1	2/15/2012 8:48:00 PM
Surr: Dibromofluoromethane	98.2	67.6-119		%REC	1	2/15/2012 8:48:00 PM
Surr: Toluene-d8	113	78.5-126		%REC	1	2/15/2012 8:48:00 PM
Total Metals by EPA Method 6020				Batch ID: 1907		Analyst: BR
Lead	2.08	0.136		mg/Kg-dry	1	2/16/2012 10:29:06 PM
Sample Moisture (Percent Moisture)				Batch ID: R3388		Analyst: EM
Percent Moisture	14.6			wt%	1	2/16/2012 10:50:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 12:50:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-012
Matrix: Soil
Client Sample ID: 021412-12.6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1951		Analyst: EM
Diesel (Fuel Oil)	5,990	190	D	mg/Kg-dry	10	3/1/2012 4:42:00 PM
Heavy Oil	ND	47.5		mg/Kg-dry	1	2/28/2012 12:26:00 AM
Surr: 2-Fluorobiphenyl	134	84.2-137	D	%REC	10	3/1/2012 4:42:00 PM
Surr: o-Terphenyl	102	87.1-138	D	%REC	10	3/1/2012 4:42:00 PM
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 2087		Analyst: EM
Aliphatic Hydrocarbon (C8-C10)	21.4	5.13	H	mg/Kg-dry	1	3/21/2012 6:06:00 AM
Aliphatic Hydrocarbon (C10-C12)	270	5.13	EH	mg/Kg-dry	1	3/21/2012 6:06:00 AM
Aliphatic Hydrocarbon (C12-C16)	1,540	257	DH	mg/Kg-dry	50	3/21/2012 1:39:00 PM
Aliphatic Hydrocarbon (C16-C21)	1,260	257	DH	mg/Kg-dry	50	3/21/2012 1:39:00 PM
Aliphatic Hydrocarbon (C21-C34)	ND	257	DH	mg/Kg-dry	50	3/21/2012 1:39:00 PM
Aromatic Hydrocarbon (C8-C10)	ND	5.13	H	mg/Kg-dry	1	3/21/2012 9:54:00 AM
Aromatic Hydrocarbon (C10-C12)	ND	5.13	H	mg/Kg-dry	1	3/21/2012 9:54:00 AM
Aromatic Hydrocarbon (C12-C16)	36.5	5.13	H	mg/Kg-dry	1	3/21/2012 9:54:00 AM
Aromatic Hydrocarbon (C16-C21)	213	51.3	DH	mg/Kg-dry	10	3/21/2012 2:23:00 PM
Aromatic Hydrocarbon (C21-C34)	25.4	5.13	H	mg/Kg-dry	1	3/21/2012 9:54:00 AM
Surr: 1-Chlorooctadecane	97.4	65-140	H	%REC	1	3/21/2012 6:06:00 AM
Surr: o-Terphenyl	102	65-140	H	%REC	1	3/21/2012 9:54:00 AM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 2054		Analyst: PH
Aliphatic Hydrocarbon (C5-C6)	ND	0.373	H	mg/Kg-dry	1	3/14/2012 2:14:00 PM
Aliphatic Hydrocarbon (C6-C8)	ND	0.373	H	mg/Kg-dry	1	3/14/2012 2:14:00 PM
Aliphatic Hydrocarbon (C8-C10)	ND	0.373	H	mg/Kg-dry	1	3/14/2012 2:14:00 PM
Aliphatic Hydrocarbon (C10-C12)	3.13	0.373	H	mg/Kg-dry	1	3/14/2012 2:14:00 PM
Aromatic Hydrocarbon (C8-C10)	3.51	0.373	H	mg/Kg-dry	1	3/14/2012 2:14:00 PM
Aromatic Hydrocarbon (C10-C12)	56.4	0.373	H	mg/Kg-dry	1	3/14/2012 2:14:00 PM
Aromatic Hydrocarbon (C12-C13)	113	0.373	H	mg/Kg-dry	1	3/14/2012 2:14:00 PM
Surr: Bromoflourobeneze	113	65-140	H	%REC	1	3/14/2012 2:14:00 PM
Surr: Trifluorotoluene	106	65-140	H	%REC	1	3/14/2012 2:14:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2039		Analyst: SG
Naphthalene	1,800	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 12:50:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-012
Matrix: Soil
Client Sample ID: 021412-12.6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2039		Analyst: SG
2-Methylnaphthalene	25,600	1,060	DH	µg/Kg-dry	20	3/13/2012 11:51:00 AM
1-Methylnaphthalene	30,000	1,060	DH	µg/Kg-dry	20	3/13/2012 11:51:00 AM
Acenaphthylene	ND	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Acenaphthene	4,910	1,060	DH	µg/Kg-dry	20	3/13/2012 11:51:00 AM
Fluorene	5,600	1,060	DH	µg/Kg-dry	20	3/13/2012 11:51:00 AM
Phenanthrene	9,990	1,060	DH	µg/Kg-dry	20	3/13/2012 11:51:00 AM
Anthracene	ND	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Fluoranthene	239	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Pyrene	508	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Benz(a)anthracene	ND	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Chrysene	ND	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Benzo(b)fluoranthene	ND	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Benzo(k)fluoranthene	ND	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Benzo(a)pyrene	ND	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Indeno(1,2,3-cd)pyrene	ND	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Dibenz(a,h)anthracene	ND	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Benzo(g,h,i)perylene	ND	52.8	H	µg/Kg-dry	1	3/13/2012 12:57:00 AM
Surr: 2-Fluorobiphenyl	108	53.5-148	H	%REC	1	3/13/2012 12:57:00 AM
Surr: Terphenyl-d14 (surr)	135	67.2-149	DH	%REC	20	3/13/2012 11:51:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3513		Analyst: PH
Gasoline	ND	3.73		mg/Kg-dry	1	2/25/2012 7:57:00 PM
Gasoline Range Organics C6-C12	156	7.45	D	mg/Kg-dry	2	2/28/2012 3:04:00 AM
Surr: 1,2-Dichloroethane-d4	104	65-135		%REC	1	2/25/2012 7:57:00 PM
Surr: Fluorobenzene	110	65-135		%REC	1	2/25/2012 7:57:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1950		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0373		mg/Kg-dry	1	2/25/2012 7:57:00 PM
tert-Amyl Methyl Ether (TAME)	ND	0.0373		mg/Kg-dry	1	2/25/2012 7:57:00 PM
Tert-butyl alcohol	ND	0.186		mg/Kg-dry	1	2/25/2012 7:57:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0373		mg/Kg-dry	1	2/25/2012 7:57:00 PM
1,2-Dichloroethane	ND	0.0224		mg/Kg-dry	1	2/25/2012 7:57:00 PM
Benzene	ND	0.0149		mg/Kg-dry	1	2/25/2012 7:57:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 12:50:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-012
Matrix: Soil
Client Sample ID: 021412-12.6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1950		Analyst: PH
Toluene	ND	0.0149		mg/Kg-dry	1	2/25/2012 7:57:00 PM
1,2-Dibromoethane (EDB)	ND	0.00373		mg/Kg-dry	1	2/25/2012 7:57:00 PM
Ethylbenzene	ND	0.0224		mg/Kg-dry	1	2/25/2012 7:57:00 PM
m,p-Xylene	ND	0.0149		mg/Kg-dry	1	2/25/2012 7:57:00 PM
o-Xylene	ND	0.0149		mg/Kg-dry	1	2/25/2012 7:57:00 PM
Naphthalene	0.439	0.0224		mg/Kg-dry	1	2/25/2012 7:57:00 PM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141		%REC	1	2/25/2012 7:57:00 PM
Surr: Dibromofluoromethane	94.6	67.6-119		%REC	1	2/25/2012 7:57:00 PM
Surr: Toluene-d8	106	78.5-126		%REC	1	2/25/2012 7:57:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	12.6			wt%	1	2/29/2012 10:37:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 1:50:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-014
Matrix: Soil
Client Sample ID: 021412-14.7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	190	21.1	H	mg/Kg-dry	1	3/14/2012 7:15:00 AM
Heavy Oil	ND	52.7	H	mg/Kg-dry	1	3/14/2012 7:15:00 AM
Surr: 2-Fluorobiphenyl	99.9	84.2-137	H	%REC	1	3/14/2012 7:15:00 AM
Surr: o-Terphenyl	130	87.1-138	H	%REC	1	3/14/2012 7:15:00 AM
Gasoline by NWTPH-Gx				Batch ID: 2043		Analyst: PH
Gasoline	ND	5.07	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
Gasoline Range Organics C6-C12	6.48	5.07	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
Surr: 1,2-Dichloroethane-d4	98.3	65-135	H	%REC	1	3/14/2012 4:29:00 AM
Surr: Fluorobenzene	103	65-135	H	%REC	1	3/14/2012 4:29:00 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: 2043		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0507	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
tert-Amyl Methyl Ether (TAME)	ND	0.0507	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
Tert-butyl alcohol	ND	0.0254	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0507	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
1,2-Dichloroethane	ND	0.0304	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
Benzene	ND	0.0203	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
Toluene	ND	0.0203	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
1,2-Dibromoethane (EDB)	ND	0.00507	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
Ethylbenzene	ND	0.0304	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
m,p-Xylene	ND	0.0203	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
o-Xylene	ND	0.0203	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
Naphthalene	ND	0.0304	H	mg/Kg-dry	1	3/14/2012 4:29:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141	H	%REC	1	3/14/2012 4:29:00 AM
Surr: Dibromofluoromethane	94.5	67.6-119	H	%REC	1	3/14/2012 4:29:00 AM
Surr: Toluene-d8	98.3	78.5-126	H	%REC	1	3/14/2012 4:29:00 AM
Total Metals by EPA Method 6020				Batch ID: 2048		Analyst: BR
Lead	3.77	0.170		mg/Kg-dry	1	3/14/2012 3:52:43 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 1:50:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-014
Matrix: Soil
Client Sample ID: 021412-14.7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	27.2		H	wt%	1	3/14/2012 9:44:54 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 2:00:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-015
Matrix: Soil
Client Sample ID: 021412-15.6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1904		Analyst: EM
Diesel (Fuel Oil)	ND	17.5		mg/Kg-dry	1	2/16/2012 10:25:00 PM
Heavy Oil	ND	43.9		mg/Kg-dry	1	2/16/2012 10:25:00 PM
Surr: 2-Fluorobiphenyl	106	75-135		%REC	1	2/16/2012 10:25:00 PM
Surr: o-Terphenyl	97.1	71.2-128		%REC	1	2/16/2012 10:25:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3385		Analyst: PH
Gasoline	ND	3.70		mg/Kg-dry	1	2/15/2012 7:47:00 PM
Surr: 1,2-Dichloroethane-d4	118	65-135		%REC	1	2/15/2012 7:47:00 PM
Surr: Fluorobenzene	109	65-135		%REC	1	2/15/2012 7:47:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1898		Analyst: PH
Benzene	ND	0.0148		mg/Kg-dry	1	2/15/2012 7:47:00 PM
Toluene	ND	0.0148		mg/Kg-dry	1	2/15/2012 7:47:00 PM
Ethylbenzene	ND	0.0222		mg/Kg-dry	1	2/15/2012 7:47:00 PM
m,p-Xylene	ND	0.0148		mg/Kg-dry	1	2/15/2012 7:47:00 PM
o-Xylene	ND	0.0148		mg/Kg-dry	1	2/15/2012 7:47:00 PM
Surr: 1-Bromo-4-fluorobenzene	92.7	63.1-141		%REC	1	2/15/2012 7:47:00 PM
Surr: Dibromofluoromethane	97.8	67.6-119		%REC	1	2/15/2012 7:47:00 PM
Surr: Toluene-d8	111	78.5-126		%REC	1	2/15/2012 7:47:00 PM
Total Metals by EPA Method 6020				Batch ID: 1907		Analyst: BR
Lead	2.04	0.146		mg/Kg-dry	1	2/16/2012 11:04:12 PM
Sample Moisture (Percent Moisture)				Batch ID: R3388		Analyst: EM
Percent Moisture	6.08			wt%	1	2/16/2012 10:50:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 2:57:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-021
Matrix: Soil
Client Sample ID: 021412-21.1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	ND	26.4	H	mg/Kg-dry	1	3/14/2012 6:48:00 AM
Heavy Oil	ND	65.9	H	mg/Kg-dry	1	3/14/2012 6:48:00 AM
Surr: 2-Fluorobiphenyl	102	84.2-137	H	%REC	1	3/14/2012 6:48:00 AM
Surr: o-Terphenyl	128	87.1-138	H	%REC	1	3/14/2012 6:48:00 AM
Gasoline by NWTPH-Gx				Batch ID: 2043		Analyst: PH
Gasoline	ND	5.24	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
Surr: 1,2-Dichloroethane-d4	96.9	65-135	H	%REC	1	3/14/2012 5:30:00 AM
Surr: Fluorobenzene	98.7	65-135	H	%REC	1	3/14/2012 5:30:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2043		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0524	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
tert-Amyl Methyl Ether (TAME)	ND	0.0524	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
Tert-butyl alcohol	ND	0.0262	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0524	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
1,2-Dichloroethane	ND	0.0315	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
Benzene	ND	0.0210	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
Toluene	ND	0.0210	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
1,2-Dibromoethane (EDB)	ND	0.00524	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
Ethylbenzene	ND	0.0315	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
m,p-Xylene	0.0210	0.0210	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
o-Xylene	ND	0.0210	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
Naphthalene	ND	0.0315	H	mg/Kg-dry	1	3/14/2012 5:30:00 AM
Surr: 1-Bromo-4-fluorobenzene	103	63.1-141	H	%REC	1	3/14/2012 5:30:00 AM
Surr: Dibromofluoromethane	94.2	67.6-119	H	%REC	1	3/14/2012 5:30:00 AM
Surr: Toluene-d8	99.3	78.5-126	H	%REC	1	3/14/2012 5:30:00 AM
Total Metals by EPA Method 6020				Batch ID: 2048		Analyst: BR
Lead	5.48	0.186		mg/Kg-dry	1	3/14/2012 4:01:42 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/14/2012 2:57:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-021
Matrix: Soil
Client Sample ID: 021412-21.1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	24.3		H	wt%	1	3/14/2012 9:44:54 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/21/2012 12:30:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-022
Matrix: Soil
Client Sample ID: 022112-55.0.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1951		Analyst: EM
Diesel (Fuel Oil)	ND	22.8		mg/Kg-dry	1	2/28/2012 12:54:00 AM
Heavy Oil	ND	57.0		mg/Kg-dry	1	2/28/2012 12:54:00 AM
Surr: 2-Fluorobiphenyl	94.2	84.2-137		%REC	1	2/28/2012 12:54:00 AM
Surr: o-Terphenyl	108	87.1-138		%REC	1	2/28/2012 12:54:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	4.66		mg/Kg-dry	1	2/27/2012 5:02:00 PM
Surr: 1,2-Dichloroethane-d4	124	65-135		%REC	1	2/27/2012 5:02:00 PM
Surr: Fluorobenzene	105	65-135		%REC	1	2/27/2012 5:02:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Benzene	ND	0.0186		mg/Kg-dry	1	2/27/2012 5:02:00 PM
Toluene	ND	0.0186		mg/Kg-dry	1	2/27/2012 5:02:00 PM
Ethylbenzene	ND	0.0280		mg/Kg-dry	1	2/27/2012 5:02:00 PM
m,p-Xylene	ND	0.0186		mg/Kg-dry	1	2/27/2012 5:02:00 PM
o-Xylene	ND	0.0186		mg/Kg-dry	1	2/27/2012 5:02:00 PM
Surr: 1-Bromo-4-fluorobenzene	95.4	63.1-141		%REC	1	2/27/2012 5:02:00 PM
Surr: Dibromofluoromethane	99.7	67.6-119		%REC	1	2/27/2012 5:02:00 PM
Surr: Toluene-d8	102	78.5-126		%REC	1	2/27/2012 5:02:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	2.03	0.0810		mg/Kg-dry	1	2/28/2012 4:45:30 AM
Cadmium	0.457	0.162		mg/Kg-dry	1	2/28/2012 4:45:30 AM
Chromium	27.7	0.0810		mg/Kg-dry	1	2/28/2012 4:45:30 AM
Lead	18.1	0.162		mg/Kg-dry	1	2/28/2012 4:45:30 AM
Nickel	38.5	0.0810		mg/Kg-dry	1	2/28/2012 4:45:30 AM
Zinc	75.3	0.324		mg/Kg-dry	1	2/28/2012 4:45:30 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.239		mg/Kg-dry	1	2/24/2012 6:02:14 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/21/2012 12:30:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-022
Matrix: Soil
Client Sample ID: 022112-55.0.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	20.9			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.625		mg/Kg-dry	1	3/14/2012 10:45:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/21/2012 12:45:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-023
Matrix: Soil
Client Sample ID: 022112-56.0.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1951		Analyst: EM
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	2/28/2012 1:21:00 AM
Heavy Oil	ND	55.7		mg/Kg-dry	1	2/28/2012 1:21:00 AM
Surr: 2-Fluorobiphenyl	95.9	84.2-137		%REC	1	2/28/2012 1:21:00 AM
Surr: o-Terphenyl	107	87.1-138		%REC	1	2/28/2012 1:21:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	6.12		mg/Kg-dry	1	2/27/2012 5:33:00 PM
Surr: 1,2-Dichloroethane-d4	122	65-135		%REC	1	2/27/2012 5:33:00 PM
Surr: Fluorobenzene	104	65-135		%REC	1	2/27/2012 5:33:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Benzene	ND	0.0245		mg/Kg-dry	1	2/27/2012 5:33:00 PM
Toluene	ND	0.0245		mg/Kg-dry	1	2/27/2012 5:33:00 PM
Ethylbenzene	ND	0.0367		mg/Kg-dry	1	2/27/2012 5:33:00 PM
m,p-Xylene	ND	0.0245		mg/Kg-dry	1	2/27/2012 5:33:00 PM
o-Xylene	ND	0.0245		mg/Kg-dry	1	2/27/2012 5:33:00 PM
Surr: 1-Bromo-4-fluorobenzene	93.7	63.1-141		%REC	1	2/27/2012 5:33:00 PM
Surr: Dibromofluoromethane	98.2	67.6-119		%REC	1	2/27/2012 5:33:00 PM
Surr: Toluene-d8	103	78.5-126		%REC	1	2/27/2012 5:33:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	0.995	0.0973		mg/Kg-dry	1	2/28/2012 4:54:30 AM
Cadmium	0.534	0.195		mg/Kg-dry	1	2/28/2012 4:54:30 AM
Chromium	23.0	0.0973		mg/Kg-dry	1	2/28/2012 4:54:30 AM
Lead	8.17	0.195		mg/Kg-dry	1	2/28/2012 4:54:30 AM
Nickel	17.5	0.0973		mg/Kg-dry	1	2/28/2012 4:54:30 AM
Zinc	76.7	0.389		mg/Kg-dry	1	2/28/2012 4:54:30 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.293		mg/Kg-dry	1	2/24/2012 6:05:15 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/21/2012 12:45:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-023
Matrix: Soil
Client Sample ID: 022112-56.0.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	26.6			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.681		mg/Kg-dry	1	3/14/2012 10:45:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/21/2012 1:00:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-024
Matrix: Soil
Client Sample ID: 022112-57.0.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1951		Analyst: EM
Diesel (Fuel Oil)	ND	19.1		mg/Kg-dry	1	2/28/2012 1:49:00 AM
Heavy Oil	73.6	47.7		mg/Kg-dry	1	2/28/2012 1:49:00 AM
Surr: 2-Fluorobiphenyl	96.9	84.2-137		%REC	1	2/28/2012 1:49:00 AM
Surr: o-Terphenyl	108	87.1-138		%REC	1	2/28/2012 1:49:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	4.37		mg/Kg-dry	1	2/27/2012 6:04:00 PM
Surr: 1,2-Dichloroethane-d4	120	65-135		%REC	1	2/27/2012 6:04:00 PM
Surr: Fluorobenzene	107	65-135		%REC	1	2/27/2012 6:04:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Benzene	ND	0.0175		mg/Kg-dry	1	2/27/2012 6:04:00 PM
Toluene	0.0240	0.0175		mg/Kg-dry	1	2/27/2012 6:04:00 PM
Ethylbenzene	ND	0.0262		mg/Kg-dry	1	2/27/2012 6:04:00 PM
m,p-Xylene	0.0546	0.0175		mg/Kg-dry	1	2/27/2012 6:04:00 PM
o-Xylene	0.0301	0.0175		mg/Kg-dry	1	2/27/2012 6:04:00 PM
Surr: 1-Bromo-4-fluorobenzene	95.4	63.1-141		%REC	1	2/27/2012 6:04:00 PM
Surr: Dibromofluoromethane	96.8	67.6-119		%REC	1	2/27/2012 6:04:00 PM
Surr: Toluene-d8	102	78.5-126		%REC	1	2/27/2012 6:04:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	2.67	0.0763		mg/Kg-dry	1	2/28/2012 5:03:31 AM
Cadmium	1.05	0.153		mg/Kg-dry	1	2/28/2012 5:03:31 AM
Chromium	27.2	0.0763		mg/Kg-dry	1	2/28/2012 5:03:31 AM
Lead	167	0.153		mg/Kg-dry	1	2/28/2012 5:03:31 AM
Nickel	37.2	0.0763		mg/Kg-dry	1	2/28/2012 5:03:31 AM
Zinc	198	0.305		mg/Kg-dry	1	2/28/2012 5:03:31 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.247		mg/Kg-dry	1	2/24/2012 6:08:16 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/21/2012 1:00:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-024
Matrix: Soil
Client Sample ID: 022112-57.0.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	12.6			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.567		mg/Kg-dry	1	3/14/2012 10:45:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/21/2012 1:40:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-026
Matrix: Soil
Client Sample ID: 022112-59

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1951		Analyst: EM
Diesel (Fuel Oil)	ND	30.3		mg/Kg-dry	1	2/28/2012 2:44:00 AM
Heavy Oil	118	75.8		mg/Kg-dry	1	2/28/2012 2:44:00 AM
Surr: 2-Fluorobiphenyl	97.3	84.2-137		%REC	1	2/28/2012 2:44:00 AM
Surr: o-Terphenyl	109	87.1-138		%REC	1	2/28/2012 2:44:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	37.1	D	mg/Kg-dry	5	2/28/2012 11:57:00 AM
Surr: 1,2-Dichloroethane-d4	123	65-135	D	%REC	5	2/28/2012 11:57:00 AM
Surr: Fluorobenzene	110	65-135	D	%REC	5	2/28/2012 11:57:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Benzene	ND	0.148	D	mg/Kg-dry	5	2/28/2012 11:57:00 AM
Toluene	ND	0.148	D	mg/Kg-dry	5	2/28/2012 11:57:00 AM
Ethylbenzene	ND	0.222	D	mg/Kg-dry	5	2/28/2012 11:57:00 AM
m,p-Xylene	ND	0.148	D	mg/Kg-dry	5	2/28/2012 11:57:00 AM
o-Xylene	ND	0.148	D	mg/Kg-dry	5	2/28/2012 11:57:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141	D	%REC	5	2/28/2012 11:57:00 AM
Surr: Dibromofluoromethane	97.3	67.6-119	D	%REC	5	2/28/2012 11:57:00 AM
Surr: Toluene-d8	102	78.5-126	D	%REC	5	2/28/2012 11:57:00 AM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	6.02	0.174		mg/Kg-dry	1	2/28/2012 5:12:31 AM
Cadmium	2.21	0.349		mg/Kg-dry	1	2/28/2012 5:12:31 AM
Chromium	125	0.174		mg/Kg-dry	1	2/28/2012 5:12:31 AM
Lead	276	0.349		mg/Kg-dry	1	2/28/2012 5:12:31 AM
Nickel	98.5	0.174		mg/Kg-dry	1	2/28/2012 5:12:31 AM
Zinc	579	0.698		mg/Kg-dry	1	2/28/2012 5:12:31 AM

NOTES:
The reporting limits were raised due to sample matrix interference. Sample extract produced large amount of foam, which interfered with sample analysis.

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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/21/2012 1:40:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-026
Matrix: Soil
Client Sample ID: 022112-59

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.436		mg/Kg-dry	1	2/24/2012 6:11:18 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	42.7			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.870		mg/Kg-dry	1	3/13/2012 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 8:15:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-028
Matrix: Soil
Client Sample ID: 021512-22.10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1951		Analyst: EM
Diesel (Fuel Oil)	ND	24.2		mg/Kg-dry	1	2/28/2012 3:12:00 AM
Heavy Oil	ND	60.5		mg/Kg-dry	1	2/28/2012 3:12:00 AM
Surr: 2-Fluorobiphenyl	92.6	84.2-137		%REC	1	2/28/2012 3:12:00 AM
Surr: o-Terphenyl	105	87.1-138		%REC	1	2/28/2012 3:12:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	4.76		mg/Kg-dry	1	2/27/2012 11:29:00 PM
Surr: 1,2-Dichloroethane-d4	112	65-135		%REC	1	2/27/2012 11:29:00 PM
Surr: Fluorobenzene	107	65-135		%REC	1	2/27/2012 11:29:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0476		mg/Kg-dry	1	2/27/2012 11:29:00 PM
tert-Amyl Methyl Ether (TAME)	ND	0.0476		mg/Kg-dry	1	2/27/2012 11:29:00 PM
Tert-butyl alcohol	ND	0.0238		mg/Kg-dry	1	2/27/2012 11:29:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0476		mg/Kg-dry	1	2/27/2012 11:29:00 PM
1,2-Dichloroethane	ND	0.0286		mg/Kg-dry	1	2/27/2012 11:29:00 PM
Benzene	ND	0.0190		mg/Kg-dry	1	2/27/2012 11:29:00 PM
Toluene	ND	0.0190		mg/Kg-dry	1	2/27/2012 11:29:00 PM
1,2-Dibromoethane (EDB)	ND	0.00476		mg/Kg-dry	1	2/27/2012 11:29:00 PM
Ethylbenzene	ND	0.0286		mg/Kg-dry	1	2/27/2012 11:29:00 PM
m,p-Xylene	ND	0.0190		mg/Kg-dry	1	2/27/2012 11:29:00 PM
o-Xylene	ND	0.0190		mg/Kg-dry	1	2/27/2012 11:29:00 PM
Naphthalene	ND	0.0286		mg/Kg-dry	1	2/27/2012 11:29:00 PM
Surr: 1-Bromo-4-fluorobenzene	92.5	63.1-141		%REC	1	2/27/2012 11:29:00 PM
Surr: Dibromofluoromethane	94.0	67.6-119		%REC	1	2/27/2012 11:29:00 PM
Surr: Toluene-d8	104	78.5-126		%REC	1	2/27/2012 11:29:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	22.3			wt%	1	2/29/2012 10:37:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 10:19:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-031
Matrix: Soil
Client Sample ID: 021512-25.3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	23.3		mg/Kg-dry	1	2/28/2012 5:02:00 AM
Heavy Oil	ND	58.3		mg/Kg-dry	1	2/28/2012 5:02:00 AM
Surr: 2-Fluorobiphenyl	97.9	84.2-137		%REC	1	2/28/2012 5:02:00 AM
Surr: o-Terphenyl	108	87.1-138		%REC	1	2/28/2012 5:02:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	5.50		mg/Kg-dry	1	2/28/2012
Surr: 1,2-Dichloroethane-d4	115	65-135		%REC	1	2/28/2012
Surr: Fluorobenzene	107	65-135		%REC	1	2/28/2012
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0550		mg/Kg-dry	1	2/28/2012
tert-Amyl Methyl Ether (TAME)	ND	0.0550		mg/Kg-dry	1	2/28/2012
Tert-butyl alcohol	ND	0.0275		mg/Kg-dry	1	2/28/2012
Methyl tert-butyl ether (MTBE)	ND	0.0550		mg/Kg-dry	1	2/28/2012
1,2-Dichloroethane	ND	0.0330		mg/Kg-dry	1	2/28/2012
Benzene	ND	0.0220		mg/Kg-dry	1	2/28/2012
Toluene	ND	0.0220		mg/Kg-dry	1	2/28/2012
1,2-Dibromoethane (EDB)	ND	0.00550		mg/Kg-dry	1	2/28/2012
Ethylbenzene	ND	0.0330		mg/Kg-dry	1	2/28/2012
m,p-Xylene	ND	0.0220		mg/Kg-dry	1	2/28/2012
o-Xylene	ND	0.0220		mg/Kg-dry	1	2/28/2012
Naphthalene	ND	0.0330		mg/Kg-dry	1	2/28/2012
Surr: 1-Bromo-4-fluorobenzene	90.5	63.1-141		%REC	1	2/28/2012
Surr: Dibromofluoromethane	94.2	67.6-119		%REC	1	2/28/2012
Surr: Toluene-d8	104	78.5-126		%REC	1	2/28/2012
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	1.08	0.0906		mg/Kg-dry	1	2/28/2012 1:54:33 AM
Cadmium	0.573	0.181		mg/Kg-dry	1	2/28/2012 1:54:33 AM
Chromium	25.5	0.0906		mg/Kg-dry	1	2/28/2012 1:54:33 AM
Lead	10.5	0.181		mg/Kg-dry	1	2/28/2012 1:54:33 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 10:19:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-031
Matrix: Soil
Client Sample ID: 021512-25.3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Nickel	19.8	0.0906		mg/Kg-dry	1	2/28/2012 1:54:33 AM
Zinc	128	0.362		mg/Kg-dry	1	2/28/2012 1:54:33 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.311		mg/Kg-dry	1	2/24/2012 5:10:01 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	22.8			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.643		mg/Kg-dry	1	3/13/2012 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 10:28:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-033
Matrix: Soil
Client Sample ID: 021512-27.6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	22.5		mg/Kg-dry	1	2/28/2012 5:30:00 AM
Heavy Oil	99.0	56.3		mg/Kg-dry	1	2/28/2012 5:30:00 AM
Surr: 2-Fluorobiphenyl	92.6	84.2-137		%REC	1	2/28/2012 5:30:00 AM
Surr: o-Terphenyl	106	87.1-138		%REC	1	2/28/2012 5:30:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	5.98		mg/Kg-dry	1	2/28/2012 12:31:00 AM
Surr: 1,2-Dichloroethane-d4	114	65-135		%REC	1	2/28/2012 12:31:00 AM
Surr: Fluorobenzene	110	65-135		%REC	1	2/28/2012 12:31:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0598		mg/Kg-dry	1	2/28/2012 12:31:00 AM
tert-Amyl Methyl Ether (TAME)	ND	0.0598		mg/Kg-dry	1	2/28/2012 12:31:00 AM
Tert-butyl alcohol	ND	0.0299		mg/Kg-dry	1	2/28/2012 12:31:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0598		mg/Kg-dry	1	2/28/2012 12:31:00 AM
1,2-Dichloroethane	ND	0.0359		mg/Kg-dry	1	2/28/2012 12:31:00 AM
Benzene	ND	0.0239		mg/Kg-dry	1	2/28/2012 12:31:00 AM
Toluene	0.0419	0.0239		mg/Kg-dry	1	2/28/2012 12:31:00 AM
1,2-Dibromoethane (EDB)	ND	0.00598		mg/Kg-dry	1	2/28/2012 12:31:00 AM
Ethylbenzene	ND	0.0359		mg/Kg-dry	1	2/28/2012 12:31:00 AM
m,p-Xylene	ND	0.0239		mg/Kg-dry	1	2/28/2012 12:31:00 AM
o-Xylene	ND	0.0239		mg/Kg-dry	1	2/28/2012 12:31:00 AM
Naphthalene	ND	0.0359		mg/Kg-dry	1	2/28/2012 12:31:00 AM
Surr: 1-Bromo-4-fluorobenzene	91.4	63.1-141		%REC	1	2/28/2012 12:31:00 AM
Surr: Dibromofluoromethane	91.9	67.6-119		%REC	1	2/28/2012 12:31:00 AM
Surr: Toluene-d8	103	78.5-126		%REC	1	2/28/2012 12:31:00 AM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	4.65	0.103		mg/Kg-dry	1	2/28/2012 2:48:32 AM
Cadmium	1.16	0.206		mg/Kg-dry	1	2/28/2012 2:48:32 AM
Chromium	34.3	0.103		mg/Kg-dry	1	2/28/2012 2:48:32 AM
Lead	56.7	0.206		mg/Kg-dry	1	2/28/2012 2:48:32 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 10:28:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-033
Matrix: Soil
Client Sample ID: 021512-27.6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Nickel	39.6	0.103		mg/Kg-dry	1	2/28/2012 2:48:32 AM
Zinc	257	0.412		mg/Kg-dry	1	2/28/2012 2:48:32 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.294		mg/Kg-dry	1	2/24/2012 5:25:02 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	24.1			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.644		mg/Kg-dry	1	3/13/2012 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 10:35:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-034
Matrix: Soil
Client Sample ID: 021512-28.3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel 1/ Kerosene	35.7	19.2		mg/Kg-dry	1	2/28/2012 5:57:00 AM
Diesel (Fuel Oil)	ND	19.2		mg/Kg-dry	1	2/28/2012 5:57:00 AM
Heavy Oil	164	48.0		mg/Kg-dry	1	2/28/2012 5:57:00 AM
Surr: 2-Fluorobiphenyl	97.4	84.2-137		%REC	1	2/28/2012 5:57:00 AM
Surr: o-Terphenyl	109	87.1-138		%REC	1	2/28/2012 5:57:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	5.05	5.03		mg/Kg-dry	1	2/28/2012 1:02:00 AM
Surr: 1,2-Dichloroethane-d4	116	65-135		%REC	1	2/28/2012 1:02:00 AM
Surr: Fluorobenzene	111	65-135		%REC	1	2/28/2012 1:02:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0503		mg/Kg-dry	1	2/28/2012 1:02:00 AM
tert-Amyl Methyl Ether (TAME)	ND	0.0503		mg/Kg-dry	1	2/28/2012 1:02:00 AM
Tert-butyl alcohol	ND	0.0251		mg/Kg-dry	1	2/28/2012 1:02:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0503		mg/Kg-dry	1	2/28/2012 1:02:00 AM
1,2-Dichloroethane	ND	0.0302		mg/Kg-dry	1	2/28/2012 1:02:00 AM
Benzene	ND	0.0201		mg/Kg-dry	1	2/28/2012 1:02:00 AM
Toluene	0.176	0.0201		mg/Kg-dry	1	2/28/2012 1:02:00 AM
1,2-Dibromoethane (EDB)	ND	0.00503		mg/Kg-dry	1	2/28/2012 1:02:00 AM
Ethylbenzene	ND	0.0302		mg/Kg-dry	1	2/28/2012 1:02:00 AM
m,p-Xylene	ND	0.0201		mg/Kg-dry	1	2/28/2012 1:02:00 AM
o-Xylene	ND	0.0201		mg/Kg-dry	1	2/28/2012 1:02:00 AM
Naphthalene	ND	0.0302		mg/Kg-dry	1	2/28/2012 1:02:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.1	63.1-141		%REC	1	2/28/2012 1:02:00 AM
Surr: Dibromofluoromethane	91.8	67.6-119		%REC	1	2/28/2012 1:02:00 AM
Surr: Toluene-d8	103	78.5-126		%REC	1	2/28/2012 1:02:00 AM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	2.63	0.0788		mg/Kg-dry	1	2/28/2012 2:39:32 AM
Cadmium	0.912	0.158		mg/Kg-dry	1	2/28/2012 2:39:32 AM
Chromium	41.6	0.0788		mg/Kg-dry	1	2/28/2012 2:39:32 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 10:35:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-034
Matrix: Soil
Client Sample ID: 021512-28.3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Lead	45.3	0.158		mg/Kg-dry	1	2/28/2012 2:39:32 AM
Nickel	65.8	0.0788		mg/Kg-dry	1	2/28/2012 2:39:32 AM
Zinc	265	0.315		mg/Kg-dry	1	2/28/2012 2:39:32 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.235		mg/Kg-dry	1	2/24/2012 5:22:01 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	14.3			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.579		mg/Kg-dry	1	3/13/2012 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 11:25:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-038
Matrix: Soil
Client Sample ID: 021512-32.1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	21.0		mg/Kg-dry	1	2/28/2012 6:25:00 AM
Heavy Oil	ND	52.4		mg/Kg-dry	1	2/28/2012 6:25:00 AM
Surr: 2-Fluorobiphenyl	97.0	84.2-137		%REC	1	2/28/2012 6:25:00 AM
Surr: o-Terphenyl	108	87.1-138		%REC	1	2/28/2012 6:25:00 AM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.121		mg/Kg-dry	1	2/28/2012 8:15:00 PM
Aroclor 1221	ND	0.121		mg/Kg-dry	1	2/28/2012 8:15:00 PM
Aroclor 1232	ND	0.121		mg/Kg-dry	1	2/28/2012 8:15:00 PM
Aroclor 1242	ND	0.121		mg/Kg-dry	1	2/28/2012 8:15:00 PM
Aroclor 1248	ND	0.121		mg/Kg-dry	1	2/28/2012 8:15:00 PM
Aroclor 1254	ND	0.121		mg/Kg-dry	1	2/28/2012 8:15:00 PM
Aroclor 1260	ND	0.121		mg/Kg-dry	1	2/28/2012 8:15:00 PM
Aroclor 1262	ND	0.121		mg/Kg-dry	1	2/28/2012 8:15:00 PM
Aroclor 1268	ND	0.121		mg/Kg-dry	1	2/28/2012 8:15:00 PM
Total PCBs	ND	0.121		mg/Kg-dry	1	2/28/2012 8:15:00 PM
Surr: Decachlorobiphenyl	71.8	66.1-145		%REC	1	2/28/2012 8:15:00 PM
Surr: Tetrachloro-m-xylene	102	67.2-132		%REC	1	2/28/2012 8:15:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1948		Analyst: SG
Benz(a)anthracene	ND	63.0		µg/Kg-dry	1	3/1/2012 9:57:00 AM
Chrysene	ND	63.0		µg/Kg-dry	1	3/1/2012 9:57:00 AM
Benzo(b)fluoranthene	ND	63.0		µg/Kg-dry	1	3/1/2012 9:57:00 AM
Benzo(k)fluoranthene	ND	63.0		µg/Kg-dry	1	3/1/2012 9:57:00 AM
Benzo(a)pyrene	ND	63.0		µg/Kg-dry	1	3/1/2012 9:57:00 AM
Indeno(1,2,3-cd)pyrene	ND	63.0		µg/Kg-dry	1	3/1/2012 9:57:00 AM
Dibenz(a,h)anthracene	ND	63.0		µg/Kg-dry	1	3/1/2012 9:57:00 AM
Surr: 2-Fluorobiphenyl	86.3	53.5-148		%REC	1	3/1/2012 9:57:00 AM
Surr: Terphenyl-d14 (surr)	107	67.2-149		%REC	1	3/1/2012 9:57:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	8.42		mg/Kg-dry	1	2/28/2012 1:32:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 11:25:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-038
Matrix: Soil
Client Sample ID: 021512-32.1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Surr: 1,2-Dichloroethane-d4	114	65-135		%REC	1	2/28/2012 1:32:00 AM
Surr: Fluorobenzene	108	65-135		%REC	1	2/28/2012 1:32:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0842		mg/Kg-dry	1	2/28/2012 1:32:00 AM
tert-Amyl Methyl Ether (TAME)	ND	0.0842		mg/Kg-dry	1	2/28/2012 1:32:00 AM
Tert-butyl alcohol	0.880	0.0421		mg/Kg-dry	1	2/28/2012 1:32:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0842		mg/Kg-dry	1	2/28/2012 1:32:00 AM
1,2-Dichloroethane	ND	0.0505		mg/Kg-dry	1	2/28/2012 1:32:00 AM
Benzene	ND	0.0337		mg/Kg-dry	1	2/28/2012 1:32:00 AM
Toluene	0.0623	0.0337		mg/Kg-dry	1	2/28/2012 1:32:00 AM
1,2-Dibromoethane (EDB)	ND	0.00842		mg/Kg-dry	1	2/28/2012 1:32:00 AM
Ethylbenzene	0.0892	0.0505		mg/Kg-dry	1	2/28/2012 1:32:00 AM
m,p-Xylene	0.210	0.0337		mg/Kg-dry	1	2/28/2012 1:32:00 AM
o-Xylene	0.125	0.0337		mg/Kg-dry	1	2/28/2012 1:32:00 AM
Naphthalene	0.111	0.0505		mg/Kg-dry	1	2/28/2012 1:32:00 AM
Surr: 1-Bromo-4-fluorobenzene	90.3	63.1-141		%REC	1	2/28/2012 1:32:00 AM
Surr: Dibromofluoromethane	92.3	67.6-119		%REC	1	2/28/2012 1:32:00 AM
Surr: Toluene-d8	102	78.5-126		%REC	1	2/28/2012 1:32:00 AM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	4.27	0.0880		mg/Kg-dry	1	2/28/2012 3:06:32 AM
Barium	167	0.440		mg/Kg-dry	1	2/28/2012 3:06:32 AM
Cadmium	0.485	0.176		mg/Kg-dry	1	2/28/2012 3:06:32 AM
Chromium	42.6	0.0880		mg/Kg-dry	1	2/28/2012 3:06:32 AM
Lead	34.4	0.176		mg/Kg-dry	1	2/28/2012 3:06:32 AM
Nickel	71.6	0.0880		mg/Kg-dry	1	2/28/2012 3:06:32 AM
Selenium	ND	0.440		mg/Kg-dry	1	2/28/2012 3:06:32 AM
Silver	0.148	0.0880		mg/Kg-dry	1	2/28/2012 3:06:32 AM
Zinc	93.6	0.352		mg/Kg-dry	1	2/28/2012 3:06:32 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 11:25:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-038
Matrix: Soil
Client Sample ID: 021512-32.1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.266		mg/Kg-dry	1	2/24/2012 5:31:05 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	21.6			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.626		mg/Kg-dry	1	3/13/2012 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 11:40:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-040
Matrix: Soil
Client Sample ID: 021512-34.5.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	25.6		mg/Kg-dry	1	2/28/2012 7:20:00 AM
Heavy Oil	ND	63.9		mg/Kg-dry	1	2/28/2012 7:20:00 AM
Surr: 2-Fluorobiphenyl	98.2	84.2-137		%REC	1	2/28/2012 7:20:00 AM
Surr: o-Terphenyl	108	87.1-138		%REC	1	2/28/2012 7:20:00 AM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.144		mg/Kg-dry	1	2/28/2012 8:36:00 PM
Aroclor 1221	ND	0.144		mg/Kg-dry	1	2/28/2012 8:36:00 PM
Aroclor 1232	ND	0.144		mg/Kg-dry	1	2/28/2012 8:36:00 PM
Aroclor 1242	ND	0.144		mg/Kg-dry	1	2/28/2012 8:36:00 PM
Aroclor 1248	ND	0.144		mg/Kg-dry	1	2/28/2012 8:36:00 PM
Aroclor 1254	ND	0.144		mg/Kg-dry	1	2/28/2012 8:36:00 PM
Aroclor 1260	ND	0.144		mg/Kg-dry	1	2/28/2012 8:36:00 PM
Aroclor 1262	ND	0.144		mg/Kg-dry	1	2/28/2012 8:36:00 PM
Aroclor 1268	ND	0.144		mg/Kg-dry	1	2/28/2012 8:36:00 PM
Total PCBs	ND	0.144		mg/Kg-dry	1	2/28/2012 8:36:00 PM
Surr: Decachlorobiphenyl	76.8	66.1-145		%REC	1	2/28/2012 8:36:00 PM
Surr: Tetrachloro-m-xylene	93.1	67.2-132		%REC	1	2/28/2012 8:36:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1948		Analyst: SG
Benz(a)anthracene	ND	77.4		µg/Kg-dry	1	3/1/2012 10:46:00 AM
Chrysene	ND	77.4		µg/Kg-dry	1	3/1/2012 10:46:00 AM
Benzo(b)fluoranthene	ND	77.4		µg/Kg-dry	1	3/1/2012 10:46:00 AM
Benzo(k)fluoranthene	ND	77.4		µg/Kg-dry	1	3/1/2012 10:46:00 AM
Benzo(a)pyrene	ND	77.4		µg/Kg-dry	1	3/1/2012 10:46:00 AM
Indeno(1,2,3-cd)pyrene	ND	77.4		µg/Kg-dry	1	3/1/2012 10:46:00 AM
Dibenz(a,h)anthracene	ND	77.4		µg/Kg-dry	1	3/1/2012 10:46:00 AM
Surr: 2-Fluorobiphenyl	55.5	53.5-148		%REC	1	3/1/2012 10:46:00 AM
Surr: Terphenyl-d14 (surr)	98.4	67.2-149		%REC	1	3/1/2012 10:46:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3513		Analyst: PH
Gasoline	ND	7.80		mg/Kg-dry	1	2/25/2012 11:32:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 11:40:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-040
Matrix: Soil
Client Sample ID: 021512-34.5.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: R3513		Analyst: PH
Surr: 1,2-Dichloroethane-d4	105	65-135		%REC	1	2/25/2012 11:32:00 PM
Surr: Fluorobenzene	111	65-135		%REC	1	2/25/2012 11:32:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1950		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0780		mg/Kg-dry	1	2/25/2012 11:32:00 PM
tert-Amyl Methyl Ether (TAME)	ND	0.0780		mg/Kg-dry	1	2/25/2012 11:32:00 PM
Tert-butyl alcohol	ND	0.390		mg/Kg-dry	1	2/25/2012 11:32:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0780		mg/Kg-dry	1	2/25/2012 11:32:00 PM
1,2-Dichloroethane	ND	0.0468		mg/Kg-dry	1	2/25/2012 11:32:00 PM
Benzene	ND	0.0312		mg/Kg-dry	1	2/25/2012 11:32:00 PM
Toluene	ND	0.0312		mg/Kg-dry	1	2/25/2012 11:32:00 PM
1,2-Dibromoethane (EDB)	ND	0.00780		mg/Kg-dry	1	2/25/2012 11:32:00 PM
Ethylbenzene	ND	0.0468		mg/Kg-dry	1	2/25/2012 11:32:00 PM
m,p-Xylene	ND	0.0312		mg/Kg-dry	1	2/25/2012 11:32:00 PM
o-Xylene	ND	0.0312		mg/Kg-dry	1	2/25/2012 11:32:00 PM
Naphthalene	ND	0.0468		mg/Kg-dry	1	2/25/2012 11:32:00 PM
Surr: 1-Bromo-4-fluorobenzene	94.6	63.1-141		%REC	1	2/25/2012 11:32:00 PM
Surr: Dibromofluoromethane	96.5	67.6-119		%REC	1	2/25/2012 11:32:00 PM
Surr: Toluene-d8	106	78.5-126		%REC	1	2/25/2012 11:32:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	1.11	0.111		mg/Kg-dry	1	2/28/2012 3:15:32 AM
Barium	173	0.554		mg/Kg-dry	1	2/28/2012 3:15:32 AM
Cadmium	0.597	0.222		mg/Kg-dry	1	2/28/2012 3:15:32 AM
Chromium	25.3	0.111		mg/Kg-dry	1	2/28/2012 3:15:32 AM
Lead	78.8	0.222		mg/Kg-dry	1	2/28/2012 3:15:32 AM
Nickel	17.2	0.111		mg/Kg-dry	1	2/28/2012 3:15:32 AM
Selenium	ND	0.554		mg/Kg-dry	1	2/28/2012 3:15:32 AM
Silver	0.157	0.111		mg/Kg-dry	1	2/28/2012 3:15:32 AM
Zinc	92.2	0.443		mg/Kg-dry	1	2/28/2012 3:15:32 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 11:40:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-040
Matrix: Soil
Client Sample ID: 021512-34.5.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.239		mg/Kg-dry	1	2/24/2012 5:34:07 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	32.1			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.716		mg/Kg-dry	1	3/14/2012 10:45:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 12:54:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-041
Matrix: Soil
Client Sample ID: 021512-35.1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	22.0		mg/Kg-dry	1	2/28/2012 7:48:00 AM
Heavy Oil	ND	54.9		mg/Kg-dry	1	2/28/2012 7:48:00 AM
Surr: 2-Fluorobiphenyl	96.4	84.2-137		%REC	1	2/28/2012 7:48:00 AM
Surr: o-Terphenyl	108	87.1-138		%REC	1	2/28/2012 7:48:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3513		Analyst: PH
Gasoline	ND	6.33		mg/Kg-dry	1	2/26/2012 12:03:00 AM
Surr: 1,2-Dichloroethane-d4	105	65-135		%REC	1	2/26/2012 12:03:00 AM
Surr: Fluorobenzene	112	65-135		%REC	1	2/26/2012 12:03:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1950		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0633		mg/Kg-dry	1	2/26/2012 12:03:00 AM
tert-Amyl Methyl Ether (TAME)	ND	0.0633		mg/Kg-dry	1	2/26/2012 12:03:00 AM
Tert-butyl alcohol	ND	0.317		mg/Kg-dry	1	2/26/2012 12:03:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0633		mg/Kg-dry	1	2/26/2012 12:03:00 AM
1,2-Dichloroethane	ND	0.0380		mg/Kg-dry	1	2/26/2012 12:03:00 AM
Benzene	ND	0.0253		mg/Kg-dry	1	2/26/2012 12:03:00 AM
Toluene	ND	0.0253		mg/Kg-dry	1	2/26/2012 12:03:00 AM
1,2-Dibromoethane (EDB)	ND	0.00633		mg/Kg-dry	1	2/26/2012 12:03:00 AM
Ethylbenzene	ND	0.0380		mg/Kg-dry	1	2/26/2012 12:03:00 AM
m,p-Xylene	ND	0.0253		mg/Kg-dry	1	2/26/2012 12:03:00 AM
o-Xylene	ND	0.0253		mg/Kg-dry	1	2/26/2012 12:03:00 AM
Naphthalene	ND	0.0380		mg/Kg-dry	1	2/26/2012 12:03:00 AM
Surr: 1-Bromo-4-fluorobenzene	93.1	63.1-141		%REC	1	2/26/2012 12:03:00 AM
Surr: Dibromofluoromethane	96.9	67.6-119		%REC	1	2/26/2012 12:03:00 AM
Surr: Toluene-d8	105	78.5-126		%REC	1	2/26/2012 12:03:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	23.8			wt%	1	2/29/2012 10:37:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 1:05:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-043
Matrix: Soil
Client Sample ID: 021512-37.6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	2/28/2012 8:15:00 AM
Heavy Oil	ND	55.9		mg/Kg-dry	1	2/28/2012 8:15:00 AM
Surr: 2-Fluorobiphenyl	95.8	84.2-137		%REC	1	2/28/2012 8:15:00 AM
Surr: o-Terphenyl	106	87.1-138		%REC	1	2/28/2012 8:15:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3513		Analyst: PH
Gasoline	ND	5.78		mg/Kg-dry	1	2/26/2012 1:05:00 AM
Surr: 1,2-Dichloroethane-d4	103	65-135		%REC	1	2/26/2012 1:05:00 AM
Surr: Fluorobenzene	110	65-135		%REC	1	2/26/2012 1:05:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1950		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0578		mg/Kg-dry	1	2/26/2012 1:05:00 AM
tert-Amyl Methyl Ether (TAME)	ND	0.0578		mg/Kg-dry	1	2/26/2012 1:05:00 AM
Tert-butyl alcohol	ND	0.289		mg/Kg-dry	1	2/26/2012 1:05:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0578		mg/Kg-dry	1	2/26/2012 1:05:00 AM
1,2-Dichloroethane	ND	0.0347		mg/Kg-dry	1	2/26/2012 1:05:00 AM
Benzene	ND	0.0231		mg/Kg-dry	1	2/26/2012 1:05:00 AM
Toluene	ND	0.0231		mg/Kg-dry	1	2/26/2012 1:05:00 AM
1,2-Dibromoethane (EDB)	ND	0.00578		mg/Kg-dry	1	2/26/2012 1:05:00 AM
Ethylbenzene	ND	0.0347		mg/Kg-dry	1	2/26/2012 1:05:00 AM
m,p-Xylene	ND	0.0231		mg/Kg-dry	1	2/26/2012 1:05:00 AM
o-Xylene	ND	0.0231		mg/Kg-dry	1	2/26/2012 1:05:00 AM
Surr: 1-Bromo-4-fluorobenzene	92.5	63.1-141		%REC	1	2/26/2012 1:05:00 AM
Surr: Dibromofluoromethane	96.9	67.6-119		%REC	1	2/26/2012 1:05:00 AM
Surr: Toluene-d8	107	78.5-126		%REC	1	2/26/2012 1:05:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	22.6			wt%	1	2/29/2012 10:37:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 1:30:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-045
Matrix: Soil
Client Sample ID: 021512-39.1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	20.2		mg/Kg-dry	1	2/28/2012 8:43:00 AM
Heavy Oil	ND	50.4		mg/Kg-dry	1	2/28/2012 8:43:00 AM
Surr: 2-Fluorobiphenyl	96.6	84.2-137		%REC	1	2/28/2012 8:43:00 AM
Surr: o-Terphenyl	108	87.1-138		%REC	1	2/28/2012 8:43:00 AM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.121		mg/Kg-dry	1	2/28/2012 8:58:00 PM
Aroclor 1221	ND	0.121		mg/Kg-dry	1	2/28/2012 8:58:00 PM
Aroclor 1232	ND	0.121		mg/Kg-dry	1	2/28/2012 8:58:00 PM
Aroclor 1242	ND	0.121		mg/Kg-dry	1	2/28/2012 8:58:00 PM
Aroclor 1248	ND	0.121		mg/Kg-dry	1	2/28/2012 8:58:00 PM
Aroclor 1254	ND	0.121		mg/Kg-dry	1	2/28/2012 8:58:00 PM
Aroclor 1260	ND	0.121		mg/Kg-dry	1	2/28/2012 8:58:00 PM
Aroclor 1262	ND	0.121		mg/Kg-dry	1	2/28/2012 8:58:00 PM
Aroclor 1268	ND	0.121		mg/Kg-dry	1	2/28/2012 8:58:00 PM
Total PCBs	ND	0.121		mg/Kg-dry	1	2/28/2012 8:58:00 PM
Surr: Decachlorobiphenyl	83.9	66.1-145		%REC	1	2/28/2012 8:58:00 PM
Surr: Tetrachloro-m-xylene	93.9	67.2-132		%REC	1	2/28/2012 8:58:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3513		Analyst: PH
Gasoline	ND	5.61		mg/Kg-dry	1	2/26/2012 1:36:00 AM
Surr: 1,2-Dichloroethane-d4	107	65-135		%REC	1	2/26/2012 1:36:00 AM
Surr: Fluorobenzene	114	65-135		%REC	1	2/26/2012 1:36:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1950		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0561		mg/Kg-dry	1	2/26/2012 1:36:00 AM
tert-Amyl Methyl Ether (TAME)	ND	0.0561		mg/Kg-dry	1	2/26/2012 1:36:00 AM
Tert-butyl alcohol	ND	0.281		mg/Kg-dry	1	2/26/2012 1:36:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0561		mg/Kg-dry	1	2/26/2012 1:36:00 AM
1,2-Dichloroethane	ND	0.0337		mg/Kg-dry	1	2/26/2012 1:36:00 AM
Benzene	ND	0.0224		mg/Kg-dry	1	2/26/2012 1:36:00 AM
Toluene	ND	0.0224		mg/Kg-dry	1	2/26/2012 1:36:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 1:30:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-045
Matrix: Soil
Client Sample ID: 021512-39.1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1950		Analyst: PH
1,2-Dibromoethane (EDB)	ND	0.00561		mg/Kg-dry	1	2/26/2012 1:36:00 AM
Ethylbenzene	ND	0.0337		mg/Kg-dry	1	2/26/2012 1:36:00 AM
m,p-Xylene	ND	0.0224		mg/Kg-dry	1	2/26/2012 1:36:00 AM
o-Xylene	ND	0.0224		mg/Kg-dry	1	2/26/2012 1:36:00 AM
Naphthalene	ND	0.0337		mg/Kg-dry	1	2/26/2012 1:36:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.9	63.1-141		%REC	1	2/26/2012 1:36:00 AM
Surr: Dibromofluoromethane	96.1	67.6-119		%REC	1	2/26/2012 1:36:00 AM
Surr: Toluene-d8	106	78.5-126		%REC	1	2/26/2012 1:36:00 AM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	1.62	0.0910		mg/Kg-dry	1	2/28/2012 3:24:33 AM
Barium	129	0.455		mg/Kg-dry	1	2/28/2012 3:24:33 AM
Cadmium	0.477	0.182		mg/Kg-dry	1	2/28/2012 3:24:33 AM
Chromium	25.6	0.0910		mg/Kg-dry	1	2/28/2012 3:24:33 AM
Lead	15.6	0.182		mg/Kg-dry	1	2/28/2012 3:24:33 AM
Nickel	28.5	0.0910		mg/Kg-dry	1	2/28/2012 3:24:33 AM
Selenium	ND	0.455		mg/Kg-dry	1	2/28/2012 3:24:33 AM
Silver	0.116	0.0910		mg/Kg-dry	1	2/28/2012 3:24:33 AM
Zinc	69.6	0.364		mg/Kg-dry	1	2/28/2012 3:24:33 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.240		mg/Kg-dry	1	2/24/2012 5:47:11 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	18.6			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.597		mg/Kg-dry	1	3/13/2012 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 1:45:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-047
Matrix: Soil
Client Sample ID: 021512-41.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	19.9		mg/Kg-dry	1	2/28/2012 9:10:00 AM
Heavy Oil	ND	49.6		mg/Kg-dry	1	2/28/2012 9:10:00 AM
Surr: 2-Fluorobiphenyl	93.2	84.2-137		%REC	1	2/28/2012 9:10:00 AM
Surr: o-Terphenyl	106	87.1-138		%REC	1	2/28/2012 9:10:00 AM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.0971		mg/Kg-dry	1	2/28/2012 9:41:00 PM
Aroclor 1221	ND	0.0971		mg/Kg-dry	1	2/28/2012 9:41:00 PM
Aroclor 1232	ND	0.0971		mg/Kg-dry	1	2/28/2012 9:41:00 PM
Aroclor 1242	ND	0.0971		mg/Kg-dry	1	2/28/2012 9:41:00 PM
Aroclor 1248	ND	0.0971		mg/Kg-dry	1	2/28/2012 9:41:00 PM
Aroclor 1254	ND	0.0971		mg/Kg-dry	1	2/28/2012 9:41:00 PM
Aroclor 1260	ND	0.0971		mg/Kg-dry	1	2/28/2012 9:41:00 PM
Aroclor 1262	ND	0.0971		mg/Kg-dry	1	2/28/2012 9:41:00 PM
Aroclor 1268	ND	0.0971		mg/Kg-dry	1	2/28/2012 9:41:00 PM
Total PCBs	ND	0.0971		mg/Kg-dry	1	2/28/2012 9:41:00 PM
Surr: Decachlorobiphenyl	82.9	66.1-145		%REC	1	2/28/2012 9:41:00 PM
Surr: Tetrachloro-m-xylene	110	67.2-132		%REC	1	2/28/2012 9:41:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	4.73		mg/Kg-dry	1	2/27/2012 6:52:00 PM
Surr: 1,2-Dichloroethane-d4	118	65-135		%REC	1	2/27/2012 6:52:00 PM
Surr: Fluorobenzene	104	65-135		%REC	1	2/27/2012 6:52:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0473		mg/Kg-dry	1	2/27/2012 6:52:00 PM
tert-Amyl Methyl Ether (TAME)	ND	0.0473		mg/Kg-dry	1	2/27/2012 6:52:00 PM
Tert-butyl alcohol	ND	0.0236		mg/Kg-dry	1	2/27/2012 6:52:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0473		mg/Kg-dry	1	2/27/2012 6:52:00 PM
1,2-Dichloroethane	ND	0.0284		mg/Kg-dry	1	2/27/2012 6:52:00 PM
Benzene	ND	0.0189		mg/Kg-dry	1	2/27/2012 6:52:00 PM
Toluene	ND	0.0189		mg/Kg-dry	1	2/27/2012 6:52:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 1:45:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-047
Matrix: Soil
Client Sample ID: 021512-41.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
1,2-Dibromoethane (EDB)	ND	0.00473		mg/Kg-dry	1	2/27/2012 6:52:00 PM
Ethylbenzene	ND	0.0284		mg/Kg-dry	1	2/27/2012 6:52:00 PM
m,p-Xylene	ND	0.0189		mg/Kg-dry	1	2/27/2012 6:52:00 PM
o-Xylene	ND	0.0189		mg/Kg-dry	1	2/27/2012 6:52:00 PM
Naphthalene	ND	0.0284		mg/Kg-dry	1	2/27/2012 6:52:00 PM
Surr: 1-Bromo-4-fluorobenzene	93.0	63.1-141		%REC	1	2/27/2012 6:52:00 PM
Surr: Dibromofluoromethane	98.5	67.6-119		%REC	1	2/27/2012 6:52:00 PM
Surr: Toluene-d8	103	78.5-126		%REC	1	2/27/2012 6:52:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	0.850	0.123		mg/Kg-dry	1	2/28/2012 4:09:28 AM
Barium	147	0.613		mg/Kg-dry	1	2/28/2012 4:09:28 AM
Cadmium	0.442	0.245		mg/Kg-dry	1	2/28/2012 4:09:28 AM
Chromium	25.8	0.123		mg/Kg-dry	1	2/28/2012 4:09:28 AM
Lead	6.46	0.245		mg/Kg-dry	1	2/28/2012 4:09:28 AM
Nickel	25.8	0.123		mg/Kg-dry	1	2/28/2012 4:09:28 AM
Selenium	ND	0.613		mg/Kg-dry	1	2/28/2012 4:09:28 AM
Silver	ND	0.123		mg/Kg-dry	1	2/28/2012 4:09:28 AM
Zinc	69.7	0.491		mg/Kg-dry	1	2/28/2012 4:09:28 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.307		mg/Kg-dry	1	2/24/2012 5:50:14 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	18.5			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.613		mg/Kg-dry	1	3/13/2012 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 2:00:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-048
Matrix: Soil
Client Sample ID: 021512-42.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	20.6		mg/Kg-dry	1	2/28/2012 9:38:00 AM
Heavy Oil	ND	51.5		mg/Kg-dry	1	2/28/2012 9:38:00 AM
Surr: 2-Fluorobiphenyl	96.3	84.2-137		%REC	1	2/28/2012 9:38:00 AM
Surr: o-Terphenyl	105	87.1-138		%REC	1	2/28/2012 9:38:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	4.62		mg/Kg-dry	1	2/27/2012 7:23:00 PM
Surr: 1,2-Dichloroethane-d4	117	65-135		%REC	1	2/27/2012 7:23:00 PM
Surr: Fluorobenzene	107	65-135		%REC	1	2/27/2012 7:23:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Benzene	ND	0.0185		mg/Kg-dry	1	2/27/2012 7:23:00 PM
Toluene	ND	0.0185		mg/Kg-dry	1	2/27/2012 7:23:00 PM
Ethylbenzene	ND	0.0277		mg/Kg-dry	1	2/27/2012 7:23:00 PM
m,p-Xylene	ND	0.0185		mg/Kg-dry	1	2/27/2012 7:23:00 PM
o-Xylene	ND	0.0185		mg/Kg-dry	1	2/27/2012 7:23:00 PM
Surr: 1-Bromo-4-fluorobenzene	91.5	63.1-141		%REC	1	2/27/2012 7:23:00 PM
Surr: Dibromofluoromethane	94.5	67.6-119		%REC	1	2/27/2012 7:23:00 PM
Surr: Toluene-d8	101	78.5-126		%REC	1	2/27/2012 7:23:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	1.89	0.116		mg/Kg-dry	1	2/28/2012 4:18:28 AM
Cadmium	0.639	0.233		mg/Kg-dry	1	2/28/2012 4:18:28 AM
Chromium	22.5	0.116		mg/Kg-dry	1	2/28/2012 4:18:28 AM
Lead	14.9	0.233		mg/Kg-dry	1	2/28/2012 4:18:28 AM
Nickel	19.3	0.116		mg/Kg-dry	1	2/28/2012 4:18:28 AM
Zinc	83.3	0.465		mg/Kg-dry	1	2/28/2012 4:18:28 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.220		mg/Kg-dry	1	2/24/2012 5:53:14 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 2:00:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-048
Matrix: Soil
Client Sample ID: 021512-42.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	14.0			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.574		mg/Kg-dry	1	3/14/2012 10:45:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 2:13:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-049
Matrix: Soil
Client Sample ID: 021512-43.0.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	18.4		mg/Kg-dry	1	2/28/2012 10:06:00 AM
Heavy Oil	235	46.0		mg/Kg-dry	1	2/28/2012 10:06:00 AM
Surr: 2-Fluorobiphenyl	96.4	84.2-137		%REC	1	2/28/2012 10:06:00 AM
Surr: o-Terphenyl	108	87.1-138		%REC	1	2/28/2012 10:06:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	4.42		mg/Kg-dry	1	2/27/2012 7:54:00 PM
Surr: 1,2-Dichloroethane-d4	118	65-135		%REC	1	2/27/2012 7:54:00 PM
Surr: Fluorobenzene	110	65-135		%REC	1	2/27/2012 7:54:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Benzene	ND	0.0177		mg/Kg-dry	1	2/27/2012 7:54:00 PM
Toluene	ND	0.0177		mg/Kg-dry	1	2/27/2012 7:54:00 PM
Ethylbenzene	ND	0.0265		mg/Kg-dry	1	2/27/2012 7:54:00 PM
m,p-Xylene	ND	0.0177		mg/Kg-dry	1	2/27/2012 7:54:00 PM
o-Xylene	ND	0.0177		mg/Kg-dry	1	2/27/2012 7:54:00 PM
Surr: 1-Bromo-4-fluorobenzene	92.9	63.1-141		%REC	1	2/27/2012 7:54:00 PM
Surr: Dibromofluoromethane	93.2	67.6-119		%REC	1	2/27/2012 7:54:00 PM
Surr: Toluene-d8	102	78.5-126		%REC	1	2/27/2012 7:54:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	2.29	0.0763		mg/Kg-dry	1	2/28/2012 4:27:28 AM
Cadmium	0.412	0.153		mg/Kg-dry	1	2/28/2012 4:27:28 AM
Chromium	32.2	0.0763		mg/Kg-dry	1	2/28/2012 4:27:28 AM
Lead	30.7	0.153		mg/Kg-dry	1	2/28/2012 4:27:28 AM
Nickel	50.8	0.0763		mg/Kg-dry	1	2/28/2012 4:27:28 AM
Zinc	91.9	0.305		mg/Kg-dry	1	2/28/2012 4:27:28 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.277		mg/Kg-dry	1	2/24/2012 5:56:14 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 2:13:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-049
Matrix: Soil
Client Sample ID: 021512-43.0.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	9.66			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.553		mg/Kg-dry	1	3/14/2012 10:45:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 2:30:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-050
Matrix: Soil
Client Sample ID: 021512-44.0.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	197	19.1		mg/Kg-dry	1	2/28/2012 11:01:00 AM
Heavy Oil	ND	47.7		mg/Kg-dry	1	2/28/2012 11:01:00 AM
Surr: 2-Fluorobiphenyl	97.8	84.2-137		%REC	1	2/28/2012 11:01:00 AM
Surr: o-Terphenyl	109	87.1-138		%REC	1	2/28/2012 11:01:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	4.51		mg/Kg-dry	1	2/27/2012 8:24:00 PM
Surr: 1,2-Dichloroethane-d4	113	65-135		%REC	1	2/27/2012 8:24:00 PM
Surr: Fluorobenzene	106	65-135		%REC	1	2/27/2012 8:24:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Benzene	ND	0.0180		mg/Kg-dry	1	2/27/2012 8:24:00 PM
Toluene	ND	0.0180		mg/Kg-dry	1	2/27/2012 8:24:00 PM
Ethylbenzene	ND	0.0270		mg/Kg-dry	1	2/27/2012 8:24:00 PM
m,p-Xylene	ND	0.0180		mg/Kg-dry	1	2/27/2012 8:24:00 PM
o-Xylene	ND	0.0180		mg/Kg-dry	1	2/27/2012 8:24:00 PM
Surr: 1-Bromo-4-fluorobenzene	90.3	63.1-141		%REC	1	2/27/2012 8:24:00 PM
Surr: Dibromofluoromethane	94.3	67.6-119		%REC	1	2/27/2012 8:24:00 PM
Surr: Toluene-d8	104	78.5-126		%REC	1	2/27/2012 8:24:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	2.61	0.0668		mg/Kg-dry	1	2/28/2012 4:36:29 AM
Cadmium	0.190	0.134		mg/Kg-dry	1	2/28/2012 4:36:29 AM
Chromium	34.9	0.0668		mg/Kg-dry	1	2/28/2012 4:36:29 AM
Lead	3.00	0.134		mg/Kg-dry	1	2/28/2012 4:36:29 AM
Nickel	71.4	0.0668		mg/Kg-dry	1	2/28/2012 4:36:29 AM
Zinc	42.8	0.267		mg/Kg-dry	1	2/28/2012 4:36:29 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.208		mg/Kg-dry	1	2/24/2012 5:59:14 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 2:30:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-050
Matrix: Soil
Client Sample ID: 021512-44.0.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	4.72			wt%	1	2/29/2012 10:37:44 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.515		mg/Kg-dry	1	3/13/2012 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 2:50:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-052
Matrix: Soil
Client Sample ID: 021512-46.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	ND	18.3	H	mg/Kg-dry	1	3/14/2012 7:42:00 AM
Heavy Oil	ND	45.8	H	mg/Kg-dry	1	3/14/2012 7:42:00 AM
Surr: 2-Fluorobiphenyl	100	84.2-137	H	%REC	1	3/14/2012 7:42:00 AM
Surr: o-Terphenyl	128	87.1-138	H	%REC	1	3/14/2012 7:42:00 AM
Gasoline by NWTPH-Gx				Batch ID: 2043		Analyst: PH
Gasoline	ND	3.74	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
Surr: 1,2-Dichloroethane-d4	96.6	65-135	H	%REC	1	3/14/2012 6:01:00 AM
Surr: Fluorobenzene	102	65-135	H	%REC	1	3/14/2012 6:01:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2043		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0374	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
tert-Amyl Methyl Ether (TAME)	ND	0.0374	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
Tert-butyl alcohol	ND	0.0187	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0374	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
1,2-Dichloroethane	ND	0.0225	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
Benzene	ND	0.0150	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
Toluene	ND	0.0150	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
1,2-Dibromoethane (EDB)	ND	0.00374	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
Ethylbenzene	ND	0.0225	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
m,p-Xylene	ND	0.0150	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
o-Xylene	ND	0.0150	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
Naphthalene	ND	0.0225	H	mg/Kg-dry	1	3/14/2012 6:01:00 AM
Surr: 1-Bromo-4-fluorobenzene	105	63.1-141	H	%REC	1	3/14/2012 6:01:00 AM
Surr: Dibromofluoromethane	92.8	67.6-119	H	%REC	1	3/14/2012 6:01:00 AM
Surr: Toluene-d8	98.3	78.5-126	H	%REC	1	3/14/2012 6:01:00 AM
Total Metals by EPA Method 6020				Batch ID: 2048		Analyst: BR
Lead	2.85	0.156		mg/Kg-dry	1	3/14/2012 4:10:41 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 2:50:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-052
Matrix: Soil
Client Sample ID: 021512-46.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	24.4			wt%	1	3/14/2012 9:44:54 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 4:00:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-060
Matrix: Soil
Client Sample ID: 021512-54.6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	ND	20.7	H	mg/Kg-dry	1	3/14/2012 8:10:00 AM
Heavy Oil	ND	51.8	H	mg/Kg-dry	1	3/14/2012 8:10:00 AM
Surr: 2-Fluorobiphenyl	103	84.2-137	H	%REC	1	3/14/2012 8:10:00 AM
Surr: o-Terphenyl	128	87.1-138	H	%REC	1	3/14/2012 8:10:00 AM
Gasoline by NWTPH-Gx				Batch ID: 2043		Analyst: PH
Gasoline	ND	4.10	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
Surr: 1,2-Dichloroethane-d4	96.0	65-135	H	%REC	1	3/14/2012 7:02:00 AM
Surr: Fluorobenzene	101	65-135	H	%REC	1	3/14/2012 7:02:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2043		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0410	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
tert-Amyl Methyl Ether (TAME)	ND	0.0410	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
Tert-butyl alcohol	ND	0.0205	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0410	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
Benzene	ND	0.0164	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
Toluene	ND	0.0164	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
1,2-Dibromoethane (EDB)	ND	0.00410	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
Ethylbenzene	ND	0.0246	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
m,p-Xylene	0.0221	0.0164	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
o-Xylene	ND	0.0164	H	mg/Kg-dry	1	3/14/2012 7:02:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141	H	%REC	1	3/14/2012 7:02:00 AM
Surr: Dibromofluoromethane	94.3	67.6-119	H	%REC	1	3/14/2012 7:02:00 AM
Surr: Toluene-d8	97.4	78.5-126	H	%REC	1	3/14/2012 7:02:00 AM
Total Metals by EPA Method 6020				Batch ID: 2048		Analyst: BR
Lead	2.73	0.165		mg/Kg-dry	1	3/14/2012 4:19:41 PM
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	16.3			wt%	1	3/14/2012 9:44:54 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 10:50:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-061
Matrix: Soil
Client Sample ID: 021512-29,30,31 (Composite)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	ND	21.0		mg/Kg-dry	1	2/28/2012 11:29:00 AM
Heavy Oil	ND	52.4		mg/Kg-dry	1	2/28/2012 11:29:00 AM
Surr: 2-Fluorobiphenyl	100	84.2-137		%REC	1	2/28/2012 11:29:00 AM
Surr: o-Terphenyl	109	87.1-138		%REC	1	2/28/2012 11:29:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	4.76		mg/Kg-dry	1	2/27/2012 8:55:00 PM
Surr: 1,2-Dichloroethane-d4	116	65-135		%REC	1	2/27/2012 8:55:00 PM
Surr: Fluorobenzene	109	65-135		%REC	1	2/27/2012 8:55:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0476		mg/Kg-dry	1	2/27/2012 8:55:00 PM
tert-Amyl Methyl Ether (TAME)	ND	0.0476		mg/Kg-dry	1	2/27/2012 8:55:00 PM
Tert-butyl alcohol	ND	0.0238		mg/Kg-dry	1	2/27/2012 8:55:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0476		mg/Kg-dry	1	2/27/2012 8:55:00 PM
1,2-Dichloroethane	ND	0.0285		mg/Kg-dry	1	2/27/2012 8:55:00 PM
Benzene	ND	0.0190		mg/Kg-dry	1	2/27/2012 8:55:00 PM
Toluene	ND	0.0190		mg/Kg-dry	1	2/27/2012 8:55:00 PM
1,2-Dibromoethane (EDB)	ND	0.00476		mg/Kg-dry	1	2/27/2012 8:55:00 PM
Ethylbenzene	ND	0.0285		mg/Kg-dry	1	2/27/2012 8:55:00 PM
m,p-Xylene	ND	0.0190		mg/Kg-dry	1	2/27/2012 8:55:00 PM
o-Xylene	ND	0.0190		mg/Kg-dry	1	2/27/2012 8:55:00 PM
Naphthalene	ND	0.0285		mg/Kg-dry	1	2/27/2012 8:55:00 PM
Surr: 1-Bromo-4-fluorobenzene	92.9	63.1-141		%REC	1	2/27/2012 8:55:00 PM
Surr: Dibromofluoromethane	93.3	67.6-119		%REC	1	2/27/2012 8:55:00 PM
Surr: Toluene-d8	103	78.5-126		%REC	1	2/27/2012 8:55:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	1.32	0.0778		mg/Kg-dry	1	2/28/2012 2:57:32 AM
Cadmium	0.497	0.156		mg/Kg-dry	1	2/28/2012 2:57:32 AM
Chromium	20.8	0.0778		mg/Kg-dry	1	2/28/2012 2:57:32 AM
Lead	26.7	0.156		mg/Kg-dry	1	2/28/2012 2:57:32 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/15/2012 10:50:00 AM
Project: Mountain View Brownfield
Lab ID: 1202091-061
Matrix: Soil
Client Sample ID: 021512-29,30,31 (Composite)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Nickel	22.1	0.0778		mg/Kg-dry	1	2/28/2012 2:57:32 AM
Zinc	106	0.311		mg/Kg-dry	1	2/28/2012 2:57:32 AM
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.277		mg/Kg-dry	1	2/24/2012 5:28:03 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	14.8			wt%	1	2/29/2012 10:37:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/23/2012 12:00:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-062
Matrix: Soil
Client Sample ID: 022312-61

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	676	218	D	mg/Kg-dry	10	2/29/2012 10:02:00 AM
Heavy Oil	3,370	544	D	mg/Kg-dry	10	2/29/2012 10:02:00 AM
Surr: 2-Fluorobiphenyl	94.7	84.2-137		%REC	1	2/28/2012 11:56:00 AM
Surr: o-Terphenyl	114	87.1-138		%REC	1	2/28/2012 11:56:00 AM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.114		mg/Kg-dry	1	2/29/2012 3:03:00 AM
Aroclor 1221	ND	0.114		mg/Kg-dry	1	2/29/2012 3:03:00 AM
Aroclor 1232	ND	0.114		mg/Kg-dry	1	2/29/2012 3:03:00 AM
Aroclor 1242	ND	0.114		mg/Kg-dry	1	2/29/2012 3:03:00 AM
Aroclor 1248	ND	0.114		mg/Kg-dry	1	2/29/2012 3:03:00 AM
Aroclor 1254	ND	0.114		mg/Kg-dry	1	2/29/2012 3:03:00 AM
Aroclor 1260	ND	0.114		mg/Kg-dry	1	2/29/2012 3:03:00 AM
Aroclor 1262	ND	0.114		mg/Kg-dry	1	2/29/2012 3:03:00 AM
Aroclor 1268	ND	0.114		mg/Kg-dry	1	2/29/2012 3:03:00 AM
Total PCBs	ND	0.114		mg/Kg-dry	1	2/29/2012 3:03:00 AM
Surr: Decachlorobiphenyl	119	66.1-145		%REC	1	2/29/2012 3:03:00 AM
Surr: Tetrachloro-m-xylene	105	67.2-132		%REC	1	2/29/2012 3:03:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1948		Analyst: SG
Benz(a)anthracene	ND	58.6		µg/Kg-dry	1	3/1/2012 11:10:00 AM
Chrysene	ND	58.6		µg/Kg-dry	1	3/1/2012 11:10:00 AM
Benzo(b)fluoranthene	ND	58.6		µg/Kg-dry	1	3/1/2012 11:10:00 AM
Benzo(k)fluoranthene	ND	58.6		µg/Kg-dry	1	3/1/2012 11:10:00 AM
Benzo(a)pyrene	214	58.6		µg/Kg-dry	1	3/1/2012 11:10:00 AM
Indeno(1,2,3-cd)pyrene	ND	58.6		µg/Kg-dry	1	3/1/2012 11:10:00 AM
Dibenz(a,h)anthracene	ND	58.6		µg/Kg-dry	1	3/1/2012 11:10:00 AM
Surr: 2-Fluorobiphenyl	81.7	53.5-148		%REC	1	3/1/2012 11:10:00 AM
Surr: Terphenyl-d14 (surr)	131	67.2-149		%REC	1	3/1/2012 11:10:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	6.24		mg/Kg-dry	1	2/27/2012 9:26:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/23/2012 12:00:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-062
Matrix: Soil
Client Sample ID: 022312-61

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Surr: 1,2-Dichloroethane-d4	115	65-135		%REC	1	2/27/2012 9:26:00 PM
Surr: Fluorobenzene	108	65-135		%REC	1	2/27/2012 9:26:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0624		mg/Kg-dry	1	2/27/2012 9:26:00 PM
tert-Amyl Methyl Ether (TAME)	ND	0.0624		mg/Kg-dry	1	2/27/2012 9:26:00 PM
Tert-butyl alcohol	ND	0.0312		mg/Kg-dry	1	2/27/2012 9:26:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0624		mg/Kg-dry	1	2/27/2012 9:26:00 PM
1,2-Dichloroethane	ND	0.0375		mg/Kg-dry	1	2/27/2012 9:26:00 PM
Benzene	ND	0.0250		mg/Kg-dry	1	2/27/2012 9:26:00 PM
Toluene	ND	0.0250		mg/Kg-dry	1	2/27/2012 9:26:00 PM
1,2-Dibromoethane (EDB)	ND	0.00624		mg/Kg-dry	1	2/27/2012 9:26:00 PM
Ethylbenzene	ND	0.0375		mg/Kg-dry	1	2/27/2012 9:26:00 PM
m,p-Xylene	ND	0.0250		mg/Kg-dry	1	2/27/2012 9:26:00 PM
o-Xylene	ND	0.0250		mg/Kg-dry	1	2/27/2012 9:26:00 PM
Naphthalene	ND	0.0375		mg/Kg-dry	1	2/27/2012 9:26:00 PM
Surr: 1-Bromo-4-fluorobenzene	92.4	63.1-141		%REC	1	2/27/2012 9:26:00 PM
Surr: Dibromofluoromethane	92.6	67.6-119		%REC	1	2/27/2012 9:26:00 PM
Surr: Toluene-d8	103	78.5-126		%REC	1	2/27/2012 9:26:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	9.40	0.121		mg/Kg-dry	1	2/28/2012 5:21:32 AM
Barium	275	0.604		mg/Kg-dry	1	2/28/2012 5:21:32 AM
Cadmium	6.17	0.242		mg/Kg-dry	1	2/28/2012 5:21:32 AM
Chromium	51.4	0.121		mg/Kg-dry	1	2/28/2012 5:21:32 AM
Lead	120	0.242		mg/Kg-dry	1	2/28/2012 5:21:32 AM
Nickel	63.1	0.121		mg/Kg-dry	1	2/28/2012 5:21:32 AM
Selenium	ND	0.604		mg/Kg-dry	1	2/28/2012 5:21:32 AM
Silver	0.127	0.121		mg/Kg-dry	1	2/28/2012 5:21:32 AM
Zinc	627	0.483		mg/Kg-dry	1	2/28/2012 5:21:32 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/23/2012 12:00:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-062
Matrix: Soil
Client Sample ID: 022312-61

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.302		mg/Kg-dry	1	2/24/2012 6:14:20 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	17.3			wt%	1	2/29/2012 10:37:44 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/23/2012 12:10:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-063
Matrix: Soil
Client Sample ID: 022312-62

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1959		Analyst: EM
Diesel (Fuel Oil)	1,030	219	D	mg/Kg-dry	10	2/29/2012 10:57:00 AM
Heavy Oil	5,460	548	D	mg/Kg-dry	10	2/29/2012 10:57:00 AM
Surr: 2-Fluorobiphenyl	94.1	84.2-137		%REC	1	2/28/2012 12:24:00 PM
Surr: o-Terphenyl	109	87.1-138		%REC	1	2/28/2012 12:24:00 PM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.140		mg/Kg-dry	1	2/29/2012 3:45:00 AM
Aroclor 1221	ND	0.140		mg/Kg-dry	1	2/29/2012 3:45:00 AM
Aroclor 1232	ND	0.140		mg/Kg-dry	1	2/29/2012 3:45:00 AM
Aroclor 1242	ND	0.140		mg/Kg-dry	1	2/29/2012 3:45:00 AM
Aroclor 1248	ND	0.140		mg/Kg-dry	1	2/29/2012 3:45:00 AM
Aroclor 1254	ND	0.140		mg/Kg-dry	1	2/29/2012 3:45:00 AM
Aroclor 1260	ND	0.140		mg/Kg-dry	1	2/29/2012 3:45:00 AM
Aroclor 1262	ND	0.140		mg/Kg-dry	1	2/29/2012 3:45:00 AM
Aroclor 1268	ND	0.140		mg/Kg-dry	1	2/29/2012 3:45:00 AM
Total PCBs	ND	0.140		mg/Kg-dry	1	2/29/2012 3:45:00 AM
Surr: Decachlorobiphenyl	88.4	66.1-145		%REC	1	2/29/2012 3:45:00 AM
Surr: Tetrachloro-m-xylene	107	67.2-132		%REC	1	2/29/2012 3:45:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1948		Analyst: SG
Benz(a)anthracene	ND	66.4		µg/Kg-dry	1	3/1/2012 11:35:00 AM
Chrysene	ND	66.4		µg/Kg-dry	1	3/1/2012 11:35:00 AM
Benzo(b)fluoranthene	ND	66.4		µg/Kg-dry	1	3/1/2012 11:35:00 AM
Benzo(k)fluoranthene	ND	66.4		µg/Kg-dry	1	3/1/2012 11:35:00 AM
Benzo(a)pyrene	329	66.4		µg/Kg-dry	1	3/1/2012 11:35:00 AM
Indeno(1,2,3-cd)pyrene	ND	66.4		µg/Kg-dry	1	3/1/2012 11:35:00 AM
Dibenz(a,h)anthracene	ND	66.4		µg/Kg-dry	1	3/1/2012 11:35:00 AM
Surr: 2-Fluorobiphenyl	75.1	53.5-148		%REC	1	3/1/2012 11:35:00 AM
Surr: Terphenyl-d14 (surr)	123	67.2-149		%REC	1	3/1/2012 11:35:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Gasoline	ND	7.65		mg/Kg-dry	1	2/27/2012 9:57:00 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/23/2012 12:10:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-063
Matrix: Soil
Client Sample ID: 022312-62

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: R3516		Analyst: PH
Surr: 1,2-Dichloroethane-d4	116	65-135		%REC	1	2/27/2012 9:57:00 PM
Surr: Fluorobenzene	109	65-135		%REC	1	2/27/2012 9:57:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1978		Analyst: PH
Ethyl tert-Butyl ether (ETBE)	ND	0.0765		mg/Kg-dry	1	2/27/2012 9:57:00 PM
tert-Amyl Methyl Ether (TAME)	ND	0.0765		mg/Kg-dry	1	2/27/2012 9:57:00 PM
Tert-butyl alcohol	ND	0.0382		mg/Kg-dry	1	2/27/2012 9:57:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0765		mg/Kg-dry	1	2/27/2012 9:57:00 PM
1,2-Dichloroethane	ND	0.0459		mg/Kg-dry	1	2/27/2012 9:57:00 PM
Benzene	ND	0.0306		mg/Kg-dry	1	2/27/2012 9:57:00 PM
Toluene	ND	0.0306		mg/Kg-dry	1	2/27/2012 9:57:00 PM
1,2-Dibromoethane (EDB)	ND	0.00765		mg/Kg-dry	1	2/27/2012 9:57:00 PM
Ethylbenzene	ND	0.0459		mg/Kg-dry	1	2/27/2012 9:57:00 PM
m,p-Xylene	ND	0.0306		mg/Kg-dry	1	2/27/2012 9:57:00 PM
o-Xylene	ND	0.0306		mg/Kg-dry	1	2/27/2012 9:57:00 PM
Naphthalene	ND	0.0459		mg/Kg-dry	1	2/27/2012 9:57:00 PM
Surr: 1-Bromo-4-fluorobenzene	92.6	63.1-141		%REC	1	2/27/2012 9:57:00 PM
Surr: Dibromofluoromethane	92.9	67.6-119		%REC	1	2/27/2012 9:57:00 PM
Surr: Toluene-d8	102	78.5-126		%REC	1	2/27/2012 9:57:00 PM
Total Metals by EPA Method 6020				Batch ID: 1942		Analyst: BR
Arsenic	12.3	0.132		mg/Kg-dry	1	2/28/2012 5:30:32 AM
Barium	334	0.658		mg/Kg-dry	1	2/28/2012 5:30:32 AM
Cadmium	4.85	0.263		mg/Kg-dry	1	2/28/2012 5:30:32 AM
Chromium	54.8	0.132		mg/Kg-dry	1	2/28/2012 5:30:32 AM
Lead	140	0.263		mg/Kg-dry	1	2/28/2012 5:30:32 AM
Nickel	63.3	0.132		mg/Kg-dry	1	2/28/2012 5:30:32 AM
Selenium	ND	0.658		mg/Kg-dry	1	2/28/2012 5:30:32 AM
Silver	0.141	0.132		mg/Kg-dry	1	2/28/2012 5:30:32 AM
Zinc	612	0.526		mg/Kg-dry	1	2/28/2012 5:30:32 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#: **1202091**
Date Reported: **3/21/2012**

Client: Fulcrum Environmental
Collection Date: 2/23/2012 12:10:00 PM
Project: Mountain View Brownfield
Lab ID: 1202091-063
Matrix: Soil
Client Sample ID: 022312-62

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Mercury by EPA Method 7471				Batch ID: 1949		Analyst: MC
Mercury	ND	0.329		mg/Kg-dry	1	2/24/2012 6:17:22 PM
Sample Moisture (Percent Moisture)				Batch ID: R3491		Analyst: BR
Percent Moisture	24.0			wt%	1	2/29/2012 10:37:44 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

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID: **MB-2042A**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **3/13/2012**		RunNo: **3632**		
Client ID: **MBLKS**	Batch ID: **2042**					Analysis Date: **3/13/2012**		SeqNo: **65240**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.500									

Sample ID: **LCS-2042A**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **3/13/2012**		RunNo: **3632**		
Client ID: **LCSS**	Batch ID: **2042**					Analysis Date: **3/13/2012**		SeqNo: **65241**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.55	0.500	2.500	0	102	65	135				

Sample ID: **1202091-031BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **3/13/2012**		RunNo: **3632**		
Client ID: **021512-25.3**	Batch ID: **2042**					Analysis Date: **3/13/2012**		SeqNo: **65243**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.643						0	0	30	

Sample ID: **1202091-031BMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **3/13/2012**		RunNo: **3632**		
Client ID: **021512-25.3**	Batch ID: **2042**					Analysis Date: **3/13/2012**		SeqNo: **65244**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	3.12	0.643	3.215	0	97.2	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

Fremont Analytical

Date: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID: **1202091-031BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3632**
Client ID: **021512-25.3** Batch ID: **2042** Analysis Date: **3/13/2012** SeqNo: **65245**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	3.14	0.643	3.215	0	97.6	65	135	3.125	0.411	30	

Sample ID: **MB-2042B** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/13/2012** RunNo: **3639**
Client ID: **MBLKS** Batch ID: **2042** Analysis Date: **3/14/2012** SeqNo: **65345**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.500									

Sample ID: **LCS-2042B** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/13/2012** RunNo: **3639**
Client ID: **LCSS** Batch ID: **2042** Analysis Date: **3/14/2012** SeqNo: **65346**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.55	0.500	2.500	0	102	65	135				

Sample ID: **1202091-022BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3639**
Client ID: **022112-55.0.5** Batch ID: **2042** Analysis Date: **3/14/2012** SeqNo: **65351**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	3.19	0.625	3.125	0	102	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

Fremont Analytical

Date: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID: **1202091-022BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3639**
Client ID: **022112-55.0.5** Batch ID: **2042** Analysis Date: **3/14/2012** SeqNo: **65352**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	3.19	0.625	3.125	0	102	65	135	3.187	0	30	

Sample ID: **1203073-006ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3639**
Client ID: **BATCH** Batch ID: **2042** Analysis Date: **3/14/2012** SeqNo: **65356**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.680						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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-1907**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/16/2012**	RunNo: **3399**
Client ID: **MBLKS**	Batch ID: **1907**		Analysis Date: **2/16/2012**	SeqNo: **60292**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.200									

Sample ID: **LCS-1907**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/16/2012**	RunNo: **3399**
Client ID: **LCSS**	Batch ID: **1907**		Analysis Date: **2/16/2012**	SeqNo: **60293**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	24.6	0.200	25.00	0	98.3	80	120				

Sample ID: **1202091-007BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/16/2012**	RunNo: **3399**
Client ID: **021412-7.6**	Batch ID: **1907**		Analysis Date: **2/16/2012**	SeqNo: **60297**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.40	0.139						2.082	14.0	30	

Sample ID: **1202091-007BMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **2/16/2012**	RunNo: **3399**
Client ID: **021412-7.6**	Batch ID: **1907**		Analysis Date: **2/16/2012**	SeqNo: **60298**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	20.7	0.141	17.64	2.082	105	75	125				

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1202091-007BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **2/16/2012** RunNo: **3399**
Client ID: **021412-7.6** Batch ID: **1907** Analysis Date: **2/16/2012** SeqNo: **60299**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	19.0	0.139	17.32	2.082	97.5	75	125	20.66	8.55	30	

Sample ID: **MB-1942** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/27/2012** RunNo: **3486**
Client ID: **MBLKS** Batch ID: **1942** Analysis Date: **2/28/2012** SeqNo: **61740**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									
Nickel	ND	0.100									
Selenium	ND	0.500									
Silver	ND	0.100									
Zinc	ND	0.400									

Sample ID: **1202091-031BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/27/2012** RunNo: **3486**
Client ID: **021512-25.3** Batch ID: **1942** Analysis Date: **2/28/2012** SeqNo: **61743**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.10	0.0893						1.078	1.77	30	
Barium	179	0.447						169.8	5.47	30	
Cadmium	0.617	0.179						0.5731	7.38	30	
Chromium	26.4	0.0893						25.54	3.35	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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1202091-031BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/27/2012** RunNo: **3486**
Client ID: **021512-25.3** Batch ID: **1942** Analysis Date: **2/28/2012** SeqNo: **61743**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	12.3	0.179						10.48	16.3	30	
Nickel	21.6	0.0893						19.82	8.79	30	
Selenium	ND	0.447						0	0	30	
Silver	0.136	0.0893						0.1276	6.56	30	
Zinc	136	0.357						127.6	6.39	30	

Sample ID: **1202091-031BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/27/2012** RunNo: **3486**
Client ID: **021512-25.3** Batch ID: **1942** Analysis Date: **2/28/2012** SeqNo: **61744**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.1	0.0938	46.92	1.097	91.7	75	125				
Barium	230	0.469	46.92	179.4	108	75	125				
Cadmium	3.00	0.188	2.346	0.6171	101	75	125				
Chromium	84.6	0.0938	46.92	26.41	124	75	125				
Lead	34.5	0.188	23.46	12.33	94.5	75	125				
Nickel	72.7	0.0938	46.92	21.65	109	75	125				
Selenium	2.09	0.469	4.692	0	44.6	75	125				S
Silver	1.69	0.0938	2.346	0.1362	66.0	75	125				S
Zinc	187	0.375	46.92	136.0	109	75	125				

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: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1202091-031BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **2/27/2012** RunNo: **3486**
Client ID: **021512-25.3** Batch ID: **1942** Analysis Date: **2/28/2012** SeqNo: **61745**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	43.7	0.0952	47.61	1.097	89.5	75	125	44.11	0.880	30	
Barium	234	0.476	47.61	179.4	114	75	125	230.0	1.65	30	
Cadmium	3.01	0.190	2.381	0.6171	100	75	125	2.996	0.399	30	
Chromium	84.7	0.0952	47.61	26.41	122	75	125	84.56	0.114	30	
Lead	34.6	0.190	23.81	12.33	93.5	75	125	34.50	0.311	30	
Nickel	72.9	0.0952	47.61	21.65	108	75	125	72.71	0.196	30	
Selenium	2.28	0.476	4.761	0	47.8	75	125	2.091	8.50	30	S
Silver	1.74	0.0952	2.381	0.1362	67.2	75	125	1.685	2.93	30	S
Zinc	185	0.381	47.61	136.0	104	75	125	187.1	0.837	30	

Sample ID: **CCV-1942** SampType: **CCV** Units: **µg/L** Prep Date: **2/27/2012** RunNo: **3486**
Client ID: **CCV** Batch ID: **1942** Analysis Date: **2/28/2012** SeqNo: **61753**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	95.7	0.100	100.0	0	95.7	90	110				
Barium	103	0.500	100.0	0	103	90	110				
Cadmium	4.80	0.200	5.000	0	95.9	90	110				
Chromium	107	0.100	100.0	0	107	90	110				
Lead	46.9	0.200	50.00	0	93.8	90	110				
Nickel	102	0.100	100.0	0	102	90	110				
Selenium	23.5	0.500	25.00	0	94.1	90	110				
Silver	4.55	0.100	5.000	0	90.9	90	110				
Zinc	98.8	0.400	100.0	0	98.8	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

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-2048**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/14/2012**	RunNo: **3653**
Client ID: **MBLKS**	Batch ID: **2048**		Analysis Date: **3/14/2012**	SeqNo: **65521**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.200									

Sample ID: **LCS-2048**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **3/14/2012**	RunNo: **3653**
Client ID: **LCSS**	Batch ID: **2048**		Analysis Date: **3/14/2012**	SeqNo: **65522**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	24.5	0.200	25.00	0	98.0	80	120				

Sample ID: **1202091-060BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **3/14/2012**	RunNo: **3653**
Client ID: **021512-54.6**	Batch ID: **2048**		Analysis Date: **3/14/2012**	SeqNo: **65527**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.79	0.168						2.728	2.09	30	

Sample ID: **1203073-006AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **3/14/2012**	RunNo: **3653**
Client ID: **BATCH**	Batch ID: **2048**		Analysis Date: **3/14/2012**	SeqNo: **65530**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	31.1	0.200	25.01	7.389	94.7	75	125				

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: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1203073-006AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **3/14/2012** RunNo: **3653**
Client ID: **BATCH** Batch ID: **2048** Analysis Date: **3/14/2012** SeqNo: **65531**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	31.2	0.205	25.57	7.389	93.0	75	125	31.07	0.291	30	

NOTES:
R - High RPD for Pb indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
S - Se and Ag MS/MSD spike recoveries indicate a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **MB-1949** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/24/2012** RunNo: **3487**
Client ID: **MBLKS** Batch ID: **1949** Analysis Date: **2/24/2012** SeqNo: **61680**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID: **LCS-1949** SampType: **LCS** Units: **mg/Kg** Prep Date: **2/24/2012** RunNo: **3487**
Client ID: **LCSS** Batch ID: **1949** Analysis Date: **2/24/2012** SeqNo: **61681**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.441	0.250	0.5000	0	88.2	85	115				

Sample ID: **1202091-031BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/24/2012** RunNo: **3487**
Client ID: **021512-25.3** Batch ID: **1949** Analysis Date: **2/24/2012** SeqNo: **61683**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.305						0	0	20	

Sample ID: **1202091-031BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/24/2012** RunNo: **3487**
Client ID: **021512-25.3** Batch ID: **1949** Analysis Date: **2/24/2012** SeqNo: **61684**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.609	0.289	0.5781	0.04582	97.5	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

Fremont Analytical

Date: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **1202091-031BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **2/24/2012** RunNo: **3487**
Client ID: **021512-25.3** Batch ID: **1949** Analysis Date: **2/24/2012** SeqNo: **61685**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.581	0.324	0.6475	0.04582	82.7	70	130	0.6094	4.68	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

Fremont Analytical

Date: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **LCS-1904**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **2/16/2012**		RunNo: **3403**			
Client ID: **LCSS**	Batch ID: **1904**					Analysis Date: **2/16/2012**		SeqNo: **60368**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	461	20.0	500.0	0	92.2	65	135				
Surr: 2-Fluorobiphenyl	21.6		20.00		108	75	135				
Surr: o-Terphenyl	20.5		20.00		102	71.2	128				

Sample ID: **MB-1904**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **2/16/2012**		RunNo: **3403**			
Client ID: **MBLKS**	Batch ID: **1904**					Analysis Date: **2/16/2012**		SeqNo: **60369**			
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	21.4		20.00		107	75	135				
Surr: o-Terphenyl	20.0		20.00		100	71.2	128				

Sample ID: **1202091-015BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **2/16/2012**		RunNo: **3403**			
Client ID: **021412-15.6**	Batch ID: **1904**					Analysis Date: **2/16/2012**		SeqNo: **60371**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	15.3						0	0	30	
Heavy Oil	ND	38.2						0	0	30	
Surr: 2-Fluorobiphenyl	15.1		15.28		98.6	75	135		0		
Surr: o-Terphenyl	15.2		15.28		99.2	71.2	128		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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **CCV-1904D**	SampType: **CCV**	Units: **mg/Kg**	Prep Date: **2/17/2012**	RunNo: **3403**
Client ID: **CCV**	Batch ID: **1904**		Analysis Date: **2/20/2012**	SeqNo: **60687**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	484	20.0	500.0	0	96.8	80	120				
Surr: 2-Fluorobiphenyl	25.8		20.00		129	75	135				
Surr: o-Terphenyl	22.6		20.00		113	71.2	128				

Sample ID: **LCS-1951**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/27/2012**	RunNo: **3497**
Client ID: **LCSS**	Batch ID: **1951**		Analysis Date: **2/27/2012**	SeqNo: **62028**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	461	20.0	500.0	0	92.2	65	135				
Surr: 2-Fluorobiphenyl	20.7		20.00		104	84.2	137				
Surr: o-Terphenyl	22.0		20.00		110	87.1	138				

Sample ID: **MB-1951**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/27/2012**	RunNo: **3497**
Client ID: **MBLKS**	Batch ID: **1951**		Analysis Date: **2/27/2012**	SeqNo: **62029**

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	18.6		20.00		92.9	84.2	137				
Surr: o-Terphenyl	20.6		20.00		103	87.1	138				

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1202091-006BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/27/2012** RunNo: **3497**
Client ID: **021412-6.3** Batch ID: **1951** Analysis Date: **2/27/2012** SeqNo: **62412**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.5						0	0	30	
Heavy Oil	ND	56.2						0	0	30	
Surr: 2-Fluorobiphenyl	20.8		22.47		92.7	84.2	137		0		
Surr: o-Terphenyl	23.8		22.47		106	87.1	138		0		

Sample ID: **CCV-1951B** SampType: **CCV** Units: **mg/Kg** Prep Date: **2/27/2012** RunNo: **3497**
Client ID: **CCV** Batch ID: **1951** Analysis Date: **3/1/2012** SeqNo: **62420**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	484	20.0	500.0	0	96.7	80	120				
Surr: 2-Fluorobiphenyl	20.0		20.00		100	84.2	137				
Surr: o-Terphenyl	18.9		20.00		94.5	87.1	138				

Sample ID: **1202091-038BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/27/2012** RunNo: **3520**
Client ID: **021512-32.1** Batch ID: **1959** Analysis Date: **2/28/2012** SeqNo: **62438**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.7						0	0	30	
Heavy Oil	ND	54.4						0	0	30	
Surr: 2-Fluorobiphenyl	20.6		21.74		95.0	84.2	137		0		
Surr: o-Terphenyl	23.7		21.74		109	87.1	138		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

Fremont Analytical

Date: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **CCV-1959C**	SampType: **CCV**	Units: **mg/Kg**	Prep Date: **2/27/2012**	RunNo: **3520**
Client ID: **CCV**	Batch ID: **1959**		Analysis Date: **2/29/2012**	SeqNo: **62455**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	564	20.0	500.0	0	113	80	120				
Surr: 2-Fluorobiphenyl	21.6		20.00		108	84.2	137				
Surr: o-Terphenyl	23.1		20.00		116	87.1	138				

Sample ID: **LCS-1959**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/27/2012**	RunNo: **3520**
Client ID: **LCSS**	Batch ID: **1959**		Analysis Date: **2/28/2012**	SeqNo: **62456**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	496	20.0	500.0	0	99.1	65	135				
Surr: 2-Fluorobiphenyl	21.2		20.00		106	84.2	137				
Surr: o-Terphenyl	22.1		20.00		110	87.1	138				

Sample ID: **MB-1959**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/27/2012**	RunNo: **3520**
Client ID: **MBLKS**	Batch ID: **1959**		Analysis Date: **2/28/2012**	SeqNo: **62457**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel 1/ Kerosene	ND	20.0									
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.9		20.00		94.4	84.2	137				
Surr: o-Terphenyl	21.8		20.00		109	87.1	138				

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1202091-060BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3640**
Client ID: **021512-54.6** Batch ID: **2047** Analysis Date: **3/14/2012** SeqNo: **65365**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.6						0	0	30	H
Heavy Oil	ND	56.4						0	0	30	H
Surr: 2-Fluorobiphenyl	23.1		22.55		102	84.2	137		0		H
Surr: o-Terphenyl	29.1		22.55		129	87.1	138		0		H

Sample ID: **LCS-2047** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/13/2012** RunNo: **3640**
Client ID: **LCSS** Batch ID: **2047** Analysis Date: **3/13/2012** SeqNo: **65387**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	577	20.0	500.0	0	115	65	135				
Surr: 2-Fluorobiphenyl	21.0		20.00		105	84.2	137				
Surr: o-Terphenyl	25.5		20.00		128	87.1	138				

Sample ID: **MB-2047** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/13/2012** RunNo: **3640**
Client ID: **MBLKS** Batch ID: **2047** Analysis Date: **3/13/2012** SeqNo: **65388**

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	18.6		20.00		93.2	84.2	137				
Surr: o-Terphenyl	25.0		20.00		125	87.1	138				

NOTES:
CCV - Continuing Calibration Verification

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **1202091-012BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/20/2012** RunNo: **3709**
Client ID: **021412-12.6** Batch ID: **2087** Analysis Date: **3/21/2012** SeqNo: **66503**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	21.4	5.15						21.42	0.122	30	H
Aliphatic Hydrocarbon (C10-C12)	253	5.15						269.7	6.32	30	EH
Aliphatic Hydrocarbon (C12-C16)	1,910	5.15						1,757	8.27	30	EH
Aliphatic Hydrocarbon (C16-C21)	1,540	5.15						1,421	7.96	30	EH
Aliphatic Hydrocarbon (C21-C34)	206	5.15						172.5	17.9	30	EH
Surr: 1-Chlorooctadecane	3.86		4.121		93.8	65	140		0		H

Sample ID: **1202091-012BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/20/2012** RunNo: **3709**
Client ID: **021412-12.6** Batch ID: **2087** Analysis Date: **3/21/2012** SeqNo: **66504**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	5.15						0	0	30	H
Aromatic Hydrocarbon (C10-C12)	6.84	5.15						0.8051	158	30	RH
Aromatic Hydrocarbon (C12-C16)	96.1	5.15						36.54	89.8	30	RH
Aromatic Hydrocarbon (C16-C21)	330	5.15						204.0	47.2	30	REH
Aromatic Hydrocarbon (C21-C34)	36.2	5.15						25.35	35.3	30	RH
Surr: o-Terphenyl	4.30		4.121		104	65	140		0		H

Sample ID: **MB-2087** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/20/2012** RunNo: **3709**
Client ID: **MBLKS** Batch ID: **2087** Analysis Date: **3/21/2012** SeqNo: **66510**

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									

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-2087**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/20/2012**	RunNo: **3709**
Client ID: **MBLKS**	Batch ID: **2087**		Analysis Date: **3/21/2012**	SeqNo: **66510**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C12-C16)	ND	5.00									
Aliphatic Hydrocarbon (C16-C21)	ND	5.00									
Aliphatic Hydrocarbon (C21-C34)	ND	5.00									
Surr: 1-Chlorooctadecane	38.8		40.00		97.0	65	140				

Sample ID: **MB-2087**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/20/2012**	RunNo: **3709**
Client ID: **MBLKS**	Batch ID: **2087**		Analysis Date: **3/21/2012**	SeqNo: **66511**

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	37.9		40.00		94.8	65	140				

Sample ID: **LCS-2087**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **3/20/2012**	RunNo: **3709**
Client ID: **LCSS**	Batch ID: **2087**		Analysis Date: **3/21/2012**	SeqNo: **66512**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	41.4	5.00	40.00	0	104	70	130				
Aliphatic Hydrocarbon (C10-C12)	14.2	5.00	20.00	0	71.1	70	130				
Aliphatic Hydrocarbon (C12-C16)	14.1	5.00	20.00	0	70.5	70	130				
Aliphatic Hydrocarbon (C16-C21)	15.4	5.00	20.00	0	77.1	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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCS-2087**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **3/20/2012**		RunNo: **3709**			
Client ID: **LCSS**	Batch ID: **2087**					Analysis Date: **3/21/2012**		SeqNo: **66512**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C21-C34)	15.5	5.00	20.00	0	77.5	70	130				
Surr: 1-Chlorooctadecane	33.0		40.00		82.4	65	140				

Sample ID: **LCS-2087**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **3/20/2012**		RunNo: **3709**			
Client ID: **LCSS**	Batch ID: **2087**					Analysis Date: **3/21/2012**		SeqNo: **66513**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	29.1	5.00	40.00	0	72.6	70	130				
Aromatic Hydrocarbon (C10-C12)	15.7	5.00	20.00	0	78.6	70	130				
Aromatic Hydrocarbon (C12-C16)	14.3	5.00	20.00	0	71.5	70	130				
Aromatic Hydrocarbon (C16-C21)	21.6	5.00	20.00	0	108	70	130				
Aromatic Hydrocarbon (C21-C34)	16.2	5.00	20.00	0	80.9	70	130				
Surr: o-Terphenyl	35.9		40.00		89.7	65	140				

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

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: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1202091-001BDUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **2/16/2012**	RunNo: **3396**
Client ID: **021412-01.7**	Batch ID: **1903**		Analysis Date: **2/16/2012**	SeqNo: **60199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	70.7						0	0	30	
Chrysene	ND	70.7						0	0	30	R
Benzo(b)fluoranthene	ND	70.7						0	0	30	
Benzo(k)fluoranthene	ND	70.7						0	0	30	
Benzo(a)pyrene	ND	70.7						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	70.7						0	0	30	
Dibenz(a,h)anthracene	ND	70.7						0	0	30	R
Surr: 2-Fluorobiphenyl	934		707.4		132	53.5	148		0		
Surr: Terphenyl-d14 (surr)	881		707.4		125	67.2	149		0		

Sample ID: **1202091-001BMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **2/16/2012**	RunNo: **3396**
Client ID: **021412-01.7**	Batch ID: **1903**		Analysis Date: **2/16/2012**	SeqNo: **60200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1,960	67.7	676.8	1,389	84.6	50.6	126				
Pyrene	726	67.7	676.8	169.4	82.3	50.4	139				
Surr: 2-Fluorobiphenyl	890		676.8		131	53.5	148				
Surr: Terphenyl-d14 (surr)	808		676.8		119	67.2	149				

Sample ID: **MB-1903**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **2/16/2012**	RunNo: **3396**
Client ID: **MBLKS**	Batch ID: **1903**		Analysis Date: **2/16/2012**	SeqNo: **60208**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-1903**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **2/16/2012**	RunNo: **3396**
Client ID: **MBLKS**	Batch ID: **1903**		Analysis Date: **2/16/2012**	SeqNo: **60208**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	553		500.0		111	53.5	148				
Surr: Terphenyl-d14 (surr)	526		500.0		105	67.2	149				

Sample ID: **LCS-1903**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **2/16/2012**	RunNo: **3396**
Client ID: **LCSS**	Batch ID: **1903**		Analysis Date: **2/16/2012**	SeqNo: **60209**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	419	50.0	500.0	0	83.8	50.4	130				
Pyrene	402	50.0	500.0	0	80.4	50.3	141				B
Surr: 2-Fluorobiphenyl	542		500.0		108	53.5	148				
Surr: Terphenyl-d14 (surr)	566		500.0		113	67.2	149				

Sample ID: **1202120-003AMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **2/27/2012**	RunNo: **3508**
Client ID: **BATCH**	Batch ID: **1948**		Analysis Date: **3/1/2012**	SeqNo: **62192**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	578	61.5	614.7	0	94.0	50.6	126				
Pyrene	666	61.5	614.7	0	108	50.4	139				

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1202120-003AMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **2/27/2012**	RunNo: **3508**
Client ID: **BATCH**	Batch ID: **1948**		Analysis Date: **3/1/2012**	SeqNo: **62192**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	501		614.7		81.5	53.5	148				
Surr: Terphenyl-d14 (surr)	664		614.7		108	67.2	149				

Sample ID: **1202120-003AMSD**	SampType: **MSD**	Units: **µg/Kg-dry**	Prep Date: **2/27/2012**	RunNo: **3508**
Client ID: **BATCH**	Batch ID: **1948**		Analysis Date: **3/1/2012**	SeqNo: **62193**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	552	64.9	649.1	0	85.1	50.6	126	577.8	4.53	30	
Pyrene	715	64.9	649.1	0	110	50.4	139	666.4	7.04	30	
Surr: 2-Fluorobiphenyl	574		649.1		88.4	53.5	148		0		
Surr: Terphenyl-d14 (surr)	785		649.1		121	67.2	149		0		

Sample ID: **LCS-1948**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **2/27/2012**	RunNo: **3508**
Client ID: **LCSS**	Batch ID: **1948**		Analysis Date: **3/1/2012**	SeqNo: **62199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	451	50.0	500.0	0	90.3	50.4	130				
Pyrene	490	50.0	500.0	0	97.9	50.3	141				
Surr: 2-Fluorobiphenyl	424		500.0		84.8	53.5	148				
Surr: Terphenyl-d14 (surr)	500		500.0		100	67.2	149				

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: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-1948** SampType: **MBLK** Units: **µg/Kg** Prep Date: **2/27/2012** RunNo: **3508**
Client ID: **MBLKS** Batch ID: **1948** Analysis Date: **3/1/2012** SeqNo: **62200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Surr: 2-Fluorobiphenyl	434		500.0		86.8	53.5	148				
Surr: Terphenyl-d14 (surr)	478		500.0		95.7	67.2	149				

Sample ID: **1202091-038BDUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **2/27/2012** RunNo: **3508**
Client ID: **021512-32.1** Batch ID: **1948** Analysis Date: **3/1/2012** SeqNo: **62251**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	65.2						0	0	30	R
Chrysene	ND	65.2						0	0	30	
Benzo(b)fluoranthene	ND	65.2						0	0	30	
Benzo(k)fluoranthene	ND	65.2						0	0	30	R
Benzo(a)pyrene	ND	65.2						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	65.2						0	0	30	
Dibenz(a,h)anthracene	ND	65.2						0	0	30	
Surr: 2-Fluorobiphenyl	441		651.5		67.7	53.5	148		0		
Surr: Terphenyl-d14 (surr)	603		651.5		92.6	67.2	149		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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1203014-006BDUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **3/12/2012** RunNo: **3623**
Client ID: **BATCH** Batch ID: **2039** Analysis Date: **3/13/2012** SeqNo: **65105**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	214	56.4						227.6	6.32	30	
2-Methylnaphthalene	471	56.4						451.3	4.36	30	
1-Methylnaphthalene	650	56.4						688.8	5.74	30	
Acenaphthylene	ND	56.4						0	0	30	
Acenaphthene	ND	56.4						0	0	30	
Fluorene	ND	56.4						0	0	30	
Phenanthrene	ND	56.4						0	0	30	R
Anthracene	ND	56.4						0	0	30	
Fluoranthene	ND	56.4						0	0	30	R
Pyrene	ND	56.4						0	0	30	
Benz(a)anthracene	ND	56.4						0	0	30	
Chrysene	ND	56.4						0	0	30	
Benzo(b)fluoranthene	ND	56.4						56.89	200	30	R
Benzo(k)fluoranthene	ND	56.4						0	0	30	
Benzo(a)pyrene	ND	56.4						0	0	30	R
Indeno(1,2,3-cd)pyrene	ND	56.4						60.72	200	30	R
Dibenz(a,h)anthracene	ND	56.4						0	0	30	R
Benzo(g,h,i)perylene	ND	56.4						73.37	200	30	R
Surr: 2-Fluorobiphenyl	556		564.0		98.6	53.5	148		0		
Surr: Terphenyl-d14 (surr)	656		564.0		116	67.2	149		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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1203014-006BMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **3/12/2012** RunNo: **3623**
Client ID: **BATCH** Batch ID: **2039** Analysis Date: **3/13/2012** SeqNo: **65106**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	541	60.2	602.2	0	89.8	50.6	126				
Pyrene	769	60.2	602.2	49.07	119	50.4	139				
Surr: 2-Fluorobiphenyl	601		602.2		99.8	53.5	148				
Surr: Terphenyl-d14 (surr)	689		602.2		114	67.2	149				

Sample ID: **CCV-2039** SampType: **CCV** Units: **µg/Kg** Prep Date: **3/12/2012** RunNo: **3623**
Client ID: **CCV** Batch ID: **2039** Analysis Date: **3/12/2012** SeqNo: **65107**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	922	50.0	1,000	0	92.2	80	120				
2-Methylnaphthalene	925	50.0	1,000	0	92.5	80	120				
1-Methylnaphthalene	929	50.0	1,000	0	92.9	80	120				
Acenaphthylene	931	50.0	1,000	0	93.1	80	120				
Acenaphthene	925	50.0	1,000	0	92.5	80	120				
Fluorene	872	50.0	1,000	0	87.2	80	120				
Phenanthrene	934	50.0	1,000	0	93.4	80	120				
Anthracene	932	50.0	1,000	0	93.2	80	120				
Fluoranthene	937	50.0	1,000	0	93.7	80	120				
Pyrene	956	50.0	1,000	0	95.6	80	120				
Benz(a)anthracene	1,100	50.0	1,000	0	110	80	120				
Chrysene	976	50.0	1,000	0	97.6	80	120				
Benzo(b)fluoranthene	993	50.0	1,000	0	99.3	80	120				
Benzo(k)fluoranthene	943	50.0	1,000	0	94.3	80	120				
Benzo(a)pyrene	1,030	50.0	1,000	0	103	80	120				
Indeno(1,2,3-cd)pyrene	1,010	50.0	1,000	0	101	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

Fremont Analytical

Date: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **CCV-2039**	SampType: **CCV**	Units: **µg/Kg**	Prep Date: **3/12/2012**	RunNo: **3623**
Client ID: **CCV**	Batch ID: **2039**		Analysis Date: **3/12/2012**	SeqNo: **65107**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	1,020	50.0	1,000	0	102	80	120				
Benzo(g,h,i)perylene	980	50.0	1,000	0	98.0	80	120				
Surr: 2-Fluorobiphenyl	489		500.0		97.7	53.5	148				
Surr: Terphenyl-d14 (surr)	493		500.0		98.6	67.2	149				

Sample ID: **LCS-2039**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **3/12/2012**	RunNo: **3623**
Client ID: **LCSS**	Batch ID: **2039**		Analysis Date: **3/13/2012**	SeqNo: **65109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	425	50.0	500.0	0	84.9	50.4	130				
Pyrene	445	50.0	500.0	0	88.9	50.3	141				
Surr: 2-Fluorobiphenyl	470		500.0		94.1	53.5	148				
Surr: Terphenyl-d14 (surr)	553		500.0		111	67.2	149				

Sample ID: **MB-2039**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **3/12/2012**	RunNo: **3623**
Client ID: **MBLKS**	Batch ID: **2039**		Analysis Date: **3/13/2012**	SeqNo: **65111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-2039**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **3/12/2012**	RunNo: **3623**	
Client ID: **MBLKS**	Batch ID: **2039**		Analysis Date: **3/13/2012**	SeqNo: **65111**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	476		500.0		95.2	53.5	148				
Surr: Terphenyl-d14 (surr)	571		500.0		114	67.2	149				

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8082

Sample ID: **LCS-1957**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/28/2012**	RunNo: **3510**
Client ID: **LCSS**	Batch ID: **1957**		Analysis Date: **2/28/2012**	SeqNo: **62226**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1254	1.07	0.100	1.000	0	107	70.7	118				
Surr: Decachlorobiphenyl	58.4		50.00		117	66.1	145				
Surr: Tetrachloro-m-xylene	47.6		50.00		95.1	67.2	132				

Sample ID: **MB-1957**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/28/2012**	RunNo: **3510**
Client ID: **MBLKS**	Batch ID: **1957**		Analysis Date: **2/28/2012**	SeqNo: **62227**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.100									
Aroclor 1221	ND	0.100									
Aroclor 1232	ND	0.100									
Aroclor 1242	ND	0.100									
Aroclor 1248	ND	0.100									
Aroclor 1254	ND	0.100									
Aroclor 1260	ND	0.100									
Aroclor 1262	ND	0.100									
Aroclor 1268	ND	0.100									
Total PCBs	ND	0.100									
Surr: Decachlorobiphenyl	61.6		50.00		123	66.1	145				
Surr: Tetrachloro-m-xylene	43.5		50.00		87.0	67.2	132				

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: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8082

Sample ID: **1202091-045BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3510**
Client ID: **021512-39.1** Batch ID: **1957** Analysis Date: **2/28/2012** SeqNo: **62232**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.114						0	0	30	
Aroclor 1221	ND	0.114						0	0	30	
Aroclor 1232	ND	0.114						0	0	30	
Aroclor 1242	ND	0.114						0	0	30	
Aroclor 1248	ND	0.114						0	0	30	
Aroclor 1254	ND	0.114						0	0	30	
Aroclor 1260	ND	0.114						0	0	30	
Aroclor 1262	ND	0.114						0	0	30	
Aroclor 1268	ND	0.114						0	0	30	
Total PCBs	ND	0.114						0	0	30	
Surr: Decachlorobiphenyl	47.3		56.85		83.3	66.1	145		0		
Surr: Tetrachloro-m-xylene	48.9		56.85		86.1	67.2	132		0		

Sample ID: **1202121-098AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3510**
Client ID: **BATCH** Batch ID: **1957** Analysis Date: **2/29/2012** SeqNo: **62245**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1254	1.00	0.101	1.015	0.05700	93.2	70.7	118				
Surr: Decachlorobiphenyl	38.1		50.73		75.1	66.1	145				
Surr: Tetrachloro-m-xylene	44.1		50.73		86.9	67.2	132				

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: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8082

Sample ID: **1202121-098AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3510**
Client ID: **BATCH** Batch ID: **1957** Analysis Date: **2/29/2012** SeqNo: **62246**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1254	0.873	0.104	1.040	0.05700	78.5	70.7	118	1.003	13.9	30	
Surr: Decachlorobiphenyl	39.3		51.98		75.6	66.1	145		0		
Surr: Tetrachloro-m-xylene	45.3		51.98		87.1	67.2	132		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

Fremont Analytical

Date: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-R3385**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/15/2012**	RunNo: **3385**
Client ID: **MBLKS**	Batch ID: **R3385**		Analysis Date: **2/15/2012**	SeqNo: **59988**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Gasoline Range Organics C6-C12	ND	5.00									
Surr: 1,2-Dichloroethane-d4	0.590		0.5000		118	65	135				
Surr: Fluorobenzene	0.530		0.5000		106	65	135				

Sample ID: **LCS-R3385**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/15/2012**	RunNo: **3385**
Client ID: **LCSS**	Batch ID: **R3385**		Analysis Date: **2/15/2012**	SeqNo: **59989**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	25.0	5.00	25.00	0	100	65	135				
Surr: 1,2-Dichloroethane-d4	0.593		0.5000		119	65	135				
Surr: Fluorobenzene	0.540		0.5000		108	65	135				

Sample ID: **1202091-015ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/15/2012**	RunNo: **3385**
Client ID: **021412-15.6**	Batch ID: **R3385**		Analysis Date: **2/15/2012**	SeqNo: **60379**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	3.70						0	0	30	
Surr: 1,2-Dichloroethane-d4	0.418		0.3702		113	65	135		0		
Surr: Fluorobenzene	0.385		0.3702		104	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

Fremont Analytical

Date: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-R3513**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/25/2012**	RunNo: **3513**
Client ID: **MBLKS**	Batch ID: **R3513**		Analysis Date: **2/25/2012**	SeqNo: **62303**

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	0.538		0.5000		108	65	135				
Surr: Fluorobenzene	0.564		0.5000		113	65	135				

Sample ID: **LCS-R3513**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/25/2012**	RunNo: **3513**
Client ID: **LCSS**	Batch ID: **R3513**		Analysis Date: **2/25/2012**	SeqNo: **62304**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	22.9	5.00	25.00	0	91.6	65	135				
Surr: 1,2-Dichloroethane-d4	0.550		0.5000		110	65	135				
Surr: Fluorobenzene	0.566		0.5000		113	65	135				

Sample ID: **1202091-012ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/25/2012**	RunNo: **3513**
Client ID: **021412-12.6**	Batch ID: **R3513**		Analysis Date: **2/25/2012**	SeqNo: **62307**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	3.73						0	0	30	
Gasoline Range Organics C6-C12	160	3.73						157.8	1.35	30	
Surr: 1,2-Dichloroethane-d4	0.388		0.3726		104	65	135		0		
Surr: Fluorobenzene	0.404		0.3726		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

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-R3516**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/27/2012**	RunNo: **3516**
Client ID: **MBLKS**	Batch ID: **R3516**		Analysis Date: **2/27/2012**	SeqNo: **62354**

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	0.608		0.5000		122	65	135				
Surr: Fluorobenzene	0.532		0.5000		106	65	135				

Sample ID: **LCS-R3516**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/27/2012**	RunNo: **3516**
Client ID: **LCSS**	Batch ID: **R3516**		Analysis Date: **2/27/2012**	SeqNo: **62355**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	22.4	5.00	25.00	0	89.4	65	135				
Surr: 1,2-Dichloroethane-d4	0.618		0.5000		124	65	135				
Surr: Fluorobenzene	0.548		0.5000		110	65	135				

Sample ID: **1202091-049ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/27/2012**	RunNo: **3516**
Client ID: **021512-43.0.5**	Batch ID: **R3516**		Analysis Date: **2/27/2012**	SeqNo: **62366**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.42						0	0	30	
Surr: 1,2-Dichloroethane-d4	0.509		0.4420		115	65	135		0		
Surr: Fluorobenzene	0.488		0.4420		110	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

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-R3643**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/13/2012**	RunNo: **3643**
Client ID: **MBLKS**	Batch ID: **2043**		Analysis Date: **3/14/2012**	SeqNo: **65402**

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	0.499		0.5000		99.7	65	135				
Surr: Fluorobenzene	0.513		0.5000		103	65	135				

Sample ID: **LCS-R3643**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **3/13/2012**	RunNo: **3643**
Client ID: **LCSS**	Batch ID: **2043**		Analysis Date: **3/14/2012**	SeqNo: **65403**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	51.7	5.00	50.00	0	103	65	135				
Surr: 1,2-Dichloroethane-d4	0.499		0.5000		99.7	65	135				
Surr: Fluorobenzene	0.526		0.5000		105	65	135				

Sample ID: **1202091-052ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **3/13/2012**	RunNo: **3643**
Client ID: **021512-46.5**	Batch ID: **2043**		Analysis Date: **3/14/2012**	SeqNo: **65409**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	3.74						0	0	30	H
Surr: 1,2-Dichloroethane-d4	0.359		0.3743		96.0	65	135		0		H
Surr: Fluorobenzene	0.375		0.3743		100	65	135		0		H

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1898**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/15/2012**	RunNo: **3386**
Client ID: **MBLKS**	Batch ID: **1898**		Analysis Date: **2/15/2012**	SeqNo: **59998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0200									
Toluene	ND	0.0200									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Surr: 1-Bromo-4-fluorobenzene	0.511		0.5000		102	63.1	141				
Surr: Dibromofluoromethane	0.501		0.5000		100	67.6	119				
Surr: Toluene-d8	0.550		0.5000		110	78.5	126				

Sample ID: **LCS-1898**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/15/2012**	RunNo: **3386**
Client ID: **LCSS**	Batch ID: **1898**		Analysis Date: **2/15/2012**	SeqNo: **59999**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.524	0.0200	0.5000	0	105	69.1	133				
Toluene	0.582	0.0200	0.5000	0	116	65.9	134				
Surr: 1-Bromo-4-fluorobenzene	0.496		0.5000		99.2	63.1	141				
Surr: Dibromofluoromethane	0.511		0.5000		102	67.6	119				
Surr: Toluene-d8	0.574		0.5000		115	78.5	126				

Sample ID: **1202088-007AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **2/15/2012**	RunNo: **3386**
Client ID: **BATCH**	Batch ID: **1898**		Analysis Date: **2/15/2012**	SeqNo: **60005**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.612	0.0232	0.5804	0	105	67.3	125				

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202088-007AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/15/2012** RunNo: **3386**
Client ID: **BATCH** Batch ID: **1898** Analysis Date: **2/15/2012** SeqNo: **60005**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	0.701	0.0232	0.5804	0	121	56.2	138				
Surr: 1-Bromo-4-fluorobenzene	0.579		0.5804		99.7	63.1	141				
Surr: Dibromofluoromethane	0.566		0.5804		97.5	67.6	119				
Surr: Toluene-d8	0.640		0.5804		110	78.5	126				

Sample ID: **1202091-015ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/15/2012** RunNo: **3386**
Client ID: **021412-15.6** Batch ID: **1898** Analysis Date: **2/15/2012** SeqNo: **60375**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0148						0	0	30	
Toluene	ND	0.0148						0	0	30	
Ethylbenzene	ND	0.0222						0	0	30	
m,p-Xylene	ND	0.0148						0	0	30	
o-Xylene	ND	0.0148						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	0.337		0.3702		91.0	63.1	141		0		
Surr: Dibromofluoromethane	0.369		0.3702		99.7	67.6	119		0		
Surr: Toluene-d8	0.409		0.3702		110	78.5	126		0		

Sample ID: **MB-1950** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/25/2012** RunNo: **3512**
Client ID: **MBLKS** Batch ID: **1950** Analysis Date: **2/25/2012** SeqNo: **62289**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethyl tert-Butyl ether (ETBE)	ND	0.0500									
tert-Amyl Methyl Ether (TAME)	ND	0.0500									

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1950** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/25/2012** RunNo: **3512**
Client ID: **MBLKS** Batch ID: **1950** Analysis Date: **2/25/2012** SeqNo: **62289**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tert-butyl alcohol	ND	0.250									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,2-Dichloroethane	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									
Naphthalene	ND	0.0300									
Surr: 1-Bromo-4-fluorobenzene	0.472		0.5000		94.4	63.1	141				
Surr: Dibromofluoromethane	0.482		0.5000		96.4	67.6	119				
Surr: Toluene-d8	0.510		0.5000		102	78.5	126				

Sample ID: **LCS-1950** SampType: **LCS** Units: **mg/Kg** Prep Date: **2/25/2012** RunNo: **3512**
Client ID: **LCSS** Batch ID: **1950** Analysis Date: **2/25/2012** SeqNo: **62290**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.464	0.0200	0.5000	0	92.7	69.1	133				
Toluene	0.468	0.0200	0.5000	0	93.6	65.9	134				
Surr: 1-Bromo-4-fluorobenzene	0.497		0.5000		99.4	63.1	141				
Surr: Dibromofluoromethane	0.471		0.5000		94.1	67.6	119				
Surr: Toluene-d8	0.506		0.5000		101	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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202091-012ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/25/2012** RunNo: **3512**
Client ID: **021412-12.6** Batch ID: **1950** Analysis Date: **2/25/2012** SeqNo: **62293**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethyl tert-Butyl ether (ETBE)	ND	0.0373						0	0	0	
tert-Amyl Methyl Ether (TAME)	ND	0.0373						0	0	0	
Tert-butyl alcohol	ND	0.186						0	0	0	
Methyl tert-butyl ether (MTBE)	ND	0.0373						0	0	30	
1,2-Dichloroethane	ND	0.0224						0	0	30	
Benzene	ND	0.0149						0	0	30	
Toluene	ND	0.0149						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00373						0	0	30	
Ethylbenzene	ND	0.0224						0	0	30	
m,p-Xylene	ND	0.0149						0	0	30	
o-Xylene	ND	0.0149						0	0	30	
Naphthalene	0.474	0.0224						0.4393	7.67	30	
Surr: 1-Bromo-4-fluorobenzene	0.394		0.3726		106	63.1	141		0		
Surr: Dibromofluoromethane	0.358		0.3726		96.0	67.6	119		0		
Surr: Toluene-d8	0.398		0.3726		107	78.5	126		0		

Sample ID: **1202091-041AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/25/2012** RunNo: **3512**
Client ID: **021512-35.1** Batch ID: **1950** Analysis Date: **2/26/2012** SeqNo: **62296**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.620	0.0253	0.6331	0	98.0	67.3	125				
Toluene	0.669	0.0253	0.6331	0	106	56.2	138				
Surr: 1-Bromo-4-fluorobenzene	0.579		0.6331		91.4	63.1	141				
Surr: Dibromofluoromethane	0.588		0.6331		92.8	67.6	119				
Surr: Toluene-d8	0.663		0.6331		105	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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1978** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/27/2012** RunNo: **3515**
Client ID: **MBLKS** Batch ID: **1978** Analysis Date: **2/27/2012** SeqNo: **62324**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethyl tert-Butyl ether (ETBE)	ND	0.0500									
tert-Amyl Methyl Ether (TAME)	ND	0.0500									
Tert-butyl alcohol	ND	0.0250									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,2-Dichloroethane	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									
Naphthalene	ND	0.0300									
Surr: 1-Bromo-4-fluorobenzene	0.466		0.5000		93.3	63.1	141				
Surr: Dibromofluoromethane	0.483		0.5000		96.6	67.6	119				
Surr: Toluene-d8	0.506		0.5000		101	78.5	126				

Sample ID: **LCS-1978** SampType: **LCS** Units: **mg/Kg** Prep Date: **2/27/2012** RunNo: **3515**
Client ID: **LCSS** Batch ID: **1978** Analysis Date: **2/27/2012** SeqNo: **62325**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.434	0.0200	0.5000	0	86.9	69.1	133				
Toluene	0.430	0.0200	0.5000	0	86.1	65.9	134				
Surr: 1-Bromo-4-fluorobenzene	0.474		0.5000		94.8	63.1	141				
Surr: Dibromofluoromethane	0.477		0.5000		95.4	67.6	119				
Surr: Toluene-d8	0.492		0.5000		98.3	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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202091-049ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/27/2012** RunNo: **3515**
Client ID: **021512-43.0.5** Batch ID: **1978** Analysis Date: **2/27/2012** SeqNo: **62336**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0442						0	0	30	
1,2-Dichloroethane	ND	0.0265						0	0	30	
Benzene	ND	0.0177						0	0	30	
Toluene	ND	0.0177						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00442						0	0	30	
Ethylbenzene	ND	0.0265						0	0	30	
m,p-Xylene	ND	0.0177						0	0	30	
o-Xylene	ND	0.0177						0	0	30	
Naphthalene	ND	0.0265						0	0	30	R
Surr: 1-Bromo-4-fluorobenzene	0.409		0.4420		92.5	63.1	141		0		
Surr: Dibromofluoromethane	0.405		0.4420		91.6	67.6	119		0		
Surr: Toluene-d8	0.454		0.4420		103	78.5	126		0		

Sample ID: **1202091-050AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/27/2012** RunNo: **3515**
Client ID: **021512-44.0.5** Batch ID: **1978** Analysis Date: **2/27/2012** SeqNo: **62337**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.394	0.0180	0.4508	0	87.5	67.3	125				
Toluene	0.396	0.0180	0.4508	0	87.8	56.2	138				
Surr: 1-Bromo-4-fluorobenzene	0.407		0.4508		90.2	63.1	141				
Surr: Dibromofluoromethane	0.413		0.4508		91.7	67.6	119				
Surr: Toluene-d8	0.458		0.4508		101	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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202091-014AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3649**
Client ID: **021412-14.7** Batch ID: **2043** Analysis Date: **3/14/2012** SeqNo: **65463**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.507	0.0203	0.5075	0	100	67.3	125				H
Toluene	0.486	0.0203	0.5075	0	95.7	56.2	138				H
Surr: 1-Bromo-4-fluorobenzene	0.501		0.5075		98.8	63.1	141				H
Surr: Dibromofluoromethane	0.492		0.5075		96.9	67.6	119				H
Surr: Toluene-d8	0.510		0.5075		100	78.5	126				H

Sample ID: **1202091-052ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3649**
Client ID: **021512-46.5** Batch ID: **2043** Analysis Date: **3/14/2012** SeqNo: **65468**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethyl tert-Butyl ether (ETBE)	ND	0.0374						0	0	30	H
tert-Amyl Methyl Ether (TAME)	ND	0.0374						0	0	30	H
Tert-butyl alcohol	ND	0.0187						0	0	30	H
Methyl tert-butyl ether (MTBE)	ND	0.0374						0	0	30	H
1,2-Dichloroethane	ND	0.0225						0	0	30	H
Benzene	ND	0.0150						0	0	30	H
Toluene	ND	0.0150						0	0	30	H
1,2-Dibromoethane (EDB)	ND	0.00374						0	0	30	H
Ethylbenzene	ND	0.0225						0	0	30	H
m,p-Xylene	ND	0.0150						0	0	30	H
o-Xylene	ND	0.0150						0	0	30	H
Naphthalene	ND	0.0225						0	0	30	H
Surr: 1-Bromo-4-fluorobenzene	0.375		0.3743		100	63.1	141		0		H
Surr: Dibromofluoromethane	0.351		0.3743		93.7	67.6	119		0		H
Surr: Toluene-d8	0.369		0.3743		98.6	78.5	126		0		H

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: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-2043** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/13/2012** RunNo: **3649**
Client ID: **MBLKS** Batch ID: **2043** Analysis Date: **3/14/2012** SeqNo: **65470**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethyl tert-Butyl ether (ETBE)	ND	0.0500									
tert-Amyl Methyl Ether (TAME)	ND	0.0500									
Tert-butyl alcohol	ND	0.0250									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,2-Dichloroethane	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									
Naphthalene	ND	0.0300									
Surr: 1-Bromo-4-fluorobenzene	0.498		0.5000		99.6	63.1	141				
Surr: Dibromofluoromethane	0.472		0.5000		94.5	67.6	119				
Surr: Toluene-d8	0.486		0.5000		97.1	78.5	126				

Sample ID: **LCS-2043** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/13/2012** RunNo: **3649**
Client ID: **LCSS** Batch ID: **2043** Analysis Date: **3/14/2012** SeqNo: **65471**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.521	0.0200	0.5000	0	104	69.1	133				
Toluene	0.485	0.0200	0.5000	0	97.0	65.9	134				
Surr: 1-Bromo-4-fluorobenzene	0.500		0.5000		99.9	63.1	141				
Surr: Dibromofluoromethane	0.467		0.5000		93.4	67.6	119				
Surr: Toluene-d8	0.479		0.5000		95.7	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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

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: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **MB-2054**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/13/2012**	RunNo: **3651**
Client ID: **MBLKS**	Batch ID: **2054**		Analysis Date: **3/14/2012**	SeqNo: **65488**

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: Bromoflourobeneze	0.583		0.5000		117	65	140				
Surr: Trifluorotoluene	0.425		0.5000		84.9	65	140				

Sample ID: **LCS-2054**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **3/13/2012**	RunNo: **3651**
Client ID: **LCSS**	Batch ID: **2054**		Analysis Date: **3/14/2012**	SeqNo: **65489**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	17.9	0.500	20.00	0	89.6	70	130				
Aliphatic Hydrocarbon (C6-C8)	8.44	0.500	10.00	0	84.4	70	130				
Aliphatic Hydrocarbon (C8-C10)	9.58	0.500	10.00	0	95.8	70	130				
Aliphatic Hydrocarbon (C10-C12)	10.8	0.500	10.00	0	108	70	130				
Aromatic Hydrocarbon (C8-C10)	49.8	0.500	50.00	0	99.6	70	130				
Aromatic Hydrocarbon (C10-C12)	9.93	0.500	10.00	0	99.3	70	130				
Aromatic Hydrocarbon (C12-C13)	9.90	0.500	10.00	0	99.0	70	130				
Surr: Bromoflourobeneze	0.528		0.5000		106	65	140				
Surr: Trifluorotoluene	0.519		0.5000		104	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

Fremont Analytical

Date: *3/21/2012*

Work Order: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1202091-012ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3651**
Client ID: **021412-12.6** Batch ID: **2054** Analysis Date: **3/14/2012** SeqNo: **65501**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	0.373		0	0			0	0	25	H
Aliphatic Hydrocarbon (C6-C8)	ND	0.373		0	0			0	0	25	H
Aliphatic Hydrocarbon (C8-C10)	ND	0.373		0	0			0	0	25	RH
Aliphatic Hydrocarbon (C10-C12)	2.78	0.373		0	0			3.127	11.8	25	H
Aromatic Hydrocarbon (C8-C10)	3.26	0.373		0	0			3.513	7.32	25	H
Aromatic Hydrocarbon (C10-C12)	55.7	0.373		0	0			56.37	1.24	25	H
Aromatic Hydrocarbon (C12-C13)	108	0.373		0	0			112.6	4.26	25	H
Surr: Bromoflourobeneze	0.422		0.3726		113	65	140		0		H
Surr: Trifluorotoluene	0.400		0.3726		107	65	140		0		H

Sample ID: **1202091-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3651**
Client ID: **021412-01.7** Batch ID: **2054** Analysis Date: **3/14/2012** SeqNo: **66204**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	20.8	0.584	23.34	0	89.0	70	130				H
Aliphatic Hydrocarbon (C6-C8)	10.7	0.584	11.67	0.2209	89.6	70	130				H
Aliphatic Hydrocarbon (C8-C10)	14.4	0.584	11.67	0.1325	122	70	130				H
Aliphatic Hydrocarbon (C10-C12)	18.3	0.584	11.67	2.980	131	70	130				SH
Aromatic Hydrocarbon (C8-C10)	64.7	0.584	58.35	3.486	105	70	130				H
Aromatic Hydrocarbon (C10-C12)	64.1	0.584	11.67	58.73	45.8	70	130				SH
Aromatic Hydrocarbon (C12-C13)	133	0.584	11.67	128.6	39.8	70	130				SH
Surr: Bromoflourobeneze	0.603		0.5835		103	65	140				H
Surr: Trifluorotoluene	0.629		0.5835		108	65	140				H

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).

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: 1202091
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

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: **1202091**
Logged by: **Troy Zehr**	Date Received: **2/15/2012 9:40:00 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

Sample 26.4 was broken when received. The jar was in a ziploc bag with several other jars.

Item Information

Item #	Temp ºC	Condition
Cooler 1	3.5	Good
Cooler 2	4.9	Good
Cooler 3	8.6	Good
Cooler 4	2.7	Good
Cooler 5	3.3	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): 1202091

Date: 02/14/2012 Page: 01 of: 03

Client: Fulcrum Environmental
Address: 406 N. 2nd st.
City, State, Zip: Yakima, WA, 98901 Tel: 509.574.0839
Reports To (PM): Jeremy Lynn Fax: 509.575.8453 Email: jlynn@efulcrum.net

Project Name: Mtn. View Brownfield
Location: Ellensburg, WA
Collected by: Peter Snider / Jeremy Lynn
Project No: 1150.01

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 827D - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020) (200.8) Pb	Total (T)	Dissolved (D)	Anions (IC)**	Carcinogenic PAH	NWTPH-Dx Ext	NWTPHGx	Comments/Depth
1	021412-01.7	02/14/12	0840	Soil										X		X				X	X	X	
2	021412-02.7		0910											X		X				X	X	X	
3	021412-03.6		0930																				Hold
4	021412-04.3		0943																				
5	021412-05.3		1000																				
6	021412-06.3		1020																				
7	021412-07.6		1106											X		X				X	X	X	
8	021412-08.3		1108																				Hold
9	021412-09.6		1124																				
10	021412-10.3		1128																				

*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: Please extract all samples

Relinquished	Date/Time	Received	Date/Time
x	02/14/2012 1700	x Trey Zeh	2/15/12 9:40
x		x	

TAT --> Next Day 2 Day 3 Day (STD)

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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): _____

Date: 02/14/2012 Page: 02 of: 03

Client: Fulcrum Environmental
Address: 406 N. 2nd st.
City, State, Zip: Yakima, WA, 98901 Tel: 509.574.0839

Project Name: Mtn. View Brownfield
Location: Ellensburg, WA
Collected by: Peter Snider / Jeremy Lynn

Reports To (PM): Jeremy Lynn Fax: 509.575.8453 Email: jlynn@fulcrum.net

Project No: 115T0.01

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/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)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020) 200.8 Pb	Total (T) \ Dissolved (D)	Anions (IC)**	Carcinogenic PAH	NWTPH-DxExt	NWTPH-Gx	Comments/Depth
1	021412-11.3	02/14/12	1135	soil																		Hold
2	021412-12.6		1250																			
3	021412-13.3		1255																			
4	021412-14.7		1350																			
5	021412-15.6		1400				X								X				X		X	
6	021412-16.1		1405																			Hold
7	021412-17.3		1406																			
8	021412-18.3		1430																			
9	021412-19.1.5		1435																			
10	021412-20.3		1450																			

*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]	2/15/12 9:40
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Chain of Custody Record

Fremont Analytical

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 02/14/2012 Page: 03 of: 03

Client: Fulcrum Environmental
Address: 406 N. 2nd st.
City, State, Zip: Yakima, WA, 98901 Tel: 509.574.0834
Reports To (PM): Jeremy Lynn Fax: 509.575.8453 Email: jlynn@fulcrum.net

Project Name: Mtn. View Brownfield
Location: Ellensburg, WA
Collected by: Peter Snider / Jeremy Lynn
Project No: 115TO.01

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/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)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)**	Comments/Depth
1	021412-21.1	02/14/12	1457	Soil															Hold
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]	2/15/12 9:40
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont Analytical

Chain of Custody Record

1202091
~~1202100~~

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal):

Date: 2/15/2012

Page: 1 of: 4

Client: Fulcrum Enviro. Cons.
Address: 406 N. 2nd street
City, State, Zip Yakima, WA 98901 Tel: 509.574.0839
Reports To (PM): J. Lynn Fax: 509.575.8453 Email: JLynn@eFulcrum.net

Project Name: Mountain View Brownfield
Location: Ellensburg, WA
Collected by: J Lynn / P Snider
Project No: 11570.01

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)	Total (T)	Dissolved (D)	Anions (IC)**	Comments/Depth
1 09512 - 22.10	2/15	0815	Soil															Extract all samples. Call on receipt for selected analysis
2 -23.3		0915																
3 -24.7		0940																
4 -25.3		1019																
5 -26.4		1022																
6 -27.6		1028																
7 -28.3		1035																
8 -29		1045																
9 -30		1093																
10 -31		1050																

*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	2/15/12 18:00	x Joy Bylin	2/16/12 9:45
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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): _____

Date: 2/15/2012

Page: 2 of: 4

Client: Fulcrum Enviro. Cons.

Address: _____

City, State, Zip _____ Tel: _____

Project Name: _____

Location: _____

Collected by: _____

Reports To (PM): _____ Fax: _____ Email: _____

Project No: 11570.01

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 VOC (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)**	Comments/Depth
1 021512 - 32.1	2/15	1125	Soil														
2 -33.3.5		1130															
3 -34.5.5		1140															
4 -35.1		1254															
5 -36.3.5		1259															
6 -37.6		1305															
7 -38.05		1325															
8 -39.1		1330															
9 -40.3		1540															
10 -41.5		1345															

*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	
Relinquished	Date/Time	Received	Date/Time
x		x	2/16/12 9:15

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 2/15

Laboratory Project No (internal): _____

Page: 3 of: 4

Client: Fulcrum Enviro. Cons.
Address: _____
City, State, Zip _____ Tel: _____

Project Name: _____
Location: _____
Collected by: _____

Reports To (PM): _____ Fax: _____ Email: _____ Project No: 11570.01

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 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)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8) Total (T) Dissolved (D)	Anions (IC)**	Comments/Depth
1	021512-42.05	2/15	1400	Soil													
2	-43.05		1413														
3	-44.05		1480														
4	-45.35		1440														
5	-46.5		1450														
6	-47.3		1505														
7	-48.5		1510														
8	-49.4		1515														
9	-50.3		1527														
10	-51.6		1530														

*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	
Relinquished	Date/Time	Received	Date/Time
x		x	2/16/12 9:45

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 2/15/2012

Laboratory Project No (internal): _____

Page: 4 of: 4

Client: Fulcrum Enviro. Cons.
Address: _____
City, State, Zip _____ Tel: _____

Project Name: _____
Location: _____
Collected by: _____

Reports To (PM): _____ Fax: _____ Email: _____ Project No: 1570.01

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260 EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (HEM)	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)	Total (T) Dissolved (D)	Anions (IC)**	Comments/Depth
1	021512-52.6	2/15	1535	Soil														
2	-53.3	↓	1537	↓														
3	-54.6	↓	1600	↓														
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-Phosphete 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 Tracy Zehn	2/16/12 9:45
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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): 1202129

Date: 02/21/2012

Page: 01 of: 01

Client: Fulcrum Environmental Consulting
Address: 401 N. 2nd st.
City, State, Zip: Yakima, WA, 98901 Tel: 509.574.0839

Project Name: Mountain View Birchfield
Location: Ellensburg, WA
Collected by: Peter Snider

Reports To (PM): Jeremy Lynn Fax: 509.575.8453 Email: jlynn@fulcrum.net

Project No: Rg 11570.01

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 5260	Gasoline Range Organics	EPA 8021b	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)	Total (T) / Dissolved (D)	Anions (IC)**	NWTPH - Dx Ext	NWTPH - Gx	As, Cd, Cr, Pb (6020)	Hg (6800/7471)	Comments/Depth
1	022112-01.05	02/21/12	1230	soil	X							X	X						X	X	X	X	Please hold all Samples
2	022112-02.05		1245																				
3	022112-03.05		1300																				
4	022112-04.05		1330																				
5	022112-05		1340																				
6	022112-06		1400																				
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 maybe assessed if samples are retained after 30 days.)

Relinquished	Date/Time	Received	Date/Time
x	02/21/12 ~1615	x	2/22/12 0956
x		x	

Special Remarks:

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

FULCRUM environmental consulting

MEMORANDUM

DATE: 2/23/12

PAGE: 1 of 1

TO: Mike Ridgeway
CO: Fremont Analytical, Inc.

FROM: Jeremy M. Lynn
Fulcrum Environmental Consulting, Inc.
406 North 2nd Street
Yakima, Washington 98901
p: 509.574.0839 f: 509.575.8453

RE: Request for Change of Sample Numbering – Mountain View Brownfield

On February 21, 2012, Fulcrum Environmental Consulting, Inc. (Fulcrum) collected samples associated with the Mountain View Brownfield project, identified as Fulcrum's project number 11570.01. The collected samples were shipped under chain-of-custody and were received by Fremont Analytical, Inc. on February 22, 2012. Fulcrum is requesting changes to the sample numbers as presented in the following table:

Current Sample Number	New Sample Number
022112-01.0.5 22	022112-55.0.5
022112-02.0.5 23	022112-56.0.5
022112-03.0.5 24	022112-57.0.5
022112-04.0.5 25	022112-58.0.5
022112-05 26	022112-59
022112-06 27	022112-60

If you should have any questions please feel free to contact us at 509.574.0839

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): 1202091

Date: 2/23/12

Page: 1 of: 3

Client: Fulcrum Enviro. Consulting, Inc.
Address: 406 N. 2nd street
City, State, Zip: Yakima, WA 98901 Tel: 509.574.0839

Project Name: Mountain View Brownfield
Location: Ellensburg, WA
Collected by: J. Lyon / P. Snider

Reports To (PM): J. Lyon Fax: 509.575.8453 Email: JLyon@FulcrumNet

Project No: 11570.01

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics EPA 8021b	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)	Total (T) | Dissolved (D)	Anions (IC)**	MTCA 5 or Nitrate	RCRA 8 or Nitrate	cPAHs	Gx Additives	Comments/Depth
1 21412 - 6.3	2/14	1000	soil		X	X		X												X	
2 12.6	2/14	1250																			
3 21512 - 22.10	2/15	0805																			
4 25.3		1019														X					
5 28.3		1035																			
6 27.6		1038																			
7 29		1045																			Laboratory composite prior to analysis
8 30		1048																			
9 31		1050																			
10 32.1		1125									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	2/23/12	x	2/24/12 10:30
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day (STD)

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 2/23/12

Laboratory Project No (internal): _____

Page: 2 of: 3

Client: Fulcrum Enviro. Consulting, Inc.
Address: _____
City, State, Zip _____ Tel: _____

Project Name: Mountain View Brownfield
Location: _____
Collected by: _____

Reports To (PM): _____ Fax: _____ Email: _____ Project No: 11570.01

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics EPA NWTPH-Gx	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)	Total (T) | Dissolved (D)	Anions (IC)**	MTCA 5 w/ Ni & Zn	RCRA 8 w/ Ni & Zn	cPAHs	6x Additives	Comments/Depth
1 2/15/12 - 34.5.5	2/15	1140	Soil		X	X		X			X						X	X	X		
2 35.1		1254																			
3 37.6		1305																			
4 39.1		1330									X						X				
5 41.5		1345									X						X				
6 42.0.5		1400														X					
7 43.0.5		1413																			
8 44.0.5		1430																			
9 2/22/12 - 55.0.5	2/21	1230																			
10 56.0.5	2/21	1245																			

*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]	2/24/12 10:30
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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): _____

Date: 2/23/12

Page: 3 of: 3

Client: Fulcrum Enviro. Consulting, Inc
Address: _____
City, State, Zip _____ Tel: _____

Project Name: Mountain View Brownfield
Location: _____
Collected by: _____

Reports To (PM): _____ Fax: _____ Email: _____ Project No: 11570.01

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: 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)	Total (T)	Dissolved (D)	Anions (IC)**	MTCA 5 + Mn, Zn	CCR A 8 + Ni, Zn	PAHs	5x Additives	Comments/Depth
1 22/12-57.0.5	2/21	1300	Soil	X	X		X										X					
2 -59	2/21	1340	↓	↓	↓		↓										X					
3 22312-61	2/23	1200								X								X	X	X		
4 -62	2/23	1210	↓	↓	↓		↓				X							X	X	X		
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]	2/24/12 10:30
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont

Chain of Custody Record

1911 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1202091

Date: 3/9/12 Page: 1 of: 1

Client: Fulcrum Environ. Const.
Address: 406 N. Anet Street
City, State, Zip: Ellensburg, WA 98901 Tel: 509-574-0891
Reports To (PM): J. Lyon Fax: 509-525-8953 Email: jlyon@fulcrum-inc.com

Project Name: Mountain View Brownfield
Location: Ellensburg, WA
Collected by: J. Lyon / P. Snider
Project No: 115 70.01

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	Gasoline Range Organics	EPA 8021b	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SIM VOC (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)**	A-TPH-EPH	A-TPH-VPH	Oil & Grease	Total Pb	Comments/Depth
1 021412-14.7	2/14	13:50	Soil	X	X		X											X	X			
2 021412-21.1	2/14	14:57		↓	↓		↓											↓	↓			
3 021512 -46.5	2/15	14:50																↓	↓			
4 021512-54.6	2/15	16:00																↓	↓			
5 021412-12.6	2/14	12:50								X							X	X				
6 021412-01.7	2/14	8:40	↓														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.)

Relinquished: Date/Time
Received: Date/Time 3/9/12 1251
Relinquished: Date/Time
Received: Date/Time

Special Remarks: Samples previously forwarded on 2/14/12 + 2/15/12

TAT → Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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): 1202091
Date: 2/23/12
Page: 1 of 3

Client: Fulcrum Enviro. Consulting, Inc.
Address: 406 N. 2nd Street
City, State, Zip: Yakima, WA 98901 Tel: 509.574.0839
Reports To (PM): J. Lynn Fax: 509.575.8453 Email: JLynn@efulcrum.net

Project Name: Mountain View Brownfield
Location: Ellensburg, WA
Collected by: J. Lynn / P. Snider
Project No: 11570.01

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics (NWTPH-Gx)	Hydrocarbon Identification (NWTPH-HCID)	Diesel/Heavy Oil Range Organics (NWTPH-Dx)	Stoddard VOC (EPA 8270 SIM)	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)**	MTCA 5 w/ Nitrate	RCRA 8 w/ Nitrate	cPAHs	EX Additives	Comments/Depth
1 21412 - 6.3	2/14	1030	soil	X	X		X													X	
2 12.6	2/14	1250																			Add Analysis per Jeremy 3/9/12
3 21517 - 22.10	2/15	0805																			
4 25.3		1019												X		X					
5 28.3		1035												X							
6 27.6		1038												X							
7 29		1045																			Laboratory composite prior to analysis
8 30		1048																			
9 31		1050																			
10 32.1	↓	1125	↓	↓	↓		↓			X				X			X	X		↓	

*Metals Analysis (Circle): MICA-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	2/23/12	x	2/24/12 10:30
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → Next Day 2 Day 3 Day (STD)

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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): _____

Date: 2/23/12

Page: 2 of: 3

Client: Falcon Envire. Consulting, Inc.
Address: _____
City, State, Zip _____ Tel: _____

Project Name: Mountain View Brownfield
Location: _____
Collected by: _____

Reports To (PM): _____ Fax: _____ Email: _____

Project No: 0115 70.01

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics	EPA 8021b	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SIM VOC (EPA 8270)	PAH (EPA 8270) - SIM	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 7000s)	Total (T) | Dissolved (D)	Anions (IC)**	Hex Chrom	MTCA 5 + Ni + Zn	RCRA 8 + Ni + Zn	cPAHs	6x Alkylated PAHs	Comments/Depth
1	21512 - 34.5.5	2/15	1140	Soil		X	X		X			X				X				X	X	X		
2	35.1		1254																					
3	37.6		1305																					
4	39.1		1330									X				X				X				
5	41.5		1345									X				X				X				
6	42.0.5		1400													X			X					
7	43.0.5		1413													X								
8	44.0.5	↓	1430													X								
9	22/12 - 55.0.5	2/21	1230													X								
10	56.0.5	2/21	1245	↓		↓	↓		↓							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		x Jay Zehr	2/24/12 10:30
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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): _____

Date: 2/23/12

Page: 3 of: 3

Client: Fulcrum Enviro. Consulting, Inc.

Project Name: Mountain View Brownfield

Address: _____

Location: _____

City, State, Zip: _____ Tel: _____

Collected by: _____

Reports To (PM): _____ Fax: _____ Email: _____

Project No: 11570.01

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	SIM VOCs (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	O Pesticides (EPA 8081)	O Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Hex Chrome	Total (T) | Dissolved (D)	Anions (C)**	MTCA 5 cMetals	EDB & EDC	PAHs	Gx Additives	Comments/Depth
1 22112-57.0.5	2/21	1300	Soil	X	X		X									X			X					
2 -59	2/21	1340														X			X					
3 22312-61	2/23	1200										X								X	X	X		
4 -62	2/23	1210										X								X	X	X		
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 Si 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 not stored after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x		x [signature]	2/24/12 10:30
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

APPENDIX D

Monitoring Well Installation

Appendix D.1

Health and Safety Plan – Groundwater Monitoring

DRAFT 03.05.2012

SITE-SPECIFIC HEALTH AND SAFETY PLAN – MONITORING WELL INSTALLATION PHASE

IPG #G120098
400 East Mountain View Avenue
Ellensburg, Washington

Project Number: 11570

March 5, 2012

Prepared for:

Kittitas Valley Fire & Rescue (Station 21)
Attn: John Sinclair
2020 Vantage Highway
Ellensburg, Washington 98926

Traho Architects, Inc.
Attn: Nancy Charron
1460 North 16th Avenue, Suite A
Yakima, Washington 98902

Prepared by:

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

TABLE OF CONTENTS

SECTION PAGE

Report Title: Site-Specific Health and Safety Plan – Soil Investigation Phase
Mountain View Brownfield Project, Formerly Mackner Scales
Ecology Integrated Planning Grant # G120098

Project Number: 11570

Date: March 5, 2012

Site: 400 East Mountain View Avenue, Ellensburg, Washington

Prepared for: Kittitas Valley Fire & Rescue (Station 21)
Attn: John Sinclair
2020 Vantage Highway
Ellensburg, Washington 98926

Traho Architects, Inc.
Attn: Nancy Charron
1460 North 16th Avenue, Suite A
Yakima, Washington 98902

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:** 03/5/2012

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

Reviewed by: _____ **Date:** 03/5/2012

Ryan K. Mathews, CIH, CHMM
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 SAFETY AND HEALTH PLAN

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

2.0 GENERAL DESCRIPTION OF PROJECT ACTIVITIES

2.1 Background

The Mountain View Brownfield site is located at 400 East Mountain View Avenue in Ellensburg, Washington (subject property). Formerly referred to as Mackner's Transport, the site is currently being evaluated for beneficial reuse and redevelopment under Washington State Department of Ecology's (Ecology) Integrated Planning Grant (IPG) #G120098. The IPG is a tool by which Ecology can support the evaluation of identified brownfield sites for potential redevelopment by or through the assistance of local governments or districts. This IPG was awarded to the Kittitas County Fire District #2 (commonly referred to as Kittitas Valley Fire & Rescue (KVFR)) to assist in evaluation of the property for potential acquisition and redevelopment as a fire station. Additional considerations include the siting of a community center at the property.

This subject property is located south of the downtown area and borders the east branch of Wilson Creek. The subject property is along Mountain View Avenue, a newly updated and revived arterial in Ellensburg. Neighboring properties are mostly highway commercial with banks, retail stores, medical offices and senior housing. The majority of development along Mountain View is new or has been improved within the last 10 years. The subject property is an obvious blight in the area as the only non-redeveloped section along the road.

Though limited, the investigation completed at the site by PLSA, Inc. in 2005 (PLSA, 2005) identified the presence of petroleum contamination in groundwater at the site. Review of the Ecology site file indicates that in 1991, three underground storage tanks (UST), including one gasoline and two diesel fuel tanks, were known to be present at the site. In addition, the PLSA investigation identified the presence of a fourth UST. During the initial site inspection, Fulcrum Environmental Consulting, Inc. (Fulcrum) staff observed the presence of petroleum impacted soils.

2.2 Description of Monitoring Well Installation Activities

The installation of monitoring wells represents the second phase in site environmental investigation under the IPG. The purpose, intent, and approach of the overall site investigation are presented in the project *Sampling and Analysis Plan/Quality Assurance Project Plan*,

February 8, 2012. During this phase, mechanical excavation will be completed utilizing an air-rotary/sonic drilling rig for well installation.

2.3 Site Location and Description

The Mountain View Brownfield site is located at 400 East Mountain View Avenue in Ellensburg, Washington. Mountain View Avenue, a primary east to west arterial within the south portion of the City of Ellensburg, forms the north boundary of the site. Approximately 0.6-miles south and 1-mile west of the site is U.S. Interstate 90. The Yakima River is located southwest and beyond U.S. Interstate 90 approximately 1-mile from the site.

The site consists of an approximately 4.94 acre parcel of real property. The site is bordered on the east by Wilson Creek, a tributary of the Yakima River. The south and west property boundaries are adjacent to mixed residential and commercial properties. Mountain View Avenue is present along the north property boundary.

Site buildings include a residence/scale house, a well house, a hay shed, and a hay shed/diesel repair shop. The residence/scale house consists of wood framing and cement block construction. The well house consists primarily of wood framing. Both the hay shed and the hay shed/diesel repair shop building are pole buildings with concrete slab floors and areas of metal siding. Site buildings were constructed in the 1950s and 1960s.

Historic site features include a drinking water well located in the well house, an in-ground scale at the scale house, and four known underground storage tanks. An additional hay shed was located near the south center of the site and is reported to have collapsed under snow during the heavy snow fall in either 1996 or 1997.

Also assumed to be present at the site are at least two septic tank and drain fields, one associated with the residence/scale house and the second associated with the diesel repair shop.

2.4 Underground Utilities

Fulcrum has completed one-call locate requests through the online *811 system (one-call) specifically for this phase of investigation. Ticket numbers include 12027159 dated February 16, 2012 and 12037249 dated March 1, 2012 and are associated with the site and the northern adjacent parcel respectively. The upgradient well will be constructed on the northern adjacent parcel.

A one call locate was completed from the site associated with the soil investigation. The most recent locate associated with the soil investigation was identified as ticket number 12919069 and was received on February 3, 2012 for the site.

Additionally, Fulcrum has previously completed two one-call locates for the site to assess the presence of underground utilities relative to the intended site environmental investigations and to provide for the identification of utilities by Cruse & Associates, a surveyor for the IPG project.

Also completed during the project was a private locate by Utilities Plus, LLC. Purpose of the private locate was to assess the site for other potential utilities that occur after the control point established by the utility. Typically the control point is the meter, valve, or other delineated mark where the ownership and maintenance of the utility service transfers to the responsibility of the property owner. Additionally, site-specific features, such as data transmission cables, private water well systems, and other similar features are not subject to the one-call public locate responsibilities.

Following completion of the first two public locates and the private locate, Cruse & Associates complete a site survey and recorded all identified utility markings at the site. See Figure 2 for a copy of the site survey and known utilities.

While all efforts have been made to identify public and private site utilities, care shall be made throughout the project to observe site conditions for the presence of unmarked or non-located utilities. If underground utilities are identified during excavation, work shall stop until the utility can be assessed and its operation determined. Consistent with the one-call regulations, of a public utility is damaged or exposed during excavation, the utility shall be contacted and requested to assess the utility for damage or repair.

2.5 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.

2.6 Contact List

This project is a coordination of the efforts of KVFR, Ecology, and Traho Architects, Inc. Fulcrum will complete the site investigation activity to assist with completion of the IPG.

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
Jill Arango, Grant Manager Forterra, 509.962.1654	Grant manager for the IPG.
Nancy Charron, Architect Traho Architects, Inc., 509.452.0609	Project Manager for the IPG.
Mary Monahan, Site Manager, Central Region, Washington State Department of Ecology, 509.454.7840	Ecology's technical assistance representative for the project.
Chris Cruse, P.L.S. Cruse & Associates, Inc., 509.962.8242	Will provide survey services following the soil investigation.
Ryan Mathews, CIH, CHMM, Principal Fulcrum Environmental Consulting, Inc.	Fulcrum's safety manager for the project.

Person/Agency or Firm	Role/Responsibility
509.728.2424	
Jeremy Lynn, P.G., Environmental Geologist Fulcrum Environmental Consulting, Inc. 509.728.4994	Fulcrum's Site Health & Safety Officer and Field Services Lead.
Peter Snider, Environmental Technician Fulcrum Environmental Consulting, Inc. 509.895.4341	Site investigator under the direction of Mr. Lynn.
Jaymen Lauer Cascade Drilling, Inc., 425.485.8908	Will complete monitoring well installation as requested by Fulcrum staff.
Jerry Goodrich, Owner Utilities Plus, LLC, 509.945.9840	Will provide private locate services if additional private utilities are identified during the soil investigation.

2.7 Proposed Start Date:

March 5, 2012

2.8 Overall Hazard Ranking

Low

The Mountain View Brownfield is located on private property with limited onsite hazards. 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

4.1 Site History

Initial site activities have consisted of a review of existing site investigation reports, initial interviews with the diesel mechanic operating at the site, and an initial site walk. Previous site investigation reports include a 1991 Site Investigation by Ecology (Ecology, 1991) and a limited soil sampling event completed by PLSA, Inc. in 2005 (PLSA, 2005). Both records are available in Ecology's site file. In addition, Fulcrum has begun the historical research associated with an ASTM E-1527-05 and U.S. Environmental Protection Agency (EPA) compliant All Appropriate Inquiries Phase I Environmental Site Assessment for the site.

While the historical review of the site continues, initial assessment has identified five potential environmental concerns:

- Underground Storage Tanks
- Reported Groundwater Contamination
- Heavily Stained Surface Soils
- General Parking of Trucks and Equipment at the Site
- Solid Waste and Universal Waste

Underground Storage Tanks

A total of four underground storage tanks and associated dispensers are known to have been present at the site during the 1991 and 2005 investigations completed by Ecology and PLSA respectively. These USTs include one gasoline and two diesel fuel tanks as presented in Section 1.0, and one additional fuel oil vessel associated with the shop building, all of which are no longer in use.

Three of the tanks, UST-01, UST-02, and UST-03 were located on the east side of the residence/scale house at the site. Approximate location is shown in site photographs collected during a 1991 Ecology site inspection. The UST-04 location is at the northwest corner of the shop building.

- UST-01 (Gasoline Fuel) – Identified in 1991 Ecology Site Visit as a 500 gallon, 20 year old UST - Tank not in service in 1991.
- UST-02 (Diesel Fuel) – Identified in 1991 Ecology Site Visit as a 5,000 gallon, 15 year old UST.
- UST-03 (Diesel Fuel) – Identified in 1991 Ecology Site Visit as a 2,000 gallon, 18 year old UST.
- UST-04 (Fuel Oil) – Identified during 2005 PLSA Inspection.

Reported Groundwater Contamination

In 2005, PLSA reported collection of a "Groundwater" sample during site investigation

activities. The sample appeared to consist of "pit water", a sampling method that is historically unreliable, from an excavation near the scale house (excavation associated with UST 02 & 03). Laboratory results reported a concentration of 130,000 ug/L of Heating Oil Range petroleum hydrocarbons within the pit water sample. Laboratory quality assurance/quality control further suggest that the result may not be reliable, as the result reports that the detection of oil was a "gasoline range hydrocarbon" and the laboratory could not provide sample gas chromatography upon request by Fulcrum in December 2011.

In the report (PLSA, 2005), the author opines that the groundwater sample may be within the plume of contaminated groundwater sourced independent of the known USTs. Specific basis for this opinion or additional information was not provided. No other sources of petroleum hydrocarbon use, such as a fuel oil tank associated with the residence, were observed. Regardless, existing data in the public record suggests that groundwater at the site may be contaminated with petroleum hydrocarbons.

Heavily Stained Surface Soils

During the initial site walk, Fulcrum representatives observed the presence of heavily stained site soils. Staining appeared to be the result of poor housekeeping associated with used vehicle and equipment parts; and storage of used oil and other vehicle and equipment fluids. Stained soils were primarily located on the east side of the shop building and appeared to be related to both historic and current site use by the mechanic.

General Parking of Trucks and Equipment at the Site

Based on historical aerial photographs, primary areas of vehicle and equipment parking have been located at the northwest corner of the site, the northeast corner of the site, and between the residence and the shop. While no areas of significant petroleum staining, greater than 3 square feet in area, potential exists for historic releases to the gravel covered areas of the site used for vehicle and equipment parking to be impacted by petroleum releases.

Solid and Universal Waste

Based on site observations, containing solid and universal categorized wastes are present at the site. Materials include, but are not limited to, equipment and vehicle parts within the shop building; used vehicle fluid storage on the northwest exterior portion of the shop; and used tires stockpiled south of the shop building. Removal and evaluation of the materials is not included within the project scope of services and is therefore not included within this site specific health and safety plan.

4.2 Planned Duration of Activities

It is anticipated that soil remediation activities will require approximately 3 days of onsite work. During decommissioning activities, all site workers will observe excavation activities for indications of residual oil, diesel, and gasoline range hydrocarbons and volatile organic compounds within site soils.

4.3 General Area of Investigation

Mechanical excavation will be completed within the following areas:

- Areas containing UST-01, 02, and 03 adjacent to the residence
- Area containing UST-04 adjacent to the shop building
- Areas of stained soil east of the shop building
- General parking and equipment storage area within the northeast portion of the site

In all locations excavation pit and suspect petroleum and metal contaminated soil areas to be excavated and sampled excavation site walls and pit bottom.

4.4 Site Accessibility

Site security is comprised of chain-link fencing on the perimeter of the site with access through the main gate present on the western portion of the site.

5.0 SITE SPECIFIC SAFETY AND HEALTH HAZARDS

5.1 Drilling Excavation Hazards

Site activities will include drilling of site soils utilizing an air-rotary/sonic drill rig to core soils and install monitoring wells. All Fulcrum staff shall have completed excavation safety training and review of hazards specific to drill rigs prior to the project.

Underground utilities are expected to be present within the bounds of the subject site. See Section 2.4 for a review of underground public and private utilities.

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 its 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 Solvents and Degreasers

Solvents and degreasers are commonly found with other petroleum products in environmental investigation of sites with automotive and equipment maintenance. Typically solvents and degreasers will be found at low concentrations in site soils or groundwater and not as free products with significant volatilization. However, even at low concentrations, solvents and degreaser can represent significant hazards to site workers.

This group includes the family of chemical compounds generally known as organic compounds or hydrocarbons. Although some aqueous (water-based) compounds also could be included here, the hydrocarbon compounds are most prevalent and generally are more hazardous, so this section deals with them exclusively.

Health Hazards

Solvents can represent health hazards to skin: eyes, nose, throat, lungs, nervous system, heart, liver, kidneys, and blood. These can result in cancer, blood disorders, reproductive effects, and other medically significant health hazards.

Solvents dissolve the oils and fats in the skin's protective barrier, causing dermatitis (inflammation of the skin). Symptoms of dermatitis include dryness, redness, itching, burning, and cracking of the skin. Some solvents are irritants, causing pain, burning, or discomfort, and with long contact, damage to the skin. Others are sensitizers, causing an allergic dermatitis. If an individual becomes sensitized to a particular solvent, exposure even to small amounts can produce a rash. Remember that the skin affected by dermatitis is more likely to allow chemicals to be absorbed into the body through the skin.

As solvent vapors come into contact with sensitive mucous tissues, they may cause irritation, resulting in tearing eyes, dry and burning nose and throat, and coughing. Strong irritation occasionally may result in headaches, nausea, and vomiting. Repeated irritation of the respiratory tract may result in bronchitis, with symptoms of coughing and production of phlegm. Inhalation of very high concentrations of solvents may result in severe irritation of the lungs and a condition called pulmonary edema, or fluid in the lungs. Symptoms of pulmonary edema include coughing and difficulty in breathing. This condition requires prompt medical attention.

Most organic solvents affect the central nervous system, primarily the brain, in the same way that alcohol does. The effects are called anesthetic, depressant, or narcotic. With increasing levels of exposure, these effects include euphoria (feeling "high"), irritability, nervousness, depression, weakness, tiredness, headaches, dizziness, sleepiness, nausea, vomiting, disorientation, confusion, and even unconsciousness. The symptoms usually decrease when leaving the workplace, although with some solvents the effects may linger due to slow elimination from the body. There is evidence that prolonged overexposure to solvents may result in persistent effects on the brain, such as difficulty in thinking, poor coordination, and personality changes.

A few solvents, such as n-hexane and methyl n-butyl ketone, can damage the peripheral nerves, which are nerves to sensory organs and muscles. Symptoms of nerve damage include pain, loss of sensation, and weakness, usually beginning in the toes, then the fingers, and moving up the legs and arms.

Solvents, particularly those with chlorine ("chloro" in their chemical names) can affect the heart and produce a rapid or irregular heartbeat, felt as palpitation, "skipped heartbeats," or dizziness. This condition is increased with physical exertion and can result in sudden death. Usually, very high solvent levels must exist to product this effect and frequently other symptoms such as headache or dizziness will occur first.

Some solvents, particularly those with chlorine, can damage the liver, causing a type of hepatitis. There may be no symptoms. If there are, symptoms may include: nausea, pain the right side,

yellow skin and eyes, dark urine, and light colored bower movements. Hepatitis may be detected by blood tests of liver function.

Some solvents may damage the kidneys. Because there usually are no symptoms, detection occurs through blood or urine tests.

A few solvents, such as glycol ethers, (sometimes called "cellosolves") affect the blood, either by damaging circulating blood cells or decreasing the production of new blood cells. There usually are no symptoms. Detection occurs through blood or urine tests.

Physical Hazards

Solvents, strippers, and degreasers may be combustible or flammable and represent serious fire and explosion hazards if not handled correctly. In general, all organic solvents are flammable or combustible except halogenated (chlorinated or fluorinated) compounds.

These organic compounds usually do not pose any instability or reactivity problems. Most of them are volatile; that is, they will vaporize to some extent at room temperature. Upon vaporization, vapors may build up to toxic or flammable levels. Vapors of some compounds may be heavier than air and will concentrate in low-lying areas if there is inadequate air movement.

Detection of Release

If you are exposed to a solvent vapor, you may smell an odor or your nose or eyes may be irritated. A solvent that can be detected by most persons at levels below those that are harmful is said to have good warning properties. Conversely, a solvent which can be detected only above potentially harmful levels has poor warning properties.

Don’t depend on odor to warn you. The odor thresholds (lowest level that can be detected) for most solvents vary widely from person to person. Some solvents produce "olfactory fatigue": the rapid loss of ability to smell the odor. Exposure to some solvents may permanently decrease or cause you to lose your sense of smell and taste.

Vapors of solvents, strippers, and degreasers may be detected by using specialized equipment. A quick method is to use colorimetric indicator ("detector") tubes, which show the concentration of particular compounds by the length of an indicating stain on the tube. Other, more accurate, methods are to collect workshift samples on charcoal tubes or badges and analyze them in a laboratory. These methods usually are performed by the Industrial Hygienist.

Control of Exposures

Everyone working with solvents should know the names, toxicity, and hazards of the solvents they use. This information should be available through employee training programs. A worker may obtain information regarding a solvent’s compositions, physical characteristics, and toxicity from the MSDS for that solvent.

Unfortunately, the precise chemical composition often is proprietary (trade secret) information, and the toxicity information shown on many MSDS's may be incomplete. The Industrial Hygienist can help you identify a solvent and determine its toxicity.

These are the preferred methods used to control exposure. They include substituting a less toxic solvent, isolating or enclosing a process, using local exhaust ventilation to remove the contaminant source, or providing general ventilation to dilute the contaminant.

Personal Protective Equipment

Respiratory protective equipment is a device that reduces the likelihood that contaminants in the air are not inhaled by a worker. SCBA's, supplied air, and air purifying respirators should be used only when engineering controls are: 1) not feasible, 2) are available but cannot adequately reduce exposures, or 3) when equipment breakdowns or emergencies occur.

Protective clothing includes gloves, aprons, goggles, and face shields. However, protective creams are not recommended as a permanent substitute for gloves. Creams can help prevent loss of skin oils.

5.3.4 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 commonly investigated in site soils include arsenic, cadmium, chromium, lead, mercury, silver, selenium, and zinc. Mercury may be present in a liquid form but is more commonly found bound to soil particulates.

Health Hazards

Except for mercury, 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 are similar to the management for dust or other airborne particulate. Use of water sprays to mist dry soils and prevent dust generation are 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.

5.3.5 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.

5.3.6 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)

Directions from the Mountain View Brownfield site to Kittitas Valley Community Hospital:

- Exit the site and travel east on Mountain View Avenue 4 blocks to South Chestnut Street.
- Turn left (north) on Chestnut Street and travel 3 blocks.
- The hospital is on your left (west) and the Emergency Department is on the north side of the building.

Estimated Time: 4 minutes

I have read the above Safety and Health Plan for the Soil Investigation, Mountain View Brownfield Project, Formerly Mackner Scales, Ecology Integrated Planning Grant # G120098, Fulcrum project number 11570.01. I am aware of the risks associated with this project as discussed both verbally and as stated in the aforementioned Health and Safety plan, 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
Peter Snider		03/05/2012	Fulcrum
Daryl Dietrich		3-5-12	CDLP
Todd Mecham		3/5/12	CDLP
Jeremy Lynn		3/5/12	Fulcrum
Andy Flagan		3/5/12	CDLP
" "		3/6/12	CDLP
Todd Mecham		3/6/12	CDLP
Jeremy Lynn		3/6/12	Fulcrum
Peter Snider		03/06/2012	Fulcrum

Appendix D.2

Site Observation Report

Site Observation Report

Report # 11419.01 Page 1 of 1

Project: Mountain View Groundwater Work Area: 401 East Mountain View

Fulcrum Personnel: Jeremy Lynn, Peter Snider Date: 03/05/12 Time: ~0945

Contractor	Cascade Drilling
Work Area	Proposed monitoring well locations as specified in Sampling and Analysis Plan
Work Tasks	Drill well to specified depth and install monitoring well according to target depth and legal requirements.

Contractor Employees: Todd Mecham, Andy Flagan, Daryl Dietrich

Summary of Work: Fulcrum guided drilling and installation of monitoring wells consistent with Sampling and Analysis plan. Fulcrum also performed initial purging and development of installed wells. MW-03, MW-04, and MW-05 installed

Work Area Controls: Class D PPE including steel-toe boots, high visibility vests, and hardhats. New nitrile gloves were used at each monitoring well location when handling equipment that came into contact with well.

Schedule: MW-06, MW-07, MW-01, and MW-02 to be installed on 03/06/2012

Delays: Groundwater depth more shallow than anticipated; wells must be flush-mount type monuments to provide legal depths of sand and bentonite caps.

Comments: ---

Signature: Peter Snider Date: 3/05/2012 Approved: Peter Snider

Site Observation Report

Report # 11419.01 Page 1 of 1

Project: Mountain View Groundwater Work Area: 401 East Mountain View

Fulcrum Personnel: Jeremy Lynn, Peter Snider Date: 03/06/12 Time: ~0700

Contractor	Cascade Drilling
Work Area	Proposed monitoring well locations as specified in Sampling and Analysis Plan. MW-01 was installed at location on north side of Mountain View Avenue.
Work Tasks	Drill well to specified depth and install monitoring well according to target depth and legal requirements.

Contractor Employees: Todd Mecham, Andy Flagan, Daryl Dietrich

Summary of Work: Fulcrum guided drilling and installation of monitoring wells consistent with Sampling and Analysis plan. Fulcrum also performed initial purging and development of installed wells. MW-06, MW-07, MW-01, and MW-02 installed. Monitoring well MW-02 is the only well at the site with an above ground monument.

Work Area Controls: Class D PPE including steel-toe boots, high visibility vests, and hardhats. New nitrile gloves were used at each monitoring well location when handling equipment that came into contact with well.

Schedule: Monitoring well installation at location complete.

Delays: Groundwater depth more shallow than anticipated; wells must be flush-mount type monuments to provide legal depths of sand and bentonite caps.

Comments: ---

Signature: Peter Snider Date: 3/6/2012 Approved: Peter Snider

Appendix D.3

Site Photographs

Arrival of the direct-push hydraulic boring machine at the site.

Completion of the boring for Monitoring Well 01, located north and offsite on private property.

Tooling decontamination area established by Cascade Drilling for washing of boring casing.

Completion of the boring for MW-02 located southeast of the scale house/residence and within the approximately UST basin.

MW-02 is located north of a telephone pole visible in the 1991 Ecology Site Inspection report.

Typical recovered boring core consisted of areas of medium brown native soils.

Boring for MW-05 was located south of the scale house/residence adjacent to one of the hay storage buildings.

Monitoring Well 05 with bollards placed for protection prior to well development and completion of the concrete mounting pedestal.

Recovered boring core in MW-02 including a layer of gray stained soil with a noticeable petroleum odor.

Visible casing for one of the boreholes with groundwater present in the casing and prior to installation of PVC casing.

Monitoring Well 07, located immediately adjacent to Wilson Creek, the adjacent surface water and primary influence of site groundwater.

Well development utilized a peristaltic pump for purging of water from each monitoring well.

Appendix D.4

Well Logs (Driller's Logs)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. RE06798

MW-11

Construction/Decommission

[X] Construction

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

[X] Resource Protection

[ ] Geotechnical Soil Boring

Property Owner Mackner Florence H Trust

Site Address 400 E. Mountain View Dr.

Consulting Firm Fulcrum Environmental

City Ellensburg County Kittitas

Unique Ecology Well ID Tag No. BHM-922

Location 1/4 NE 1/4 NE Sec 11 TWN 17N Range 18E (EWM) or WWM

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 x Lat Min/Sec x Long Deg x Long Min/Sec x

Tax Parcel No. 908633

[X] Driller [ ] Trainee Name (Print) Todd Mecham

Driller/Trainee Signature _____

Driller/Trainee License No. 2555

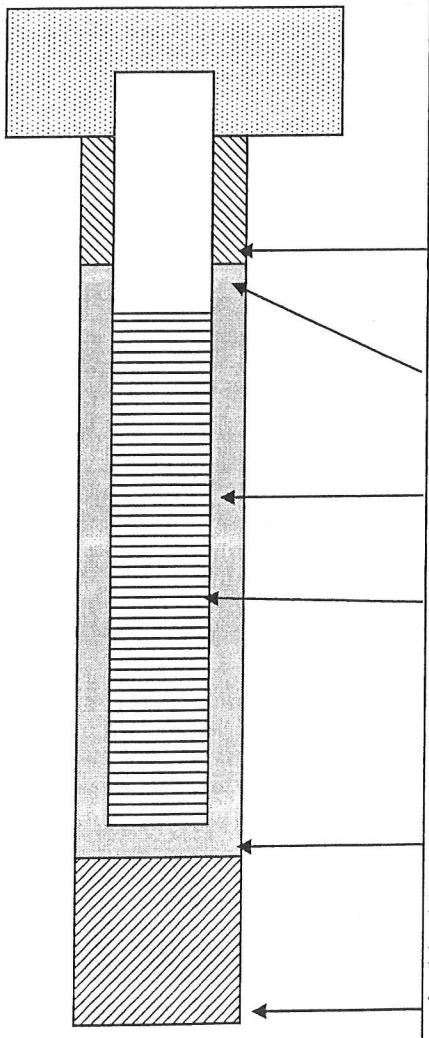
Cased or Uncased Diameter 6" Static Level 6'

Work/Decommision Start Date 3/6/12

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

Work/Decommision End Date 3/6/12

Construction/Design



Well Data W12-105

Concrete Surface Seal Depth	2' FT
Blank Casing (dia x dep)	2" x ~~15~~ 5'
Material	Sch 40
Backfill	1 FT
Type	Chips
Seal	
Material	
Gravel Pack	~~15~~ 12 FT
Material	2/12 Sand
Screen (dia x dep)	2" x ~~15~~ 10'
Slot Size	.010
Material	Sch 40
Well Depth	15 ~~15~~ FT
Backfill	
Material	
Total Hole Depth	15' ~~15~~ FT

Formation Description

0 - ~~15~~ 15' FT

Brown Sandy gravels

0 - FT

0 - FT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rec=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission

[X] Construction

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

mw-2

CURRENT

Notice of Intent No. RE06798

Type of Well

[X] Resource Protection

[ ] Geotechnical Soil Boring

Property Owner Mackner, Florence Lt Trust

Site Address 400 E Mountain View Drive

City Ellensburg County Kittitas (EWM)

Location 1/4 NE 1/4 NE Sec 11 Twn 17N R 18E or WWM

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

Tax Parcel No. 908633

Unique Ecology Well ID Tag No. BHM-923

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

[X] Driller [ ] Trainee Name (Print) Todd Mecham

Driller/Trainee Signature _____

Driller/Trainee License No. 2555

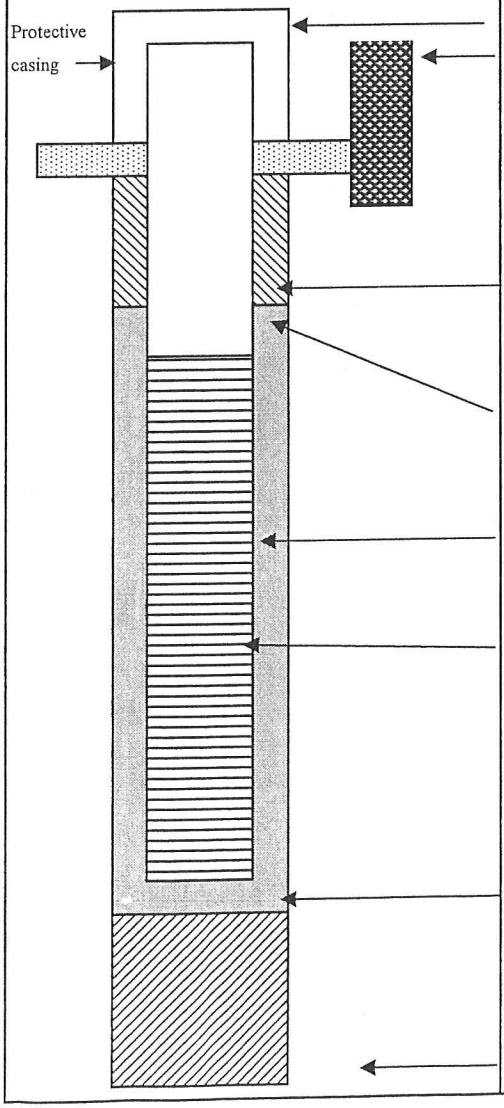
If trainee, licesned drillers' Signature and License No. _____

Cased or Uncased Diameter _____ Static Level _____

Work/Decommision Start Date _____

Work/Decommision End Date _____

Construction/Design — **Well Data** W12-105



Locking Cap		
Protective Post		
Concrete Surface Seal Depth	2	FT
Blank Casing (dia x dep)	2" x 6½"	
Material	Sch 40	
Backfill		FT
Type		
Seal	1'	
Material	Chips	
Gravel Pack	8	FT
Material	2/12 Sand	
Screen (dia x dep)	2" x 7'	
Slot Size	.010	
Material	Sch 40	
Well Depth	11'	FT
Backfill	2	
Material	2/12 Sand	
Total Hole Depth	13	FT

Formation Description

0 - 13' FT — Brown sandy gravels

0 - _____ FT

0 - _____ FT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rec=v 2/01)

RESOURCE PROTECTI(I WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURR NT
Notice of Intent No. RE06798

Construction/Decommission

[X] Construction

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

MW-3

Type of Well

[X] Resource Protection

[ ] Geotechnical Soil Boring

Property Owner **Florence H. Mackner Trust**

Site Address **400 E. Mountain View Rd.**

Consulting Firm **Fulcrum Environmental**

City **Ellensburg** County **Kittitas**

Unique Ecology Well ID Tag No. BHm-924

Location 1/4 **NE** 1/4 **NE** Sec **11** TWN **17N** Range **18E** [EWM] or WWM

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 x Lat Min/Sec x Long Deg x Long Min/Sec x

[ ] Driller [ ] Trainee Name (Print) **Todd Mecham**

Driller/Trainee Signature _____

Driller/Trainee License No. **2555**

Tax Parcel No. **908633**

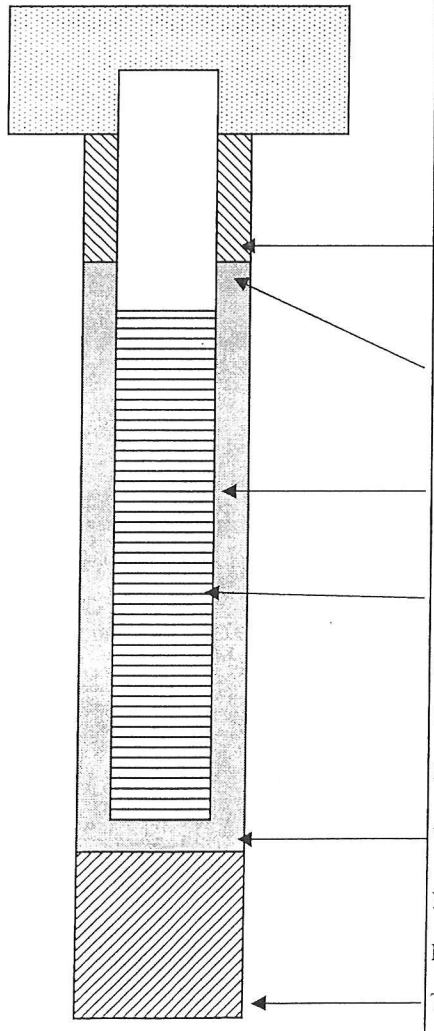
Cased or Uncased Diameter 6" Static Level 5

Work/Decommision Start Date **3/5/2012**

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

Work/Decommision End Date **3/5/2012**

Construction/Design



Well Data W12-105

Concrete Surface Seal Depth	1	FT
Blank Casing (dia x dep)	2" x 3'	
Material	Sch 40 pvc	
Backfill		FT
Type		
Seal	1'	
Material	Chips	
Gravel Pack	9.	FT
Material	2/12 Sand	
Screen (dia x dep)	2" x 8'	
Slot Size	.010	
Material	Sch 40 pvc	
Well Depth	11	FT
Backfill		
Material		
Total Hole Depth		FT

Formation Description

0 - 11' FT Brown Sandy gravels

0 - FT

0 - FT

Scale 1" = _____ Page _____ of _____

ECY 050-12 (Rev 2 01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. RE06798

Construction/Decommission

[X] Construction

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

mw-4

Type of Well

[X] Resource Protection

[ ] Geotechnical Soil Boring

Property Owner: **Florence H. Mackner Trust**

Site Address: **400 E. Mountain View Rd.**

Consulting Firm: **Fulcrum Environmental**

City: **Ellensburg** County: **Kittitas**

EWM

Unique Ecology Well ID Tag No. BHM-925

Location 1/4 **NE** 1/4 **NE** Sec **11** TWN **17N** Range **18E** or WWM

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 x Lat Min/Sec x Long Deg x Long Min/Sec x

[ ] Driller [ ] Trainee Name (Print) **Todd Mecham**

Driller/Trainee Signature _____

Driller/Trainee License No. **2555**

Tax Parcel No. **908633**

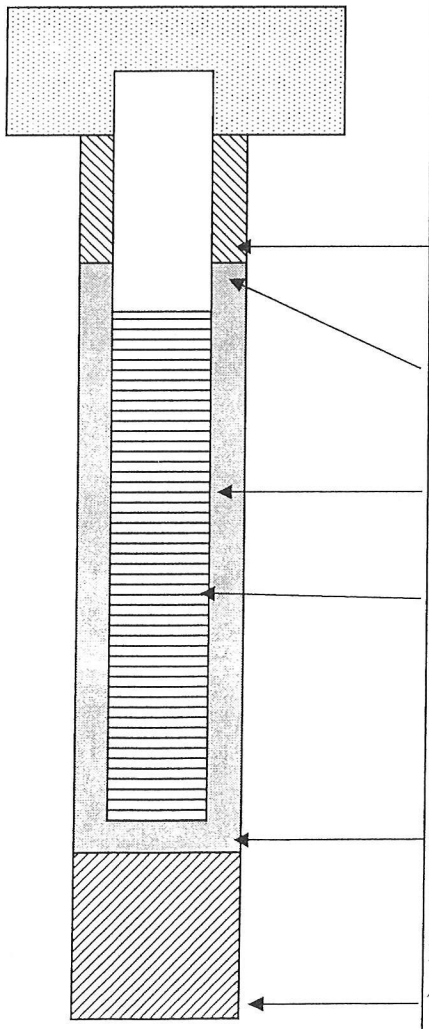
Cased or Uncased Diameter **6** Static Level **5**

Work/Decommision Start Date **3/5/2012**

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

Work/Decommision End Date **3/5/2012**

Construction/Design



Well Data W12-105

Concrete Surface Seal Depth	1	FT
Blank Casing (dia x dep)	2" x 3'	
Material	Sch 40 pvc	
Backfill	1'	FT
Type	Chips	
Seal		
Material		
Gravel Pack	8'	FT
Material	2/12 Sand	
Screen (dia x dep)	2" x 7'	
Slot Size	.010	
Material	Sch 40 pvc	
Well Depth	10'	FT
Backfill	1'	
Material	2/12 Sand	
Total Hole Depth	11	FT

Formation Description

0 - 10' FT

0 - FT

0 - FT

Scale 1" = _____

Page _____ of _____

RESOURCE PROTECTI( ) WELL REPORT

CURR NT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Notice of Intent No. RE06798

Construction/Decommission

[X] Construction mw-5

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

[X] Resource Protection

[ ] Geotechnical Soil Boring

Property Owner **Florence H. Mackner Trust**

Site Address **400 E. Mountain View Rd.**

Consulting Firm **Fulcrum Environmental**

City **Ellensburg** County **Kittitas**

EWM

Unique Ecology Well ID Tag No. BHM-926

Location 1/4 **NE** 1/4 **NE** Sec **11** TWN **17N** Range **18E** or WWM

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 x Lat Min/Sec x Long Deg x Long Min/Sec x

[ ] Driller [ ] Trainee Name (Print) **Todd Mecham**

Tax Parcel No. **908633**

Driller/Trainee Signature _____

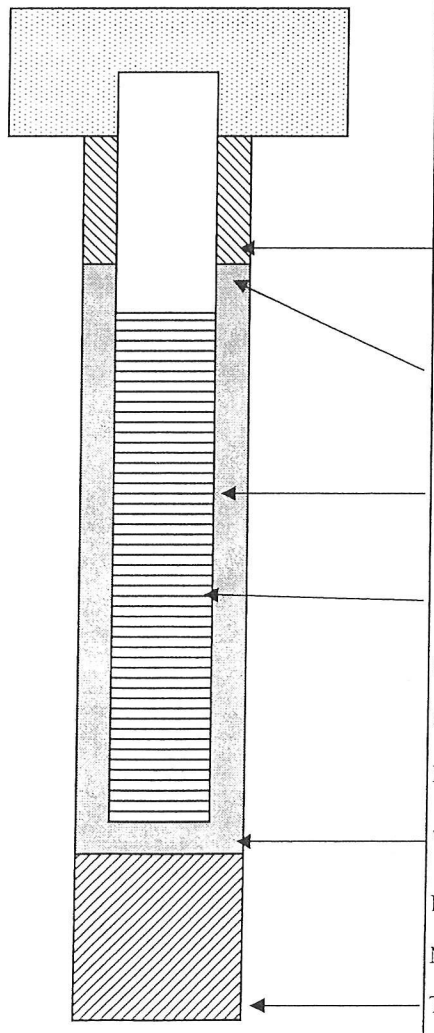
Cased or Uncased Diameter 6" Static Level 15'

Driller/Trainee License No. **2555**

Work/Decommision Start Date **3/6/2012**

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

Work/Decommision End Date **3/6/2012**

Construction/Design	Well Data W12-105		Formation Description
	Concrete Surface Seal Depth	1 FT	0 - 9 FT Brown Sandy gravels
	Blank Casing (dia x dep)	2" x 3'	
	Material	Sch 40 pvc	
	Backfill	FT	0 - FT
	Type		
	Seal	1'	
	Material	chips	
	Gravel Pack	7' FT	0 - FT
	Material	2/12 Sand	
	Screen (dia x dep)	2" x 6'	
	Slot Size	.010	
	Material	Sch 40 pvc	
	Well Depth	9' FT	
	Backfill		
	Material		
	Total Hole Depth	FT	

Scale 1" = _____ Page _____ of _____

RESOURCE PROTECTI(I WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURI NT
Notice of Intent No. RE06798

Construction/Decommission

[X] Construction

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

mw-6

Type of Well

[X] Resource Protection

[ ] Geotechnical Soil Boring

Property Owner **Florence H. Mackner Trust**

Site Address **400 E. Mountain View Rd.**

Consulting Firm **Fulcrum Environmental**

City **Ellensburg** County **Kittitas**

EWM

Unique Ecology Well ID Tag No. BHM-6"927

Location 1/4 **NE** 1/4 **NE** Sec **11** TWN **17N** Range **18E** or WWM

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 x Lat Min/Sec x Long Deg x Long Min/Sec x

[ ] Driller [ ] Trainee Name (Print) **Todd Mecham**

Driller/Trainee Signature _____

Driller/Trainee License No. **2555**

Tax Parcel No. **908633**

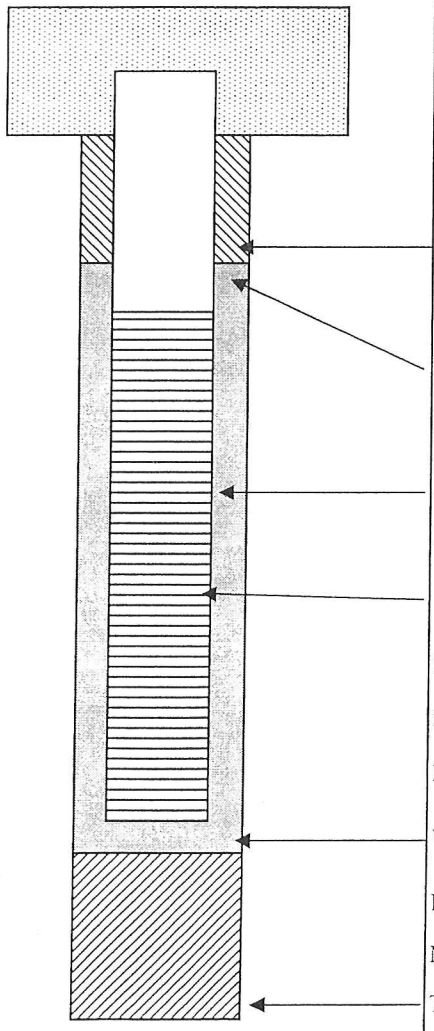
Cased or Uncased Diameter 6" Static Level 5

Work/Decommision Start Date **3/6/2012**

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

Work/Decommision End Date **3/6/2012**

Construction/Design



Well Data W12-105

Concrete Surface Seal Depth	1	FT
Blank Casing (dia x dep)	2" x 3'	
Material	Sch 40 pvc	
Backfill		FT
Type		
Seal	1'	
Material	Chips	
Gravel Pack	8'	FT
Material	2/12 Sand	
Screen (dia x dep)	2" x 7'	
Slot Size	.010	
Material	Sch 40 pvc	
Well Depth	10	FT
Backfill	1	
Material	2/12 Sand	
Total Hole Depth	11	FT

Formation Description

0 - 10'		FT
Brown Sandy gravel		
0 -		FT
0 -		FT

Scale 1" = _____

Page _____ of _____

RESOURCE PROTECTI N WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CUR NT
Notice of Intent No. RE06798

Construction/Decommission

[X] Construction MW-7

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

[X] Resource Protection

[ ] Geotechnical Soil Boring

Property Owner: **Florence H. Mackner Trust**

Site Address: **400 E. Mountain View Rd.**

Consulting Firm: **Fulcrum Environmental**

City: **Ellensburg** County: **Kittitas**

Unique Ecology Well ID Tag No. BHM-928

Location 1/4 **NE** 1/4 **NE** Sec **11** TWN **17N** Range **18E** [EWM] or WWM

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 x Lat Min/Sec x Long Deg x Long Min/Sec x

[ ] Driller [ ] Trainee Name (Print) **Todd Mecham**

Driller/Trainee Signature _____

Driller/Trainee License No. **2555**

Tax Parcel No. **908633**

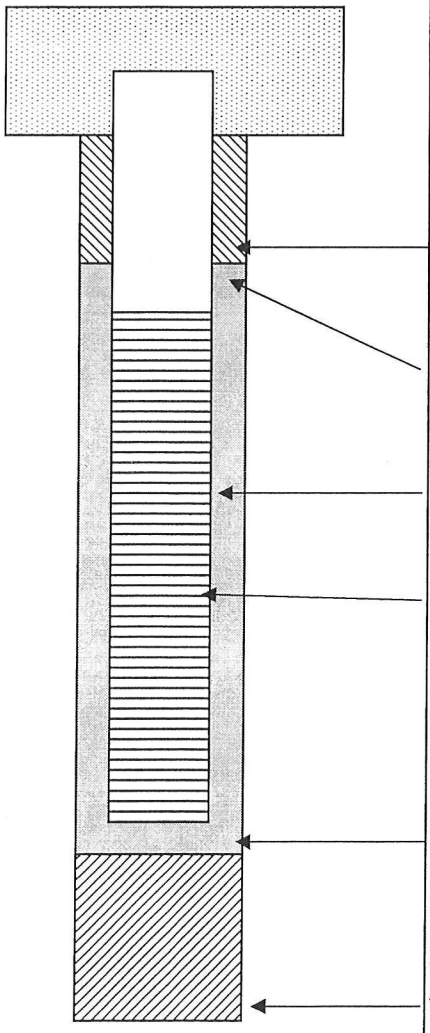
Cased or Uncased Diameter 6" Static Level 5'

Work/Decommision Start Date **3/6/2012**

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

Work/Decommision End Date **3/6/2012**

Construction/Design



Well Data W12-105

Concrete Surface Seal Depth	1	FT
Blank Casing (dia x dep)	2" x 3'	
Material	Sch 40 pvc	
Backfill		FT
Type		
Seal	1'	
Material	Chips	
Gravel Pack	8	FT
Material	2/12 Sand	
Screen (dia x dep)	2" x 7'	
Slot Size	.010	
Material	Sch 40 pvc	
Well Depth	10	FT
Backfill	1	
Material	2/12 Sand	
Total Hole Depth	11	FT

Formation Description

0 - 10'	Brown sandy gravels	FT
0 -		FT
0 -		FT

Scale 1" = _____ Page _____ of _____

ECY 050-12 (Rec=v 2/01)

APPENDIX E

Groundwater Monitoring Events

Appendix E.1

March 12, 2012 Groundwater Monitoring Event Summary

FULCRUM environmental consulting

MEMORANDUM

DATE March 12, 2012
TO Kittitas Valley Fire and Rescue, Traho Architects
FROM Ryan K. Mathews, Fulcrum Environmental Consulting, Inc.
RE **Mountain View Groundwater Monitoring Event Summary**
SUBJECT March Monitoring

The following Site Observation and Field Forms document the March 12, 2012 sampling activities that occurred at the Mountain View Brownfield project site. Please consult the corresponding Figure for a visual representation and laboratory results for sampling analysis.

P. 509.574.0839 F. 509.575.8453
406 North 2nd Street
Yakima, Washington 98901
efulcrum.net

Site Observation Report

Report # 11419.01 Page 1 of 1

Project: Mountain View Groundwater Work Area: 401 East Mountain View

Fulcrum Personnel: Peter Snider Date: 03/12/12 Time: ~1200

Contractor	NA
Work Area	Monitoring wells MW-01 through MW-07 at project location.
Work Tasks	Open, purge, record measurements, and sample monitoring wells according to Sampling and Analysis Plan.

Contractor Employees: NA

Summary of Work: Fulcrum opened wells, measured total well depth, measured depth to water, purged approximately three well-volumes of groundwater (field parameters recorded with each volume), collected samples in poly and amber glass jars, re-secured well, and demobilized from each monitoring well location. All purge water was contained in 55-gallon drums. See Sampling and Analysis Plan for details.

Work Area Controls: New nitrile gloves with each sample collected, high visibility vest, and steel toe boots.

Schedule: Groundwater monitoring event for March 2012 complete.

Delays: None

Comments: ---

Signature: Peter Snider Date: 3/12/2012 Approved: Peter Snider

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 031212-MW-01
Date Collected 03/12/12 Time 1237
Weather Snowing, cold Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-01

Depth to Water (ft): 8.099 Time: 12:00 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: 03/12/12 1208 Casing Volume (gal): 1.11

End Purge: Date/Time: 03/12/12 1238 Purge Volume (gal): 3.32

Total Depth of Well (ft. below top of well casing): 14.60

Purge Volume Calculation: 14.60 – 8.099 = 6.50, 6.50 x 0.17 = 1.11, 1.11 x 3= 3.32

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: ~4.00

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1212	1.25	7.01	50.0/10.0	500	See Comments Below
1218	2.50	7.21	50.0/10.0	750	See Comments Below
1223	3.75	7.24	49.8/9.9	650	See Comments Below

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	7.15	50.0/10.0	660	
2	7.10	50.2/10.1	650	
3	7.18	50.2/10.1	650	
4	7.18	50.0/10.0	650	

pH Meter: Hanna pHep5 Cond. Meter: Oakton TDS Tester II Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.05 at 16.8 ºC Before Sample Collection

Conductivity meter reads 390 at 17.6 ºC Before Sample Collection

Ferrous Iron Level: (See comments) ppm ❑ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample water was silty but had no odor.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX
		❑ Glass ❑ Plastic	❑ Yes / ❑ No	❑ Yes (_____) ❑ No	

Duplicate Sample No(s). _____

Comments: Purge water was silty but had no odor. Ferrous iron level was difficult to measure due to poor water clarity interfering with reagent color indication.

Signature Peter Snider Date 03/12/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 031212-MW-02
Date Collected 03/12/12 Time 1651
Weather Raining, cold Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-02

Depth to Water (ft): 6.500 Time: 1620 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: 03/12/12 1626 Casing Volume (gal): 1.20

End Purge: Date/Time: 03/12/12 1652 Purge Volume (gal): 3.60

Total Depth of Well (ft. below top of well casing): 13.55

Purge Volume Calculation: 13.55 – 6.500 = 7.05, 6.50 x 0.17 = 1.20, 1.20 x 3= 3.60

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: ~4.00

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1427	1.25	6.75	48.6/9.2	300	See Comments Below
1631	2.50	6.48	48.4/9.1	300	See Comments Below
1635	3.75	6.73	48.7/9.3	310	See Comments Below

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	48.7/9.3	310	
2	6.70	48.7/9.3	310	
3	6.70	48.7/9.3	310	
4	6.70	48.7/9.3	310	

pH Meter: Hanna pHep5 Cond. Meter: Oakton TDS Tester II Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.05 at 12.7 ºC Before Sample Collection

Conductivity meter reads 340 at 12.5 ºC Before Sample Collection

Ferrous Iron Level: 4 ppm ✓ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample water was clear with a petroleum hydrocarbon odor and no particulate.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX
		❑ Glass ❑ Plastic	❑ Yes / ❑ No	❑ Yes (_____) ❑ No	

Duplicate Sample No(s). 031212-MW-08 at 1200

Comments: Purge water was clear with a petroleum hydrocarbon odor and no particulate.

Signature Peter Snider Date 03/12/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 031212-MW-03
Date Collected 03/12/12 Time 1327
Weather Snowing, cold Collectors P. Snider

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): 5.379 Time: 1300 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: 03/12/12 1301 Casing Volume (gal): 0.73

End Purge: Date/Time: 03/12/12 1328 Purge Volume (gal): 2.18

Total Depth of Well (ft. below top of well casing): 9.66

Purge Volume Calculation: 9.66 – 5.379 = 4.28, 4.28 x 0.17 = 0.73, 0.73 x 3= 2.18

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: ~4.00

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1310	0.75	6.86	44.2/6.8	190	See Comments Below
1311	1.50	6.89	45.0/7.2	200	See Comments Below
1314	2.25	6.88	46.0/7.8	190	See Comments Below

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	6.88	45.3/7.4	190	
2	6.89	45.1/7.3	190	
3	6.89	45.1/7.3	190	
4	6.88	45.1/7.3	190	

pH Meter: Hanna pHep5 Cond. Meter: Oakton TDS Tester II Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.09 at 10.8 ºC Before Sample Collection

Conductivity meter reads 350 at 11.8 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample water had a slight haze but no odor.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX
		❑ Glass ❑ Plastic	❑ Yes / ❑ No	❑ Yes (_____) ❑ No	

Duplicate Sample No(s). _____

Comments: Purge water had a slight haze but no odor.

Signature Peter Snider Date 03/12/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 031212-MW-04
Date Collected 03/12/12 Time 1715
Weather Raining, cold Collectors P. Snider

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): 5.041 Time: 1242 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: 03/12/12 1346 Casing Volume (gal): 0.86

End Purge: Date/Time: 03/12/12 1354 Purge Volume (gal): 2.58

Total Depth of Well (ft. below top of well casing): 10.10

Purge Volume Calculation: 10.10 – 5.041 = 5.059, 5.059 x 0.17 = 0.86, 0.86 x 3= 2.58

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: ~2.00

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1350	1.00	6.89	45.3/7.4	420	See Comments Below
1354	1.50	7.18	47.8/8.8	410	See Comments Below
Dry	Dry	Dry	Dry	Dry	Dry

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	Dry	Dry	Dry	
2	Dry	Dry	Dry	
3	Dry	Dry	Dry	
4	Dry	Dry	Dry	

pH Meter: Hanna pHep5 Cond. Meter: Oakton TDS Tester II Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.07 at 8.8 ºC Before Sample Collection

Conductivity meter reads 350 at 8.3 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample water had a slight haze but no odor.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX
		❑ Glass ❑ Plastic	❑ Yes / ❑ No	❑ Yes (_____) ❑ No	

Duplicate Sample No(s). _____

Comments: Purge water had a slight haze but no odor.

Signature Peter Snider Date 03/12/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 031212-MW-05
Date Collected 03/12/12 Time 1429
Weather Raining, cold Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-05

Depth to Water (ft): 4.020 Time: 1305 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: 03/12/12 1346 Casing Volume (gal): 0.68

End Purge: Date/Time: 03/12/12 1354 Purge Volume (gal): 2.04

Total Depth of Well (ft. below top of well casing): 8.03

Purge Volume Calculation: 8.03 – 4.020 = 4.01, 5.01 x 0.17 = 0.68, 0.68 x 3= 2.04

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: ~2.50

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1313	0.75	7.18	46.9/8.3	270	See Comments Below
1315	1.50	7.04	47.8/8.8	200	See Comments Below
1318	2.25	6.89	48.0/8.9	190	See Comments Below

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	6.87	48.2/9.0	190	
2	6.89	48.0/8.9	190	
3	6.89	48.0/8.9	190	
4	6.89	48.2/9.0	190	

pH Meter: Hanna pHep5 Cond. Meter: Oakton TDS Tester II Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.04 at 8.7 ºC Before Sample Collection

Conductivity meter reads 330 at 8.4 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample water had a slight haze but no odor.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX
		❑ Glass ❑ Plastic	❑ Yes / ❑ No	❑ Yes (_____) ❑ No	

Duplicate Sample No(s). _____

Comments: Purge water had a slight haze but no odor.

Signature Peter Snider Date 03/12/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 031212-MW-06
Date Collected 03/12/12 Time 1507
Weather Raining, cold Collectors P. Snider

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): 5.491 Time: 1450 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: 03/12/12 1451 Casing Volume (gal): 0.69

End Purge: Date/Time: 03/12/12 1508 Purge Volume (gal): 2.07

Total Depth of Well (ft. below top of well casing): 9.60

Purge Volume Calculation: 9.60 – 5.491 = 4.109, 4.109 x 0.17 = 0.69, 0.69 x 3= 2.07

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: ~2.50

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1454	0.75	6.96	43.9/6.6	220	See Comments Below
1504	1.50	6.98	43.3/6.3	230	See Comments Below
1508	2.25	6.90	43.7/6.5	230	See Comments Below

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	6.96	43.9/6.6	230	
2	6.98	43.9/6.6	230	
3	6.89	43.9/6.6	230	
4	6.95	43.9/6.6	230	

pH Meter: Hanna pHep5 Cond. Meter: Oakton TDS Tester II Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.04 at 8.8 ºC Before Sample Collection

Conductivity meter reads 320 at 8.9 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample water had a yellow haze but no odor.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX
		❑ Glass ❑ Plastic	❑ Yes / ❑ No	❑ Yes (_____) ❑ No	

Duplicate Sample No(s). _____

Comments: Purge water had a yellow haze but no odor.

Signature Peter Snider Date 03/12/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 031212-MW-07
Date Collected 03/12/12 Time 1600
Weather Raining, cold Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-07

Depth to Water (ft): 4.039 Time: 1530 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: 03/12/12 1532 Casing Volume (gal): 1.05

End Purge: Date/Time: 03/12/12 1600 Purge Volume (gal): 3.14

Total Depth of Well (ft. below top of well casing): 10.20

Purge Volume Calculation: 10.20 – 4.039 = 6.161, 6.161 x 0.17 = 1.05, 1.05 x 3= 3.14

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: ~4.00

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1538	1.25	6.79	45.7/7.6	170	See Comments Below
1541	2.50	6.86	43.7/6.3	160	See Comments Below
1545	3.75	6.92	43.5/6.4	160	See Comments Below

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	6.92	43.5/6.4	160	
2	6.92	43.5/6.4	160	
3	6.91	43.5/6.4	160	
4	6.91	43.5/6.4	160	

pH Meter: Hanna pHep5 Cond. Meter: Oakton TDS Tester II Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.05 at 11.5 ºC Before Sample Collection

Conductivity meter reads 350 at 12.0 ºC Before Sample Collection

Ferrous Iron Level: 8 ppm ✓ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample water was clear with no odor and no pariculate.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX
		❑ Glass ❑ Plastic	❑ Yes / ❑ No	❑ Yes (_____) ❑ No	

Duplicate Sample No(s). _____

Comments: Purge water was clear with no odor and no particulate.

Signature Peter Snider Date 03/12/12

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: Mountain View Groundwater Sampling
Lab ID: 1203082

March 19, 2012

Attention Jeremy Lynn:

Fremont Analytical, Inc. received 8 sample(s) on 3/14/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Dissolved Metals by EPA Method 200.8
Gasoline by NWTPH-Gx
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: *03/19/2012*

CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater Sampling
Lab Order: 1203082

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1203082-001	031212-MW-01	03/12/2012 12:37 PM	03/14/2012 9:45 AM
1203082-002	031212-MW-02	03/12/2012 4:51 PM	03/14/2012 9:45 AM
1203082-003	031212-MW-03	03/12/2012 1:27 PM	03/14/2012 9:45 AM
1203082-004	031212-MW-04	03/12/2012 5:15 PM	03/14/2012 9:45 AM
1203082-005	031212-MW-05	03/12/2012 2:29 PM	03/14/2012 9:45 AM
1203082-006	031212-MW-06	03/12/2012 3:07 PM	03/14/2012 9:45 AM
1203082-007	031212-MW-07	03/12/2012 4:00 PM	03/14/2012 9:45 AM
1203082-008	031212-MW-08	03/12/2012 12:00 PM	03/14/2012 9:45 AM

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

Case Narrative

WO#: **1203082**
Date: **3/19/2012**

CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater Sampling

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#: **1203082**
Date Reported: **3/19/2012**

Client: Fulcrum Environmental
Collection Date: 3/12/2012 12:37:00 PM
Project: Mountain View Groundwater Sampling
Lab ID: 1203082-001
Matrix: Water
Client Sample ID: 031212-MW-01

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2052		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/15/2012 8:46:00 PM
Heavy Oil	ND	100		µg/L	1	3/15/2012 8:46:00 PM
Surr: 2-Fluorobiphenyl	71.2	59-137		%REC	1	3/15/2012 8:46:00 PM
Surr: o-Terphenyl	112	55.5-139		%REC	1	3/15/2012 8:46:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3681		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/18/2012 4:35:00 PM
Surr: 1,2-Dichloroethane-d4	93.5	65-135		%REC	1	3/18/2012 4:35:00 PM
Surr: Fluorobenzene	91.1	65-135		%REC	1	3/18/2012 4:35:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3679		Analyst: PH
Benzene	ND	1.00		µg/L	1	3/18/2012 4:35:00 PM
Toluene	ND	1.00		µg/L	1	3/18/2012 4:35:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/18/2012 4:35:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/18/2012 4:35:00 PM
o-Xylene	ND	1.00		µg/L	1	3/18/2012 4:35:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.2	79.2-120		%REC	1	3/18/2012 4:35:00 PM
Surr: Dibromofluoromethane	99.9	76-114		%REC	1	3/18/2012 4:35:00 PM
Surr: Toluene-d8	100	86.8-119		%REC	1	3/18/2012 4:35:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2065		Analyst: BR
Lead	ND	1.00		µg/L	1	3/16/2012 5:25:47 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#: **1203082**
Date Reported: **3/19/2012**

Client: Fulcrum Environmental
Collection Date: 3/12/2012 4:51:00 PM
Project: Mountain View Groundwater Sampling
Lab ID: 1203082-002
Matrix: Water
Client Sample ID: 031212-MW-02

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2052		Analyst: EM
Diesel (Fuel Oil)	697	50.0		µg/L	1	3/15/2012 9:13:00 PM
Heavy Oil	ND	100		µg/L	1	3/15/2012 9:13:00 PM
Surr: 2-Fluorobiphenyl	67.2	59-137		%REC	1	3/15/2012 9:13:00 PM
Surr: o-Terphenyl	116	55.5-139		%REC	1	3/15/2012 9:13:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3681		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/18/2012 5:38:00 PM
Surr: 1,2-Dichloroethane-d4	93.1	65-135		%REC	1	3/18/2012 5:38:00 PM
Surr: Fluorobenzene	91.4	65-135		%REC	1	3/18/2012 5:38:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3679		Analyst: PH
Benzene	ND	1.00		µg/L	1	3/18/2012 5:38:00 PM
Toluene	ND	1.00		µg/L	1	3/18/2012 5:38:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/18/2012 5:38:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/18/2012 5:38:00 PM
o-Xylene	ND	1.00		µg/L	1	3/18/2012 5:38:00 PM
Surr: 1-Bromo-4-fluorobenzene	103	79.2-120		%REC	1	3/18/2012 5:38:00 PM
Surr: Dibromofluoromethane	99.1	76-114		%REC	1	3/18/2012 5:38:00 PM
Surr: Toluene-d8	102	86.8-119		%REC	1	3/18/2012 5:38:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2065		Analyst: BR
Lead	ND	1.00		µg/L	1	3/16/2012 6:04:43 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#: **1203082**
Date Reported: **3/19/2012**

Client: Fulcrum Environmental
Collection Date: 3/12/2012 1:27:00 PM
Project: Mountain View Groundwater Sampling
Lab ID: 1203082-003
Matrix: Water
Client Sample ID: 031212-MW-03

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2052		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/15/2012 9:41:00 PM
Heavy Oil	ND	100		µg/L	1	3/15/2012 9:41:00 PM
Surr: 2-Fluorobiphenyl	78.9	59-137		%REC	1	3/15/2012 9:41:00 PM
Surr: o-Terphenyl	119	55.5-139		%REC	1	3/15/2012 9:41:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3681		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/18/2012 7:09:00 PM
Surr: 1,2-Dichloroethane-d4	91.3	65-135		%REC	1	3/18/2012 7:09:00 PM
Surr: Fluorobenzene	90.6	65-135		%REC	1	3/18/2012 7:09:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3679		Analyst: PH
Benzene	ND	1.00		µg/L	1	3/18/2012 7:09:00 PM
Toluene	ND	1.00		µg/L	1	3/18/2012 7:09:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/18/2012 7:09:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/18/2012 7:09:00 PM
o-Xylene	ND	1.00		µg/L	1	3/18/2012 7:09:00 PM
Surr: 1-Bromo-4-fluorobenzene	101	79.2-120		%REC	1	3/18/2012 7:09:00 PM
Surr: Dibromofluoromethane	99.9	76-114		%REC	1	3/18/2012 7:09:00 PM
Surr: Toluene-d8	103	86.8-119		%REC	1	3/18/2012 7:09:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2065		Analyst: BR
Lead	ND	1.00		µg/L	1	3/16/2012 6:13:42 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#: **1203082**
Date Reported: **3/19/2012**

Client: Fulcrum Environmental
Collection Date: 3/12/2012 5:15:00 PM
Project: Mountain View Groundwater Sampling
Lab ID: 1203082-004
Matrix: Water
Client Sample ID: 031212-MW-04

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2052		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/15/2012 10:08:00 PM
Heavy Oil	ND	100		µg/L	1	3/15/2012 10:08:00 PM
Surr: 2-Fluorobiphenyl	69.4	59-137		%REC	1	3/15/2012 10:08:00 PM
Surr: o-Terphenyl	107	55.5-139		%REC	1	3/15/2012 10:08:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3681		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/18/2012 8:10:00 PM
Surr: 1,2-Dichloroethane-d4	90.8	65-135		%REC	1	3/18/2012 8:10:00 PM
Surr: Fluorobenzene	89.8	65-135		%REC	1	3/18/2012 8:10:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3679		Analyst: PH
Benzene	ND	1.00		µg/L	1	3/18/2012 8:10:00 PM
Toluene	ND	1.00		µg/L	1	3/18/2012 8:10:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/18/2012 8:10:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/18/2012 8:10:00 PM
o-Xylene	ND	1.00		µg/L	1	3/18/2012 8:10:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.6	79.2-120		%REC	1	3/18/2012 8:10:00 PM
Surr: Dibromofluoromethane	97.9	76-114		%REC	1	3/18/2012 8:10:00 PM
Surr: Toluene-d8	101	86.8-119		%REC	1	3/18/2012 8:10:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2065		Analyst: BR
Lead	ND	1.00		µg/L	1	3/16/2012 6:22:42 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#: **1203082**
Date Reported: **3/19/2012**

Client: Fulcrum Environmental
Collection Date: 3/12/2012 2:29:00 PM
Project: Mountain View Groundwater Sampling
Lab ID: 1203082-005
Matrix: Water
Client Sample ID: 031212-MW-05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2052		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/15/2012 10:36:00 PM
Heavy Oil	ND	100		µg/L	1	3/15/2012 10:36:00 PM
Surr: 2-Fluorobiphenyl	72.9	59-137		%REC	1	3/15/2012 10:36:00 PM
Surr: o-Terphenyl	113	55.5-139		%REC	1	3/15/2012 10:36:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3681		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/18/2012 8:41:00 PM
Surr: 1,2-Dichloroethane-d4	90.9	65-135		%REC	1	3/18/2012 8:41:00 PM
Surr: Fluorobenzene	89.1	65-135		%REC	1	3/18/2012 8:41:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3679		Analyst: PH
Benzene	ND	1.00		µg/L	1	3/18/2012 8:41:00 PM
Toluene	ND	1.00		µg/L	1	3/18/2012 8:41:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/18/2012 8:41:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/18/2012 8:41:00 PM
o-Xylene	ND	1.00		µg/L	1	3/18/2012 8:41:00 PM
Surr: 1-Bromo-4-fluorobenzene	100	79.2-120		%REC	1	3/18/2012 8:41:00 PM
Surr: Dibromofluoromethane	98.5	76-114		%REC	1	3/18/2012 8:41:00 PM
Surr: Toluene-d8	102	86.8-119		%REC	1	3/18/2012 8:41:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2065		Analyst: BR
Lead	ND	1.00		µg/L	1	3/16/2012 6:31:42 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#: **1203082**
Date Reported: **3/19/2012**

Client: Fulcrum Environmental
Collection Date: 3/12/2012 3:07:00 PM
Project: Mountain View Groundwater Sampling
Lab ID: 1203082-006
Matrix: Water
Client Sample ID: 031212-MW-06

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2052		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/15/2012 11:03:00 PM
Heavy Oil	ND	100		µg/L	1	3/15/2012 11:03:00 PM
Surr: 2-Fluorobiphenyl	86.0	59-137		%REC	1	3/15/2012 11:03:00 PM
Surr: o-Terphenyl	127	55.5-139		%REC	1	3/15/2012 11:03:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3681		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/18/2012 9:12:00 PM
Surr: 1,2-Dichloroethane-d4	91.0	65-135		%REC	1	3/18/2012 9:12:00 PM
Surr: Fluorobenzene	89.2	65-135		%REC	1	3/18/2012 9:12:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3679		Analyst: PH
Benzene	ND	1.00		µg/L	1	3/18/2012 9:12:00 PM
Toluene	ND	1.00		µg/L	1	3/18/2012 9:12:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/18/2012 9:12:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/18/2012 9:12:00 PM
o-Xylene	ND	1.00		µg/L	1	3/18/2012 9:12:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.9	79.2-120		%REC	1	3/18/2012 9:12:00 PM
Surr: Dibromofluoromethane	99.3	76-114		%REC	1	3/18/2012 9:12:00 PM
Surr: Toluene-d8	102	86.8-119		%REC	1	3/18/2012 9:12:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2065		Analyst: BR
Lead	ND	1.00		µg/L	1	3/16/2012 6:40:42 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#: **1203082**
Date Reported: **3/19/2012**

Client: Fulcrum Environmental
Collection Date: 3/12/2012 4:00:00 PM
Project: Mountain View Groundwater Sampling
Lab ID: 1203082-007
Matrix: Water
Client Sample ID: 031212-MW-07

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2052		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/15/2012 11:31:00 PM
Heavy Oil	ND	100		µg/L	1	3/15/2012 11:31:00 PM
Surr: 2-Fluorobiphenyl	70.4	59-137		%REC	1	3/15/2012 11:31:00 PM
Surr: o-Terphenyl	106	55.5-139		%REC	1	3/15/2012 11:31:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3681		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/18/2012 9:43:00 PM
Surr: 1,2-Dichloroethane-d4	91.2	65-135		%REC	1	3/18/2012 9:43:00 PM
Surr: Fluorobenzene	92.8	65-135		%REC	1	3/18/2012 9:43:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3679		Analyst: PH
Benzene	ND	1.00		µg/L	1	3/18/2012 9:43:00 PM
Toluene	ND	1.00		µg/L	1	3/18/2012 9:43:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/18/2012 9:43:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/18/2012 9:43:00 PM
o-Xylene	ND	1.00		µg/L	1	3/18/2012 9:43:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.1	79.2-120		%REC	1	3/18/2012 9:43:00 PM
Surr: Dibromofluoromethane	96.1	76-114		%REC	1	3/18/2012 9:43:00 PM
Surr: Toluene-d8	101	86.8-119		%REC	1	3/18/2012 9:43:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2065		Analyst: BR
Lead	ND	1.00		µg/L	1	3/16/2012 6:49:42 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#: **1203082**
Date Reported: **3/19/2012**

Client: Fulcrum Environmental
Collection Date: 3/12/2012 12:00:00 PM
Project: Mountain View Groundwater Sampling
Lab ID: 1203082-008
Matrix: Water
Client Sample ID: 031212-MW-08

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2052		Analyst: EM
Diesel (Fuel Oil)	543	50.0		µg/L	1	3/15/2012 11:58:00 PM
Heavy Oil	ND	100		µg/L	1	3/15/2012 11:58:00 PM
Surr: 2-Fluorobiphenyl	66.9	59-137		%REC	1	3/15/2012 11:58:00 PM
Surr: o-Terphenyl	114	55.5-139		%REC	1	3/15/2012 11:58:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3681		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/18/2012 10:14:00 PM
Surr: 1,2-Dichloroethane-d4	89.8	65-135		%REC	1	3/18/2012 10:14:00 PM
Surr: Fluorobenzene	90.5	65-135		%REC	1	3/18/2012 10:14:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3679		Analyst: PH
Benzene	ND	1.00		µg/L	1	3/18/2012 10:14:00 PM
Toluene	ND	1.00		µg/L	1	3/18/2012 10:14:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/18/2012 10:14:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/18/2012 10:14:00 PM
o-Xylene	ND	1.00		µg/L	1	3/18/2012 10:14:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.3	79.2-120		%REC	1	3/18/2012 10:14:00 PM
Surr: Dibromofluoromethane	98.3	76-114		%REC	1	3/18/2012 10:14:00 PM
Surr: Toluene-d8	103	86.8-119		%REC	1	3/18/2012 10:14:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2065		Analyst: BR
Lead	ND	1.00		µg/L	1	3/16/2012 6:58:42 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

Fremont Analytical

Date: *3/19/2012*

Work Order: 1203082
CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater Sampling

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **LCS-2052**	SampType: **LCS**	Units: **µg/L**	Prep Date: **3/14/2012**	RunNo: **3667**
Client ID: **LCSW**	Batch ID: **2052**		Analysis Date: **3/15/2012**	SeqNo: **65669**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	2,180	50.0	2,000	0	109	65	135				
Surr: 2-Fluorobiphenyl	77.0		80.00		96.3	59	137				
Surr: o-Terphenyl	97.3		80.00		122	55.5	139				

Sample ID: **MB-2052**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **3/14/2012**	RunNo: **3667**
Client ID: **MBLKW**	Batch ID: **2052**		Analysis Date: **3/15/2012**	SeqNo: **65670**

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	48.3		80.00		60.4	59	137				
Surr: o-Terphenyl	69.8		80.00		87.3	55.5	139				

Sample ID: **1203082-008BDUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **3/14/2012**	RunNo: **3667**
Client ID: **031212-MW-08**	Batch ID: **2052**		Analysis Date: **3/16/2012**	SeqNo: **65675**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	627	50.0						543.1	14.3	30	
Heavy Oil	ND	100						0	0	30	
Surr: 2-Fluorobiphenyl	54.2		80.00		67.8	59	137		0		
Surr: o-Terphenyl	96.1		80.00		120	55.5	139		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

Fremont Analytical

Date: *3/19/2012*

Work Order: 1203082
CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater Sampling

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-R3681** SampType: **MBLK** Units: **µg/L** Prep Date: **3/18/2012** RunNo: **3681**
Client ID: **MBLKW** Batch ID: **R3681** Analysis Date: **3/18/2012** SeqNo: **65999**

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	9.44		10.00		94.4	65	135				
Surr: Fluorobenzene	9.35		10.00		93.5	65	135				

Sample ID: **LCS-R3681** SampType: **LCS** Units: **µg/L** Prep Date: **3/18/2012** RunNo: **3681**
Client ID: **LCSW** Batch ID: **R3681** Analysis Date: **3/18/2012** SeqNo: **66000**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	512	50.0	500.0	0	102	65	135				
Surr: 1,2-Dichloroethane-d4	9.47		10.00		94.7	65	135				
Surr: Fluorobenzene	9.55		10.00		95.5	65	135				

Sample ID: **1203082-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/18/2012** RunNo: **3681**
Client ID: **031212-MW-01** Batch ID: **R3681** Analysis Date: **3/18/2012** SeqNo: **66004**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0						0	0	30	
Surr: 1,2-Dichloroethane-d4	9.30		10.00		93.0	65	135		0		
Surr: Fluorobenzene	9.02		10.00		90.2	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

Work Order: 1203082
CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater Sampling

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R3679** SampType: **MBLK** Units: **µg/L** Prep Date: **3/18/2012** RunNo: **3679**
Client ID: **MBLKW** Batch ID: **R3679** Analysis Date: **3/18/2012** SeqNo: **65965**

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									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Surr: 1-Bromo-4-fluorobenzene	9.81		10.00		98.1	79.2	120				
Surr: Dibromofluoromethane	9.81		10.00		98.1	76	114				
Surr: Toluene-d8	9.98		10.00		99.8	86.8	119				

Sample ID: **LCS-R3679** SampType: **LCS** Units: **µg/L** Prep Date: **3/18/2012** RunNo: **3679**
Client ID: **LCSW** Batch ID: **R3679** Analysis Date: **3/18/2012** SeqNo: **65966**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	10.7	1.00	10.00	0	107	73.9	125				
Toluene	9.93	1.00	10.00	0	99.3	73	126				
Surr: 1-Bromo-4-fluorobenzene	9.91		10.00		99.1	79.2	120				
Surr: Dibromofluoromethane	9.56		10.00		95.6	76	114				
Surr: Toluene-d8	9.73		10.00		97.3	86.8	119				

Sample ID: **1203082-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/18/2012** RunNo: **3679**
Client ID: **031212-MW-01** Batch ID: **R3679** Analysis Date: **3/18/2012** SeqNo: **65970**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						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: 1203082
CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater Sampling

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1203082-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/18/2012** RunNo: **3679**
Client ID: **031212-MW-01** Batch ID: **R3679** Analysis Date: **3/18/2012** SeqNo: **65970**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	1.00						0	0	30	
Ethylbenzene	ND	1.00						0	0	30	
m,p-Xylene	ND	1.00						0	0	30	
o-Xylene	ND	1.00						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	10.0		10.00		100	79.2	120		0		
Surr: Dibromofluoromethane	9.95		10.00		99.5	76	114		0		
Surr: Toluene-d8	10.3		10.00		103	86.8	119		0		

Sample ID: **1203082-003AMS** SampType: **MS** Units: **µg/L** Prep Date: **3/18/2012** RunNo: **3679**
Client ID: **031212-MW-03** Batch ID: **R3679** Analysis Date: **3/18/2012** SeqNo: **65973**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	10.6	1.00	10.00	0	106	70.7	126				
Toluene	10.0	1.00	10.00	0	100	72.4	122				
Surr: 1-Bromo-4-fluorobenzene	10.0		10.00		100	79.2	120				
Surr: Dibromofluoromethane	9.70		10.00		97.0	76	114				
Surr: Toluene-d8	10.2		10.00		102	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: **1203082**
Logged by: **Troy Zehr**	Date Received: **3/14/2012 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?	Client					

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 1	1.9	Good
Cooler 2	2.7	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): 1203082
Date: 03/13/2012
Page: ____ of: ____

Client: Fulcrum Environmental Consulting
Address: 406 N. 2nd st.
City, State, Zip: Yakima, WA, 98901
Tel: 509.574.0834

Project Name: Mountain View Groundwater Sampling
Location: Ellensburg, WA
Collected by: Peter Snieder

Reports To (PM): Jeremy Lynn
Fax: 509.575.8453
Email: jlynn@efulcrum.net
Project No: 11570.02

	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)	Total (T) / Dissolved (D)	Anions (IC)**	NWTPH-Dx Ext	NWTPH-Gx			Comments/Depth
1	031212-MW-01	03/12/12	1237	H_2O		X													X	X			.5 L poly containers not field filtered.
2	031212-MW-02		1651																				
3	031212-MW-03		1327																				
4	031212-MW-04		~~1615~~ 1715																				
5	031212-MW-05		1429																				
6	031212-MW-06		1507																				
7	031212-MW-07		1600																				
8	031212-MW-08		1200																				
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: VOA vials in separate cooler

Relinquished	Date/Time	Received	Date/Time
x Peter Snieder	03/13/2012 ~1615	x Jeremy Lynn	3/14/12 9:45
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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): 1203082
Date: 03/13/2012
Page: _____ of: _____

Client: Fulcrum Environmental Consulting
Address: 406 N 2nd st.
City, State, Zip: Yakima, WA, 98901
Tel: 509.574.0834
Project Name: Mountain View Groundwater Sampling
Location: Ellensburg, WA
Collected by: Peter Snieder
Reports To (PM): Jeremy Lyon
Fax: 509.575.8453
Email: jlyon@fulcrum.net
Project No: 11570.02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (NWTPH-Gx)	Hydrocarbon Identification (EPA 8021)	Diesel/Heavy Oil Range Organics (NWTPH-Dx)	SEMI VOC (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 (E)**	Nutrients - Dissolved	Nutrients - Total	Comments/Depth
1 031212-MW-01	03/12/12	1237	H_2O	X										X	D		X	X	.5 L poly containers not field filtered.
2 031212-MW-02		1651												X	D				
3 031212-MW-03		1327												X	D				
4 031212-MW-04		1715												X	D				
5 031212-MW-05		1429												X	D				
6 031212-MW-06		1507												X	D				
7 031212-MW-07		1600												X	D				
8 031212-MW-08		1200												X	D				
9																			
10																			

(X) Added per Jeremy Lyon. 3/14/12

*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: VOA vials in seperate cooler

Relinquished	Date/Time	Received	Date/Time
Peter Snieder	03/13/2012 ~1615	Jeremy Lyon	3/14/12 9:45
Relinquished	Date/Time	Received	Date/Time

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Appendix E.2

April 30, 2012 Groundwater Monitoring Event Summary

FULCRUM environmental consulting

MEMORANDUM

DATE April 30, 2012
TO Kittitas Valley Fire and Rescue, Traho Architects
FROM Ryan K. Mathews, Fulcrum Environmental Consulting, Inc.
RE **Mountain View Groundwater Monitoring Event Summary**
SUBJECT April Monitoring

The following Site Observation and Field Forms document the April 30, 2012 sampling activities that occurred at the Mountain View Brownfield project site. Please consult the corresponding Figure for a visual representation and laboratory results for sampling analysis.

P. 509.574.0839 F. 509.575.8453
406 North 2nd Street
Yakima, Washington 98901
efulcrum.net

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 043012-MW-01
Date Collected 04/30/12 Time 1103
Weather Cold, windy Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-01

Depth to Water (ft): 7.875 Time: 1030 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: 04/30/12 1031 Casing Volume (gal): 1.86

End Purge: Date/Time: 04/30/12 1104 Purge Volume (gal): 3.55

Total Depth of Well (ft. below top of well casing): 14.85

Purge Volume Calculation: 14.85-7.875=6.975x.17=1.186x3=3.55

VOLUME OF SCHEDULE 40 PVC PIPE
Casing Volume (gal) = $\pi r^2 h * 7.48$
Where: $\pi = 3.1416$; 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: ~5.00

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1035	1.25	6.88	52.5/11.4	370	slight haze, no odor
1042	2.50	6.92	52.3/11.3	440	
1045	3.75	6.93	51.8/11.0	440	

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	6.92	51.8/11.0	440	
2	6.93	51.8/11.0	440	
3	6.93	51.6/10.9	440	
4	6.93	51.4/10.8	440	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.04 at 19.8 ºC Before Sample Collection

Conductivity meter reads 390 at 19.3 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample had slight haze with no particulate or odor.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	❑ Yes (_____)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX

Duplicate Sample No(s). 043012-MW-08

Comments: _____

Signature Peter Snider Date 04/30/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 043012-MW-02
Date Collected 04/30/12 Time 1628
Weather Cold, windy Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-02

Depth to Water (ft): 8.544 Time: 1605 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: 04/30/12 1610 Casing Volume (gal): 0.789

End Purge: Date/Time: 04/30/12 1629 Purge Volume (gal): 2.369

Total Depth of Well (ft. below top of well casing): 13.19

Purge Volume Calculation: 13.19-8.544=4.646x.17=.789x3=2.369

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: ~3.5

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1615	1.00	6.73	50.7/10.4	320	Slight odor, no particulate, clear
1620	2.00	6.40	49.6/9.8	360	
1525	3.00	6.68	49.5/9.4	350	

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	6.68	49.5/9.7	350	
2	6.68	49.3/9.6	350	
3	6.68	49.3/9.6	350	
4	6.68	49.3/9.6	350	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.02 at 19.8 ºC Before Sample Collection

Conductivity meter reads 400 at 20.0 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Very slight dioxide odor, no particulate, no haze/color

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)❑ No	Dissolved lead
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX

Duplicate Sample No(s). _____

Comments: _____

Signature Peter Snider Date 04/30/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 043012-MW-03
Date Collected 04/30/12 Time 1219
Weather Cold, windy Collectors P. Snider

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): 4.880 Time: 1202 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: 04/30/12 1206 Casing Volume (gal): 0.643

End Purge: Date/Time: 04/30/12 1220 Purge Volume (gal): 1.928

Total Depth of Well (ft. below top of well casing): 8.66

Purge Volume Calculation: 8.66-4.88=3.78x.17=.643x3=1.928

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: ~3.00

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1208	0.75	6.64	49.6/9.8	310	Clear, no odor, no part
1210	1.50	6.69	49.8/9.9	290	
1212	2.25	6.71	49.1/9.5	320	

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	6.74	48.7/9.3	310	
2	6.74	48.6/9.2	310	
3	6.74	48.6/9.2	310	
4	6.74	48.4/9.1	310	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.03 at 15.4 ºC Before Sample Collection

Conductivity meter reads 370 at 16.2 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Clear, no odor, no particulate

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)❑ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX

Duplicate Sample No(s). _____

Comments: _____

Signature Peter Snider Date 04/30/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 043012-MW-04
Date Collected 04/30/12 Time 1545
Weather Cold, windy Collectors P. Snider

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): 4.481 Time: 1255 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: 04/30/12 1256 Casing Volume (gal): 1.03

End Purge: Date/Time: 04/30/12 1305 Purge Volume (gal): 3.11

Total Depth of Well (ft. below top of well casing): 10.58

Purge Volume Calculation: 10.58-4.481-6.01x.17=1.03x3=3.11

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: ~2.25

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1303	1.25	6.95	51.1/10.6	560	Slight brown haze, particulate, no odor
Dry	Dry	Dry	Dry	Dry	Dry
Dry	Dry	Dry	Dry	Dry	Dry

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	Dry	Dry	Dry	
2	Dry	Dry	Dry	
3	Dry	Dry	Dry	
4	Dry	Dry	Dry	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.04 at 15.0 ºC Before Sample Collection

Conductivity meter reads 370 at 15.7 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Very slight brown haze, particulate, no odor

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	❑ Yes (HNO_3)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX

Duplicate Sample No(s). _____

Comments: Pumped well dry at ~1.5 gallons. Returned at 1540 to collect samples following recharge.

Signature Peter Snider Date 04/30/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 043012-MW-05
Date Collected 04/30/12 Time 1328
Weather Cold, windy Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-05

Depth to Water (ft): 3.650 Time: 1325 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: 04/30/12 1333 Casing Volume (gal): 0.867

End Purge: Date/Time: 04/30/12 1349 Purge Volume (gal): 2.601

Total Depth of Well (ft. below top of well casing): 8.75

Purge Volume Calculation: 8.75-3.65=5.1x.17=0.867x3=2.601

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: ~3.50

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1336	1.00	6.88	54.1/12.3	250	Clear, no odor, no particulate
1340	2.00	6.89	50.5/10.3	250	
1342	3.00	6.86	50.9/10.5	250	

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	6.88	49.8/9.9	250	
2	6.89	49.6/9.8	250	
3	6.89	49.6/9.8	270	
4	6.88	49.6/9.8	260	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.02 at 18.2 ºC Before Sample Collection

Conductivity meter reads 390 at 18.0 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Clear, no odor, no particulate

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____) ✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	❑ Yes (HNO_3) ✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____) ✓ No	NWTPH-Gx; BTEX

Duplicate Sample No(s). _____

Comments: _____

Signature Peter Snider Date 04/30/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 043012-MW-06
Date Collected 04/30/12 Time 1444
Weather Cold, windy Collectors P. Snider

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): 3.698 Time: 1420 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: 04/30/12 1420 Casing Volume (gal): 0.745

End Purge: Date/Time: 04/30/12 1445 Purge Volume (gal): 2.236

Total Depth of Well (ft. below top of well casing): 9.91

Purge Volume Calculation: 9.91=3.698=6.212x.12=.745x3=2.24

VOLUME OF SCHEDULE 40 PVC PIPE
Casing Volume (gal) = $\pi r^2 h * 7.48$
Where: $\pi = 3.1416$; 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: ~3.50

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1424	0.75	6.77	50.7/10.4	380	Slight haze, no odor, no particulate
1426	1.50	6.86	48.9/9.4	350	
1429	2.25	6.88	48.7/9.3	350	

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	6.90	47.8/8.8	350	
2	6.89	48.0/8.9	360	
3	6.89	48.0/8.9	370	
4	6.90	48.0/8.9	350	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.00 at 23.7 ºC Before Sample Collection

Conductivity meter reads 430 at 23.5 ºC Before Sample Collection

Ferrous Iron Level: 2 ppm ✓ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Slight haze, no odor, no particulate.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)❑ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX

Duplicate Sample No(s). _____

Comments: _____

Signature Peter Snider Date 04/30/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View Wells/11-570.02

SAMPLE No. 043012-MW-07
Date Collected 04/30/12 Time 1529
Weather Cold, windy Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW-07

Depth to Water (ft): 1.578 Time: 1508 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: 04/30/12 1510 Casing Volume (gal): 1.46

End Purge: Date/Time: 04/30/12 1530 Purge Volume (gal): 4.39

Total Depth of Well (ft. below top of well casing): 10.19

Purge Volume Calculation: 10.19-1.578=8.612x.17=1.46x3=4.39

VOLUME OF SCHEDULE 40 PVC PIPE
Casing Volume (gal) = $\pi r^2 h * 7.48$
Where: $\pi = 3.1416$; 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: ~5.5

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1515	1.50	6.77	51.8/11.0	160	Yellow haze, no odor, no particulate
1519	3.00	6.78	50.2/10.1	160	
1524	4.5	6.80	49.8/9.9	160	

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	6.81	49.8/9.9	160	
2	6.80	49.6/9.8	160	
3	6.80	49.6/9.8	160	
4	6.80	49.6/9.8	160	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.02 at 20.4 ºC Before Sample Collection

Conductivity meter reads 400 at 20.5 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Very slight yellow haze, no odor, no particulate.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1.0 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	0.5 L	❑ Glass ✓ Plastic	✓ Yes / ❑ No	❑ Yes (HNO_3)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-Gx; BTEX

Duplicate Sample No(s). _____

Comments: Adjacent stream appeared at or near flood stage, presumably the cause for high water level in the well.

Signature Peter Snider Date 04/30/12

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

Fulcrum Environmental
Peter Snider
406 N. 2nd Street
Yakima, Washington 98901

RE: Mountain View Brownfield
Lab ID: 1205008

May 08, 2012

Attention Peter Snider:

Fremont Analytical, Inc. received 8 sample(s) on 5/2/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Dissolved Metals by EPA Method 200.8
Gasoline by NWTPH-Gx
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

CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield
Lab Order: 1205008

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1205008-001	043012-MW-01	04/30/2012 11:03 AM	05/02/2012 9:03 AM
1205008-002	043012-MW-02	04/30/2012 4:28 PM	05/02/2012 9:03 AM
1205008-003	043012-MW-03	04/30/2012 12:19 PM	05/02/2012 9:03 AM
1205008-004	043012-MW-04	04/30/2012 3:45 PM	05/02/2012 9:03 AM
1205008-005	043012-MW-05	04/30/2012 1:25 PM	05/02/2012 9:03 AM
1205008-006	043012-MW-06	04/30/2012 2:44 PM	05/02/2012 9:03 AM
1205008-007	043012-MW-07	04/30/2012 3:29 PM	05/02/2012 9:03 AM
1205008-008	043012-MW-08	04/30/2012 12:00 AM	05/02/2012 9:03 AM

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

Case Narrative

WO#: **1205008**
Date: **5/8/2012**

CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

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#: **1205008**
Date Reported: **5/8/2012**

Client: Fulcrum Environmental
Collection Date: 4/30/2012 11:03:00 AM
Project: Mountain View Brownfield
Lab ID: 1205008-001
Matrix: Water
Client Sample ID: 043012-MW-01

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2337		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	5/4/2012 6:37:00 PM
Heavy Oil	ND	100		µg/L	1	5/4/2012 6:37:00 PM
Surr: 2-Fluorobiphenyl	67.0	50-150		%REC	1	5/4/2012 6:37:00 PM
Surr: o-Terphenyl	104	50-150		%REC	1	5/4/2012 6:37:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4163		Analyst: PH
Gasoline	ND	50.0		µg/L	1	5/3/2012 9:16:00 PM
Surr: 1,2-Dichloroethane-d4	92.8	65-135		%REC	1	5/3/2012 9:16:00 PM
Surr: Fluorobenzene	121	65-135		%REC	1	5/3/2012 9:16:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4165		Analyst: PH
Benzene	ND	1.00		µg/L	1	5/3/2012 9:16:00 PM
Toluene	ND	1.00		µg/L	1	5/3/2012 9:16:00 PM
Ethylbenzene	ND	1.00		µg/L	1	5/3/2012 9:16:00 PM
m,p-Xylene	ND	1.00		µg/L	1	5/3/2012 9:16:00 PM
o-Xylene	ND	1.00		µg/L	1	5/3/2012 9:16:00 PM
Surr: 1-Bromo-4-fluorobenzene	105	79.2-120		%REC	1	5/3/2012 9:16:00 PM
Surr: Dibromofluoromethane	86.4	76-114		%REC	1	5/3/2012 9:16:00 PM
Surr: Toluene-d8	99.2	86.8-119		%REC	1	5/3/2012 9:16:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2345		Analyst: BR
Lead	ND	1.00		µg/L	1	5/4/2012 8:26:30 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

Analytical Report

WO#: **1205008**
Date Reported: **5/8/2012**

Client: Fulcrum Environmental
Collection Date: 4/30/2012 4:28:00 PM
Project: Mountain View Brownfield
Lab ID: 1205008-002
Matrix: Water
Client Sample ID: 043012-MW-02

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2337		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	5/4/2012 7:05:00 PM
Diesel Range Organics (C12-C24)	274	50.0		µg/L	1	5/4/2012 7:05:00 PM
Heavy Oil	ND	100		µg/L	1	5/4/2012 7:05:00 PM
Surr: 2-Fluorobiphenyl	58.7	50-150		%REC	1	5/4/2012 7:05:00 PM
Surr: o-Terphenyl	92.0	50-150		%REC	1	5/4/2012 7:05:00 PM
NOTES: DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).						
Gasoline by NWTPH-Gx				Batch ID: R4163		Analyst: PH
Gasoline	ND	50.0		µg/L	1	5/3/2012 9:43:00 PM
Surr: 1,2-Dichloroethane-d4	103	65-135		%REC	1	5/3/2012 9:43:00 PM
Surr: Fluorobenzene	124	65-135		%REC	1	5/3/2012 9:43:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4165		Analyst: PH
Benzene	ND	1.00		µg/L	1	5/3/2012 9:43:00 PM
Toluene	ND	1.00		µg/L	1	5/3/2012 9:43:00 PM
Ethylbenzene	ND	1.00		µg/L	1	5/3/2012 9:43:00 PM
m,p-Xylene	ND	1.00		µg/L	1	5/3/2012 9:43:00 PM
o-Xylene	ND	1.00		µg/L	1	5/3/2012 9:43:00 PM
Surr: 1-Bromo-4-fluorobenzene	105	79.2-120		%REC	1	5/3/2012 9:43:00 PM
Surr: Dibromofluoromethane	86.1	76-114		%REC	1	5/3/2012 9:43:00 PM
Surr: Toluene-d8	98.8	86.8-119		%REC	1	5/3/2012 9:43:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2345		Analyst: BR
Lead	ND	1.00		µg/L	1	5/4/2012 9:06:02 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#: **1205008**
Date Reported: **5/8/2012**

Client: Fulcrum Environmental
Collection Date: 4/30/2012 12:19:00 PM
Project: Mountain View Brownfield
Lab ID: 1205008-003
Matrix: Water
Client Sample ID: 043012-MW-03

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2337		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	5/4/2012 7:33:00 PM
Heavy Oil	ND	100		µg/L	1	5/4/2012 7:33:00 PM
Surr: 2-Fluorobiphenyl	80.1	50-150		%REC	1	5/4/2012 7:33:00 PM
Surr: o-Terphenyl	112	50-150		%REC	1	5/4/2012 7:33:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4163		Analyst: PH
Gasoline	ND	50.0		µg/L	1	5/3/2012 10:10:00 PM
Surr: 1,2-Dichloroethane-d4	89.8	65-135		%REC	1	5/3/2012 10:10:00 PM
Surr: Fluorobenzene	124	65-135		%REC	1	5/3/2012 10:10:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4165		Analyst: PH
Benzene	ND	1.00		µg/L	1	5/3/2012 10:10:00 PM
Toluene	ND	1.00		µg/L	1	5/3/2012 10:10:00 PM
Ethylbenzene	ND	1.00		µg/L	1	5/3/2012 10:10:00 PM
m,p-Xylene	ND	1.00		µg/L	1	5/3/2012 10:10:00 PM
o-Xylene	ND	1.00		µg/L	1	5/3/2012 10:10:00 PM
Surr: 1-Bromo-4-fluorobenzene	105	79.2-120		%REC	1	5/3/2012 10:10:00 PM
Surr: Dibromofluoromethane	86.6	76-114		%REC	1	5/3/2012 10:10:00 PM
Surr: Toluene-d8	99.0	86.8-119		%REC	1	5/3/2012 10:10:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2345		Analyst: BR
Lead	ND	1.00		µg/L	1	5/4/2012 9:15:25 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#: **1205008**
Date Reported: **5/8/2012**

Client: Fulcrum Environmental
Collection Date: 4/30/2012 3:45:00 PM
Project: Mountain View Brownfield
Lab ID: 1205008-004
Matrix: Water
Client Sample ID: 043012-MW-04

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2337		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	5/4/2012 8:00:00 PM
Heavy Oil	ND	100		µg/L	1	5/4/2012 8:00:00 PM
Surr: 2-Fluorobiphenyl	77.9	50-150		%REC	1	5/4/2012 8:00:00 PM
Surr: o-Terphenyl	104	50-150		%REC	1	5/4/2012 8:00:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4163		Analyst: PH
Gasoline	ND	50.0		µg/L	1	5/3/2012 10:37:00 PM
Surr: 1,2-Dichloroethane-d4	88.0	65-135		%REC	1	5/3/2012 10:37:00 PM
Surr: Fluorobenzene	122	65-135		%REC	1	5/3/2012 10:37:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4165		Analyst: PH
Benzene	ND	1.00		µg/L	1	5/3/2012 10:37:00 PM
Toluene	ND	1.00		µg/L	1	5/3/2012 10:37:00 PM
Ethylbenzene	ND	1.00		µg/L	1	5/3/2012 10:37:00 PM
m,p-Xylene	ND	1.00		µg/L	1	5/3/2012 10:37:00 PM
o-Xylene	ND	1.00		µg/L	1	5/3/2012 10:37:00 PM
Surr: 1-Bromo-4-fluorobenzene	108	79.2-120		%REC	1	5/3/2012 10:37:00 PM
Surr: Dibromofluoromethane	86.1	76-114		%REC	1	5/3/2012 10:37:00 PM
Surr: Toluene-d8	99.5	86.8-119		%REC	1	5/3/2012 10:37:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2345		Analyst: BR
Lead	ND	1.00		µg/L	1	5/4/2012 9:24:48 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#: **1205008**
Date Reported: **5/8/2012**

Client: Fulcrum Environmental
Collection Date: 4/30/2012 1:25:00 PM
Project: Mountain View Brownfield
Lab ID: 1205008-005
Matrix: Water
Client Sample ID: 043012-MW-05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2337		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	5/4/2012 8:28:00 PM
Heavy Oil	ND	100		µg/L	1	5/4/2012 8:28:00 PM
Surr: 2-Fluorobiphenyl	71.4	50-150		%REC	1	5/4/2012 8:28:00 PM
Surr: o-Terphenyl	107	50-150		%REC	1	5/4/2012 8:28:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4163		Analyst: PH
Gasoline	ND	50.0		µg/L	1	5/3/2012 11:30:00 PM
Surr: 1,2-Dichloroethane-d4	91.7	65-135		%REC	1	5/3/2012 11:30:00 PM
Surr: Fluorobenzene	122	65-135		%REC	1	5/3/2012 11:30:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4165		Analyst: PH
Benzene	ND	1.00		µg/L	1	5/3/2012 11:30:00 PM
Toluene	ND	1.00		µg/L	1	5/3/2012 11:30:00 PM
Ethylbenzene	ND	1.00		µg/L	1	5/3/2012 11:30:00 PM
m,p-Xylene	ND	1.00		µg/L	1	5/3/2012 11:30:00 PM
o-Xylene	ND	1.00		µg/L	1	5/3/2012 11:30:00 PM
Surr: 1-Bromo-4-fluorobenzene	107	79.2-120		%REC	1	5/3/2012 11:30:00 PM
Surr: Dibromofluoromethane	86.5	76-114		%REC	1	5/3/2012 11:30:00 PM
Surr: Toluene-d8	98.4	86.8-119		%REC	1	5/3/2012 11:30:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2345		Analyst: BR
Lead	ND	1.00		µg/L	1	5/4/2012 9:34:11 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#: **1205008**
Date Reported: **5/8/2012**

Client: Fulcrum Environmental
Collection Date: 4/30/2012 2:44:00 PM
Project: Mountain View Brownfield
Lab ID: 1205008-006
Matrix: Water
Client Sample ID: 043012-MW-06

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2337		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	5/4/2012 8:55:00 PM
Heavy Oil	ND	100		µg/L	1	5/4/2012 8:55:00 PM
Surr: 2-Fluorobiphenyl	72.3	50-150		%REC	1	5/4/2012 8:55:00 PM
Surr: o-Terphenyl	105	50-150		%REC	1	5/4/2012 8:55:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4163		Analyst: PH
Gasoline	ND	50.0		µg/L	1	5/3/2012 11:57:00 PM
Surr: 1,2-Dichloroethane-d4	92.6	65-135		%REC	1	5/3/2012 11:57:00 PM
Surr: Fluorobenzene	124	65-135		%REC	1	5/3/2012 11:57:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4165		Analyst: PH
Benzene	ND	1.00		µg/L	1	5/3/2012 11:57:00 PM
Toluene	ND	1.00		µg/L	1	5/3/2012 11:57:00 PM
Ethylbenzene	ND	1.00		µg/L	1	5/3/2012 11:57:00 PM
m,p-Xylene	ND	1.00		µg/L	1	5/3/2012 11:57:00 PM
o-Xylene	ND	1.00		µg/L	1	5/3/2012 11:57:00 PM
Surr: 1-Bromo-4-fluorobenzene	105	79.2-120		%REC	1	5/3/2012 11:57:00 PM
Surr: Dibromofluoromethane	86.2	76-114		%REC	1	5/3/2012 11:57:00 PM
Surr: Toluene-d8	99.1	86.8-119		%REC	1	5/3/2012 11:57:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2345		Analyst: BR
Lead	ND	1.00		µg/L	1	5/4/2012 9:43:34 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#: **1205008**
Date Reported: **5/8/2012**

Client: Fulcrum Environmental
Collection Date: 4/30/2012 3:29:00 PM
Project: Mountain View Brownfield
Lab ID: 1205008-007
Matrix: Water
Client Sample ID: 043012-MW-07

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2337		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	5/4/2012 9:22:00 PM
Heavy Oil	ND	100		µg/L	1	5/4/2012 9:22:00 PM
Surr: 2-Fluorobiphenyl	71.4	50-150		%REC	1	5/4/2012 9:22:00 PM
Surr: o-Terphenyl	96.4	50-150		%REC	1	5/4/2012 9:22:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4163		Analyst: PH
Gasoline	ND	50.0		µg/L	1	5/4/2012 12:24:00 AM
Surr: 1,2-Dichloroethane-d4	103	65-135		%REC	1	5/4/2012 12:24:00 AM
Surr: Fluorobenzene	122	65-135		%REC	1	5/4/2012 12:24:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4165		Analyst: PH
Benzene	ND	1.00		µg/L	1	5/4/2012 12:24:00 AM
Toluene	ND	1.00		µg/L	1	5/4/2012 12:24:00 AM
Ethylbenzene	ND	1.00		µg/L	1	5/4/2012 12:24:00 AM
m,p-Xylene	ND	1.00		µg/L	1	5/4/2012 12:24:00 AM
o-Xylene	ND	1.00		µg/L	1	5/4/2012 12:24:00 AM
Surr: 1-Bromo-4-fluorobenzene	106	79.2-120		%REC	1	5/4/2012 12:24:00 AM
Surr: Dibromofluoromethane	87.1	76-114		%REC	1	5/4/2012 12:24:00 AM
Surr: Toluene-d8	99.9	86.8-119		%REC	1	5/4/2012 12:24:00 AM
Dissolved Metals by EPA Method 200.8				Batch ID: 2345		Analyst: BR
Lead	ND	1.00		µg/L	1	5/4/2012 9:52:57 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#: **1205008**
Date Reported: **5/8/2012**

Client: Fulcrum Environmental
Collection Date: 4/30/2012
Project: Mountain View Brownfield
Lab ID: 1205008-008
Matrix: Water
Client Sample ID: 043012-MW-08

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2337		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	5/4/2012 9:50:00 PM
Heavy Oil	ND	100		µg/L	1	5/4/2012 9:50:00 PM
Surr: 2-Fluorobiphenyl	65.5	50-150		%REC	1	5/4/2012 9:50:00 PM
Surr: o-Terphenyl	100	50-150		%REC	1	5/4/2012 9:50:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4163		Analyst: PH
Gasoline	ND	50.0		µg/L	1	5/4/2012 12:51:00 AM
Surr: 1,2-Dichloroethane-d4	90.8	65-135		%REC	1	5/4/2012 12:51:00 AM
Surr: Fluorobenzene	123	65-135		%REC	1	5/4/2012 12:51:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4165		Analyst: PH
Benzene	ND	1.00		µg/L	1	5/4/2012 12:51:00 AM
Toluene	ND	1.00		µg/L	1	5/4/2012 12:51:00 AM
Ethylbenzene	ND	1.00		µg/L	1	5/4/2012 12:51:00 AM
m,p-Xylene	ND	1.00		µg/L	1	5/4/2012 12:51:00 AM
o-Xylene	ND	1.00		µg/L	1	5/4/2012 12:51:00 AM
Surr: 1-Bromo-4-fluorobenzene	107	79.2-120		%REC	1	5/4/2012 12:51:00 AM
Surr: Dibromofluoromethane	88.2	76-114		%REC	1	5/4/2012 12:51:00 AM
Surr: Toluene-d8	100	86.8-119		%REC	1	5/4/2012 12:51:00 AM
Dissolved Metals by EPA Method 200.8				Batch ID: 2345		Analyst: BR
Lead	ND	1.00		µg/L	1	5/4/2012 10:02:20 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

Work Order: 1205008
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **MB-2345** SampType: **MBLK** Units: **µg/L** Prep Date: **5/4/2012** RunNo: **4177**
Client ID: **MBLKW** Batch ID: **2345** Analysis Date: **5/4/2012** SeqNo: **75072**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00									

Sample ID: **LCS-2345** SampType: **LCS** Units: **µg/L** Prep Date: **5/4/2012** RunNo: **4177**
Client ID: **LCSW** Batch ID: **2345** Analysis Date: **5/4/2012** SeqNo: **75073**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	47.1	1.00	50.00	0	94.3	85	115				

Sample ID: **1205008-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **5/4/2012** RunNo: **4177**
Client ID: **043012-MW-01** Batch ID: **2345** Analysis Date: **5/4/2012** SeqNo: **75075**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00						0	0	30	

Sample ID: **1205008-001BMS** SampType: **MS** Units: **µg/L** Prep Date: **5/4/2012** RunNo: **4177**
Client ID: **043012-MW-01** Batch ID: **2345** Analysis Date: **5/4/2012** SeqNo: **75076**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	234	1.00	250.0	0	93.7	70	130				

Sample ID: **1205008-001BMSD** SampType: **MSD** Units: **µg/L** Prep Date: **5/4/2012** RunNo: **4177**
Client ID: **043012-MW-01** Batch ID: **2345** Analysis Date: **5/4/2012** SeqNo: **75077**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	229	1.00	250.0	0	91.7	70	130	234.3	2.12	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: 1205008
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **LCS-2337** SampType: **LCS** Units: **µg/L** Prep Date: **5/4/2012** RunNo: **4168**
Client ID: **LCSW** Batch ID: **2337** Analysis Date: **5/4/2012** SeqNo: **74956**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,920	50.0	2,000	0	96.2	65	135				
Surr: 2-Fluorobiphenyl	107		160.0		67.2	50	150				
Surr: o-Terphenyl	164		160.0		102	50	150				

Sample ID: **MB-2337** SampType: **MBLK** Units: **µg/L** Prep Date: **5/4/2012** RunNo: **4168**
Client ID: **MBLKW** Batch ID: **2337** Analysis Date: **5/4/2012** SeqNo: **74957**

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	132		160.0		82.6	50	150				
Surr: o-Terphenyl	189		160.0		118	50	150				

Sample ID: **1205008-008CDUP** SampType: **DUP** Units: **µg/L** Prep Date: **5/4/2012** RunNo: **4168**
Client ID: **043012-MW-08** Batch ID: **2337** Analysis Date: **5/4/2012** SeqNo: **75142**

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	
Heavy Oil	ND	100						0	0	30	
Surr: 2-Fluorobiphenyl	115		160.0		71.6	50	150		0		
Surr: o-Terphenyl	173		160.0		108	50	150		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

Fremont Analytical

Date: *5/8/2012*

Work Order: 1205008
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-R4163** SampType: **MBLK** Units: **µg/L** Prep Date: **5/3/2012** RunNo: **4163**
Client ID: **MBLKW** Batch ID: **R4163** Analysis Date: **5/3/2012** SeqNo: **74861**

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	11.9		10.00		119	65	135				

Sample ID: **LCS-R4163** SampType: **LCS** Units: **µg/L** Prep Date: **5/3/2012** RunNo: **4163**
Client ID: **LCSW** Batch ID: **R4163** Analysis Date: **5/3/2012** SeqNo: **74862**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	466	50.0	500.0	0	93.2	65	135				
Surr: 1,2-Dichloroethane-d4	9.12		10.00		91.2	65	135				
Surr: Fluorobenzene	11.9		10.00		119	65	135				

Sample ID: **1205008-004ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **5/3/2012** RunNo: **4163**
Client ID: **043012-MW-04** Batch ID: **R4163** Analysis Date: **5/3/2012** SeqNo: **74867**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0						0	0	30	
Surr: 1,2-Dichloroethane-d4	9.07		10.00		90.7	65	135		0		
Surr: Fluorobenzene	12.4		10.00		124	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

Work Order: 1205008
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-IS805** SampType: **MBLK** Units: **µg/L** Prep Date: **5/3/2012** RunNo: **4165**
Client ID: **MBLKW** Batch ID: **R4165** Analysis Date: **5/3/2012** SeqNo: **74882**

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									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Surr: 1-Bromo-4-fluorobenzene	10.5		10.00		105	79.2	120				
Surr: Dibromofluoromethane	8.78		10.00		87.8	76	114				
Surr: Toluene-d8	10.0		10.00		101	86.8	119				

Sample ID: **LCS-C759-IS805** SampType: **LCS** Units: **µg/L** Prep Date: **5/3/2012** RunNo: **4165**
Client ID: **LCSW** Batch ID: **R4165** Analysis Date: **5/3/2012** SeqNo: **74883**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	8.97	1.00	10.00	0	89.7	73.9	125				
Toluene	9.99	1.00	10.00	0	99.9	73	126				
Surr: 1-Bromo-4-fluorobenzene	10.7		10.00		107	79.2	120				
Surr: Dibromofluoromethane	8.61		10.00		86.1	76	114				
Surr: Toluene-d8	10.0		10.00		100	86.8	119				

Sample ID: **1205008-004ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **5/3/2012** RunNo: **4165**
Client ID: **043012-MW-04** Batch ID: **R4165** Analysis Date: **5/3/2012** SeqNo: **74888**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0	0	30	
Toluene	ND	1.00						0	0	30	
Ethylbenzene	ND	1.00						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

Fremont Analytical

Date: *5/8/2012*

Work Order: 1205008
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1205008-004ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **5/3/2012** RunNo: **4165**
Client ID: **043012-MW-04** Batch ID: **R4165** Analysis Date: **5/3/2012** SeqNo: **74888**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	ND	1.00						0	0	30	
o-Xylene	ND	1.00						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	10.6		10.00		106	79.2	120		0		
Surr: Dibromofluoromethane	8.63		10.00		86.3	76	114		0		
Surr: Toluene-d8	9.81		10.00		98.1	86.8	119		0		

Sample ID: **1205005-004AMS** SampType: **MS** Units: **µg/L** Prep Date: **5/3/2012** RunNo: **4165**
Client ID: **BATCH** Batch ID: **R4165** Analysis Date: **5/4/2012** SeqNo: **74904**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	11.4	1.00	10.00	0.6700	107	70.7	126				
Toluene	11.4	1.00	10.00	0	114	72.4	122				
Surr: 1-Bromo-4-fluorobenzene	10.3		10.00		103	79.2	120				
Surr: Dibromofluoromethane	8.85		10.00		88.5	76	114				
Surr: Toluene-d8	10.0		10.00		101	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: **1205008**
Logged by: **Clare Griggs**	Date Received: **5/2/2012 9:03:00 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 1	3.8	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): 1205008

Date: 05/01/12

Page: 01 of: 01

Client: Fulcrum Environmental Consulting
Address: 406 N. 2nd St.
City, State, Zip: Yakima, WA, 98901 Tel: 509.574.0839

Project Name: Mountain View Groundwater Sampling
Location: Ellensburg, WA
Collected by: Peter Snider

Reports To (PM): Peter Snider Fax: 509.575.8453 Email: psnider@fulcrum.net Project No: 11570.02

	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) Pb	Total (T) / Dissolved (D)	Anions (IC)**	Comments/Depth
1	043012-MW-01	04/30/12	1103	H_2O		X	X		X					X	D			0.5 L poly containers
2	043012-MW-02		1628															field filtered using
3	043012-MW-03		1219															0.45 μm filter
4	043012-MW-04		1545															
5	043012-MW-05		1325															
6	043012-MW-06		1444															
7	043012-MW-07		1529															
8	043012-MW-08	↓		↓	↓	↓	↓		↓					↓	↓			
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	05/01/12 ~1615	x	5-2-12 9:03AM
x		x	

TAT → Next Day 2 Day 3 Day (STD)

Appendix E.3

June 7, 2012 Groundwater Monitoring Event Summary

FULCRUM
environmental consulting

MEMORANDUM

DATE June 7, 2012
TO Kittitas Valley Fire and Rescue, Traho Architects
FROM Ryan K. Mathews, Fulcrum Environmental Consulting, Inc.
RE **Mountain View Groundwater Monitoring Event Summary**
SUBJECT June Monitoring

The following Site Observation and Field Forms document the June 7, 2012 sampling activities that occurred at the Mountain View Brownfield project site. Please consult the corresponding Figure for a visual representation and laboratory results for sampling analysis.

P. 509.574.0839 F. 509.575.8453
406 North 2nd Street
Yakima, Washington 98901
efulcrum.net

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View/11-570.02

SAMPLE No. 060712-MW-01
Date Collected 06/07/12 Time 1013
Weather Cloudy with rain Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW - 01

Depth to Water (ft): 7.775 Time: 0942 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: 06/07/12 0943 Casing Volume (gal): 1.20
End Purge: Date/Time: 06/07/12 1015 Purge Volume (gal): 3.60
Total Depth of Well (ft. below top of well casing): 14.85
Purge Volume Calculation: 14.85-7.775=7.075x.17=1203=360
Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~4.0

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

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
0953	1.25	6.86	12.4	420	clear, no odor, no part
0958	2.50	6.87	12.4	410	
1005	3.75	6.89	11.7	420	

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	6.89	11.7	420	
2	6.89	11.6	420	
3	6.89	11.6	420	
4	6.89	11.6	420	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.03 at 20.4 ºC Before Sample Collection
Conductivity meter reads 400 at 20.0 ºC Before Sample Collection

Ferrous Iron Level: 0 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Clear, no odor, no part

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	500 mL	❑ Glass ✓ Plastic	✓ Yes / ❑ No	❑ Yes (HNO_3)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	✓ Yes (_____) ❑ No	NWTPH-Gx/BTEX

Duplicate Sample No(s). 060712-MW-08

Comments: _____

Signature Peter Snider Date 06/07/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View/11-570.02

SAMPLE No. 060712-MW-02
Date Collected 06/07/12 Time 1342
Weather Cold, cloudy Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW - 02

Depth to Water (ft): 8.290 Time: 1320 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: 06/07/12 1327 Casing Volume (gal): 0.833
End Purge: Date/Time: 06/07/12 1343 Purge Volume (gal): 2.49
Total Depth of Well (ft. below top of well casing): 13.19
Purge Volume Calculation: 13.19-8.290=4.9x.17=0.833x3=2.49
Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~3.25

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

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1331	1.00	6.73	12.3	330	slight petroleum, odor, clear
1325	2.00	6.69	11.8	340	no particulate
1339	3.00	6.68	11.5	350	

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	6.68	11.5	350	
2	6.68	11.5	350	
3	6.68	11.4	350	
4	6.68	11.5	350	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.02 at 15.0 ºC Before Sample Collection
Conductivity meter reads 360 at 15.3 ºC Before Sample Collection

Ferrous Iron Level: 0 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Slight petroleum odor, no particulate , clear

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	500 mL	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____) ✓No	NWTPH-Gx/BTEX

Duplicate Sample No(s). _____

Comments: _____

Signature Peter Snider Date 06/07/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View/11-570.02

SAMPLE No. 060712-MW-03
Date Collected 06/07/12 Time 1043
Weather Cloudy with rain Collectors P. Snider

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): 4.575 Time: 1030 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: 06/07/12 1031 Casing Volume (gal): 0.69
End Purge: Date/Time: 06/07/12 1044 Purge Volume (gal): 2.08
Total Depth of Well (ft. below top of well casing): 8.66
Purge Volume Calculation: 8.66-4.575=4.085x.17= .69x3=2.08
Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~2.5

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

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1033	0.75	6.89	12.1	370	clear, no odor, no part
1036	1.50	6.78	11.6	370	
1039	3.25	6.78	11.5	370	

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	6.78	11.5	370	
2	6.78	11.5	370	
3	6.78	11.5	370	
4	6.78	11.5	370	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.07 at 21.0 ºC Before Sample Collection
Conductivity meter reads 400 at 20.3 ºC Before Sample Collection

Ferrous Iron Level: 0 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Clear, no odor, no part

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	500 mL	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____) ❑ No	NWTPH-Gx/BTEX

Duplicate Sample No(s). _____

Comments: _____

Signature Peter Snider Date 06/07/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View/11-570.02

SAMPLE No. 060712-MW-04
Date Collected 06/07/12 Time 1400
Weather Rain, cold Collectors P. Snider

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): 4.075 Time: 1105 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: 06/07/12 1106 Casing Volume (gal): 1.10
End Purge: Date/Time: 06/07/12 1117 Purge Volume (gal): 3.31
Total Depth of Well (ft. below top of well casing): 10.58
Purge Volume Calculation: 10.58-4.075=6.505x.17=1.10x3=3.31
Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~2.5

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

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1109	1.25	7.09	11.7	540	slight haze
1178	2.50	7.07	11.3	540	
Dry	Dry	Dry	Dry	Dry	

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	Dry	Dry	Dry	
2	Dry	Dry	Dry	
3	Dry	Dry	Dry	
4	Dry	Dry	Dry	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.00 at 20.3 ºC Before Sample Collection
Conductivity meter reads 400 at 20.0 ºC Before Sample Collection

Ferrous Iron Level: 0 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Slight haze, no odor, no part

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	500 mL	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____) ✓No	NWTPH-Gx/BTEX

Duplicate Sample No(s). _____

Comments: Pumped dry; returned to collect sample given time to recharge

Signature Peter Snider Date 06/07/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View/11-570.02

SAMPLE No. 060712-MW-05
Date Collected 06/07/12 Time 1200
Weather Rain, cold Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW - 05

Depth to Water (ft): 3.288 Time: 1140 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: 06/07/12 1142 Casing Volume (gal): 0.92
End Purge: Date/Time: 06/07/12 1201 Purge Volume (gal): 2.76
Total Depth of Well (ft. below top of well casing): 8.75
Purge Volume Calculation: 8.75-3.288=5.462x.17=0.92x3=2.7
Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~3.5

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

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1146	1.00	6.96	10.8	290	clear, no odor, no part
1150	2.00	6.94	10.5	290	
1154	3.00	6.91	10.5	290	

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	6.91	10.5	290	
2	6.92	10.4	290	
3	6.92	10.5	290	
4	6.92	10.5	290	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.02 at 20.0 ºC Before Sample Collection
Conductivity meter reads 400 at 20.1 ºC Before Sample Collection

Ferrous Iron Level: 0 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Clear, no odor, no particulate

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	500 mL	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____) ✓No	NWTPH-Gx/BTEX

Duplicate Sample No(s). _____

Comments: _____

Signature Peter Snider Date 06/07/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View/11-570.02

SAMPLE No. 060712-MW-06
Date Collected 06/07/12 Time 1239
Weather Rain, cold Collectors P. Snider

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): 3.325 Time: 1212 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: 06/07/12 1218 Casing Volume (gal): 1.12
End Purge: Date/Time: 06/07/12 1240 Purge Volume (gal): 3.36
Total Depth of Well (ft. below top of well casing): 9.91
Purge Volume Calculation: 9.91-3.325=6.59x.17=1.12x3=3.36
Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: ~4.0

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

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1223	1.25	6.84	11.8	240	clear, no odor, no particulate
1228	2.50	6.86	11.5	240	
1233	3.75	6.84	11.5	240	

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	6.84	11.5	240	
2	6.84	11.3	240	
3	6.84	11.3	240	
4	6.84	11.3	240	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.01 at 21.0 ºC Before Sample Collection
Conductivity meter reads 400 at 20.2 ºC Before Sample Collection

Ferrous Iron Level: 2 ppm ✓ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Clear, no odor, no particulate

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	500 mL	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____) ✓No	NWTPH-Gx/BTEX

Duplicate Sample No(s). _____

Comments: _____

Signature Peter Snider Date 06/07/12

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View/11-570.02

SAMPLE No. 060712-MW-07
Date Collected 06/07/12 Time 1310
Weather Cold, cloudy Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: MW - 07

Depth to Water (ft): 0.891 Time: 1247 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: 06/07/12 1249 Casing Volume (gal): 1.58
End Purge: Date/Time: 06/07/12 1311 Purge Volume (gal): 4.74
Total Depth of Well (ft. below top of well casing): 10.19
Purge Volume Calculation: 10.19-0.891=9.299x.17=1.58x3=4.74
Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____ Gallons Purged: _____

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

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1254	1.75	6.90	11.5	130	slight decomposing odor
1259	3.50	6.92	10.8	130	
1302	5.25	6.89	10.8	130	

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	6.89	10.8	130	
2	6.90	10.6	130	
3	6.89	10.6	130	
4	6.89	10.6	130	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.02 at 14.7 ºC Before Sample Collection
Conductivity meter reads 360 at 14.7 ºC Before Sample Collection

Ferrous Iron Level: 0 ppm ✓ Present ❑ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Slight decomposing odor, no particulate

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	500 mL	❑ Glass ✓ Plastic	✓ Yes / ❑ No	✓ Yes (HNO_3)✓ No	Dissolved Pb
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____) ✓No	NWTPH-Gx/BTEX

Duplicate Sample No(s). _____

Comments: _____

Signature Peter Snider Date 06/07/12

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: Mountain View Groundwater
Lab ID: 1206061

June 15, 2012

Attention Jeremy Lynn:

Fremont Analytical, Inc. received 8 sample(s) on 6/8/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Dissolved Metals by EPA Method 200.8
Gasoline by NWTPH-Gx
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

CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater
Lab Order: 1206061

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1206061-001	060712-MW-01	06/07/2012 10:13 AM	06/08/2012 11:00 AM
1206061-002	060712-MW-02	06/07/2012 1:42 PM	06/08/2012 11:00 AM
1206061-003	060712-MW-03	06/07/2012 10:43 AM	06/08/2012 11:00 AM
1206061-004	060712-MW-04	06/07/2012 2:00 PM	06/08/2012 11:00 AM
1206061-005	060712-MW-05	06/07/2012 12:00 PM	06/08/2012 11:00 AM
1206061-006	060712-MW-06	06/07/2012 12:39 PM	06/08/2012 11:00 AM
1206061-007	060712-MW-07	06/07/2012 1:10 PM	06/08/2012 11:00 AM
1206061-008	060712-MW-08	06/07/2012 9:00 AM	06/08/2012 11:00 AM

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

Case Narrative

WO#: **1206061**
Date: **6/15/2012**

CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater

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#: **1206061**
Date Reported: **6/15/2012**

Client: Fulcrum Environmental
Collection Date: 6/7/2012 10:13:00 AM
Project: Mountain View Groundwater
Lab ID: 1206061-001
Matrix: Water
Client Sample ID: 060712-MW-01

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2587		Analyst: MD
Diesel (Fuel Oil)	ND	50.0		µg/L	1	6/13/2012 8:23:00 AM
Heavy Oil	ND	100		µg/L	1	6/13/2012 8:23:00 AM
Surr: 2-Fluorobiphenyl	83.0	50-150		%REC	1	6/13/2012 8:23:00 AM
Surr: o-Terphenyl	120	50-150		%REC	1	6/13/2012 8:23:00 AM
Gasoline by NWTPH-Gx				Batch ID: R4571		Analyst: EM
Gasoline	ND	50.0		µg/L	1	6/9/2012 5:39:00 PM
Surr: 1,2-Dichloroethane-d4	108	65-135		%REC	1	6/9/2012 5:39:00 PM
Surr: Fluorobenzene	97.8	65-135		%REC	1	6/9/2012 5:39:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4559		Analyst: EM
Benzene	ND	1.00		µg/L	1	6/9/2012 5:39:00 PM
Toluene	ND	1.00		µg/L	1	6/9/2012 5:39:00 PM
Ethylbenzene	ND	1.00		µg/L	1	6/9/2012 5:39:00 PM
m,p-Xylene	ND	1.00		µg/L	1	6/9/2012 5:39:00 PM
o-Xylene	ND	1.00		µg/L	1	6/9/2012 5:39:00 PM
Surr: 1-Bromo-4-fluorobenzene	106	79.2-120		%REC	1	6/9/2012 5:39:00 PM
Surr: Dibromofluoromethane	98.9	76-114		%REC	1	6/9/2012 5:39:00 PM
Surr: Toluene-d8	101	86.8-119		%REC	1	6/9/2012 5:39:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2590		Analyst: SG
Lead	ND	1.00		µg/L	1	6/15/2012 2:06:42 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#: **1206061**
Date Reported: **6/15/2012**

Client: Fulcrum Environmental
Collection Date: 6/7/2012 1:42:00 PM
Project: Mountain View Groundwater
Lab ID: 1206061-002
Matrix: Water
Client Sample ID: 060712-MW-02

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2587		Analyst: MD
Diesel (Fuel Oil)	ND	50.0		µg/L	1	6/13/2012 9:18:00 AM
Diesel Range Organics (C12-C24)	220	50.0		µg/L	1	6/13/2012 9:18:00 AM
Heavy Oil	ND	100		µg/L	1	6/13/2012 9:18:00 AM
Surr: 2-Fluorobiphenyl	72.8	50-150		%REC	1	6/13/2012 9:18:00 AM
Surr: o-Terphenyl	98.2	50-150		%REC	1	6/13/2012 9:18:00 AM
Gasoline by NWTPH-Gx				Batch ID: R4571		Analyst: EM
Gasoline	ND	50.0		µg/L	1	6/9/2012 6:10:00 PM
Surr: 1,2-Dichloroethane-d4	98.5	65-135		%REC	1	6/9/2012 6:10:00 PM
Surr: Fluorobenzene	96.2	65-135		%REC	1	6/9/2012 6:10:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4559		Analyst: EM
Benzene	ND	1.00		µg/L	1	6/9/2012 6:10:00 PM
Toluene	ND	1.00		µg/L	1	6/9/2012 6:10:00 PM
Ethylbenzene	ND	1.00		µg/L	1	6/9/2012 6:10:00 PM
m,p-Xylene	ND	1.00		µg/L	1	6/9/2012 6:10:00 PM
o-Xylene	ND	1.00		µg/L	1	6/9/2012 6:10:00 PM
Surr: 1-Bromo-4-fluorobenzene	103	79.2-120		%REC	1	6/9/2012 6:10:00 PM
Surr: Dibromofluoromethane	95.9	76-114		%REC	1	6/9/2012 6:10:00 PM
Surr: Toluene-d8	101	86.8-119		%REC	1	6/9/2012 6:10:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2590		Analyst: SG
Lead	ND	1.00		µg/L	1	6/15/2012 2:17:40 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#: **1206061**
Date Reported: **6/15/2012**

Client: Fulcrum Environmental
Collection Date: 6/7/2012 10:43:00 AM
Project: Mountain View Groundwater
Lab ID: 1206061-003
Matrix: Water
Client Sample ID: 060712-MW-03

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2587		Analyst: MD
Diesel (Fuel Oil)	ND	50.0		µg/L	1	6/13/2012 10:12:00 AM
Heavy Oil	ND	100		µg/L	1	6/13/2012 10:12:00 AM
Surr: 2-Fluorobiphenyl	70.9	50-150		%REC	1	6/13/2012 10:12:00 AM
Surr: o-Terphenyl	84.3	50-150		%REC	1	6/13/2012 10:12:00 AM
Gasoline by NWTPH-Gx				Batch ID: R4571		Analyst: EM
Gasoline	ND	50.0		µg/L	1	6/9/2012 6:42:00 PM
Surr: 1,2-Dichloroethane-d4	97.7	65-135		%REC	1	6/9/2012 6:42:00 PM
Surr: Fluorobenzene	96.5	65-135		%REC	1	6/9/2012 6:42:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4559		Analyst: EM
Benzene	ND	1.00		µg/L	1	6/9/2012 6:42:00 PM
Toluene	ND	1.00		µg/L	1	6/9/2012 6:42:00 PM
Ethylbenzene	ND	1.00		µg/L	1	6/9/2012 6:42:00 PM
m,p-Xylene	ND	1.00		µg/L	1	6/9/2012 6:42:00 PM
o-Xylene	ND	1.00		µg/L	1	6/9/2012 6:42:00 PM
Surr: 1-Bromo-4-fluorobenzene	102	79.2-120		%REC	1	6/9/2012 6:42:00 PM
Surr: Dibromofluoromethane	96.3	76-114		%REC	1	6/9/2012 6:42:00 PM
Surr: Toluene-d8	100	86.8-119		%REC	1	6/9/2012 6:42:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2590		Analyst: SG
Lead	ND	1.00		µg/L	1	6/15/2012 2:23:09 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#: **1206061**
Date Reported: **6/15/2012**

Client: Fulcrum Environmental
Collection Date: 6/7/2012 2:00:00 PM
Project: Mountain View Groundwater
Lab ID: 1206061-004
Matrix: Water
Client Sample ID: 060712-MW-04

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2587		Analyst: MD
Diesel (Fuel Oil)	ND	50.0		µg/L	1	6/13/2012 10:39:00 AM
Heavy Oil	ND	100		µg/L	1	6/13/2012 10:39:00 AM
Surr: 2-Fluorobiphenyl	82.0	50-150		%REC	1	6/13/2012 10:39:00 AM
Surr: o-Terphenyl	94.5	50-150		%REC	1	6/13/2012 10:39:00 AM
Gasoline by NWTPH-Gx				Batch ID: R4571		Analyst: EM
Gasoline	ND	50.0		µg/L	1	6/9/2012 7:13:00 PM
Surr: 1,2-Dichloroethane-d4	100	65-135		%REC	1	6/9/2012 7:13:00 PM
Surr: Fluorobenzene	100	65-135		%REC	1	6/9/2012 7:13:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4559		Analyst: EM
Benzene	ND	1.00		µg/L	1	6/9/2012 7:13:00 PM
Toluene	ND	1.00		µg/L	1	6/9/2012 7:13:00 PM
Ethylbenzene	ND	1.00		µg/L	1	6/9/2012 7:13:00 PM
m,p-Xylene	ND	1.00		µg/L	1	6/9/2012 7:13:00 PM
o-Xylene	ND	1.00		µg/L	1	6/9/2012 7:13:00 PM
Surr: 1-Bromo-4-fluorobenzene	105	79.2-120		%REC	1	6/9/2012 7:13:00 PM
Surr: Dibromofluoromethane	94.4	76-114		%REC	1	6/9/2012 7:13:00 PM
Surr: Toluene-d8	101	86.8-119		%REC	1	6/9/2012 7:13:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2590		Analyst: SG
Lead	ND	1.00		µg/L	1	6/15/2012 2:28:38 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#: **1206061**
Date Reported: **6/15/2012**

Client: Fulcrum Environmental
Collection Date: 6/7/2012 12:00:00 PM
Project: Mountain View Groundwater
Lab ID: 1206061-005
Matrix: Water
Client Sample ID: 060712-MW-05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2587		Analyst: MD
Diesel (Fuel Oil)	ND	50.0		µg/L	1	6/13/2012 11:06:00 AM
Heavy Oil	ND	100		µg/L	1	6/13/2012 11:06:00 AM
Surr: 2-Fluorobiphenyl	79.7	50-150		%REC	1	6/13/2012 11:06:00 AM
Surr: o-Terphenyl	94.1	50-150		%REC	1	6/13/2012 11:06:00 AM
Gasoline by NWTPH-Gx				Batch ID: R4571		Analyst: EM
Gasoline	ND	50.0		µg/L	1	6/9/2012 7:44:00 PM
Surr: 1,2-Dichloroethane-d4	99.7	65-135		%REC	1	6/9/2012 7:44:00 PM
Surr: Fluorobenzene	101	65-135		%REC	1	6/9/2012 7:44:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4559		Analyst: EM
Benzene	ND	1.00		µg/L	1	6/9/2012 7:44:00 PM
Toluene	ND	1.00		µg/L	1	6/9/2012 7:44:00 PM
Ethylbenzene	ND	1.00		µg/L	1	6/9/2012 7:44:00 PM
m,p-Xylene	ND	1.00		µg/L	1	6/9/2012 7:44:00 PM
o-Xylene	ND	1.00		µg/L	1	6/9/2012 7:44:00 PM
Surr: 1-Bromo-4-fluorobenzene	104	79.2-120		%REC	1	6/9/2012 7:44:00 PM
Surr: Dibromofluoromethane	94.2	76-114		%REC	1	6/9/2012 7:44:00 PM
Surr: Toluene-d8	101	86.8-119		%REC	1	6/9/2012 7:44:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2590		Analyst: SG
Lead	ND	1.00		µg/L	1	6/15/2012 2:34:07 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#: **1206061**
Date Reported: **6/15/2012**

Client: Fulcrum Environmental
Collection Date: 6/7/2012 12:39:00 PM
Project: Mountain View Groundwater
Lab ID: 1206061-006
Matrix: Water
Client Sample ID: 060712-MW-06

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2587		Analyst: MD
Diesel (Fuel Oil)	ND	50.0		µg/L	1	6/13/2012 8:37:00 PM
Heavy Oil	ND	100		µg/L	1	6/13/2012 8:37:00 PM
Surr: 2-Fluorobiphenyl	84.9	50-150		%REC	1	6/13/2012 8:37:00 PM
Surr: o-Terphenyl	107	50-150		%REC	1	6/13/2012 8:37:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4571		Analyst: EM
Gasoline	ND	50.0		µg/L	1	6/9/2012 8:46:00 PM
Surr: 1,2-Dichloroethane-d4	96.2	65-135		%REC	1	6/9/2012 8:46:00 PM
Surr: Fluorobenzene	97.7	65-135		%REC	1	6/9/2012 8:46:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4559		Analyst: EM
Benzene	ND	1.00		µg/L	1	6/9/2012 8:46:00 PM
Toluene	ND	1.00		µg/L	1	6/9/2012 8:46:00 PM
Ethylbenzene	ND	1.00		µg/L	1	6/9/2012 8:46:00 PM
m,p-Xylene	ND	1.00		µg/L	1	6/9/2012 8:46:00 PM
o-Xylene	ND	1.00		µg/L	1	6/9/2012 8:46:00 PM
Surr: 1-Bromo-4-fluorobenzene	101	79.2-120		%REC	1	6/9/2012 8:46:00 PM
Surr: Dibromofluoromethane	93.5	76-114		%REC	1	6/9/2012 8:46:00 PM
Surr: Toluene-d8	102	86.8-119		%REC	1	6/9/2012 8:46:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2590		Analyst: SG
Lead	ND	1.00		µg/L	1	6/15/2012 2:39:36 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#: **1206061**
Date Reported: **6/15/2012**

Client: Fulcrum Environmental
Collection Date: 6/7/2012 1:10:00 PM
Project: Mountain View Groundwater
Lab ID: 1206061-007
Matrix: Water
Client Sample ID: 060712-MW-07

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: R4571		Analyst: EM
Gasoline	ND	50.0		µg/L	1	6/9/2012 9:17:00 PM
Surr: 1,2-Dichloroethane-d4	96.0	65-135		%REC	1	6/9/2012 9:17:00 PM
Surr: Fluorobenzene	97.4	65-135		%REC	1	6/9/2012 9:17:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4559		Analyst: EM
Benzene	ND	1.00		µg/L	1	6/9/2012 9:17:00 PM
Toluene	ND	1.00		µg/L	1	6/9/2012 9:17:00 PM
Ethylbenzene	ND	1.00		µg/L	1	6/9/2012 9:17:00 PM
m,p-Xylene	ND	1.00		µg/L	1	6/9/2012 9:17:00 PM
o-Xylene	ND	1.00		µg/L	1	6/9/2012 9:17:00 PM
Surr: 1-Bromo-4-fluorobenzene	103	79.2-120		%REC	1	6/9/2012 9:17:00 PM
Surr: Dibromofluoromethane	93.3	76-114		%REC	1	6/9/2012 9:17:00 PM
Surr: Toluene-d8	102	86.8-119		%REC	1	6/9/2012 9:17:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2590		Analyst: SG
Lead	ND	1.00		µg/L	1	6/15/2012 2:45:06 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#: **1206061**
Date Reported: **6/15/2012**

Client: Fulcrum Environmental
Collection Date: 6/7/2012 9:00:00 AM
Project: Mountain View Groundwater
Lab ID: 1206061-008
Matrix: Water
Client Sample ID: 060712-MW-08

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2587		Analyst: MD
Diesel (Fuel Oil)	ND	50.0		µg/L	1	6/13/2012 9:31:00 PM
Heavy Oil	ND	100		µg/L	1	6/13/2012 9:31:00 PM
Surr: 2-Fluorobiphenyl	79.1	50-150		%REC	1	6/13/2012 9:31:00 PM
Surr: o-Terphenyl	89.1	50-150		%REC	1	6/13/2012 9:31:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4571		Analyst: EM
Gasoline	ND	50.0		µg/L	1	6/9/2012 9:48:00 PM
Surr: 1,2-Dichloroethane-d4	95.0	65-135		%REC	1	6/9/2012 9:48:00 PM
Surr: Fluorobenzene	99.2	65-135		%REC	1	6/9/2012 9:48:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4559		Analyst: EM
Benzene	ND	1.00		µg/L	1	6/9/2012 9:48:00 PM
Toluene	ND	1.00		µg/L	1	6/9/2012 9:48:00 PM
Ethylbenzene	ND	1.00		µg/L	1	6/9/2012 9:48:00 PM
m,p-Xylene	ND	1.00		µg/L	1	6/9/2012 9:48:00 PM
o-Xylene	ND	1.00		µg/L	1	6/9/2012 9:48:00 PM
Surr: 1-Bromo-4-fluorobenzene	101	79.2-120		%REC	1	6/9/2012 9:48:00 PM
Surr: Dibromofluoromethane	93.0	76-114		%REC	1	6/9/2012 9:48:00 PM
Surr: Toluene-d8	102	86.8-119		%REC	1	6/9/2012 9:48:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2590		Analyst: SG
Lead	ND	1.00		µg/L	1	6/15/2012 2:50:35 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

Fremont Analytical

Date: *6/15/2012*

Work Order: 1206061
CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **MB-2590** SampType: **MBLK** Units: **µg/L** Prep Date: **6/11/2012** RunNo: **4638**
Client ID: **MBLKW** Batch ID: **2590** Analysis Date: **6/15/2012** SeqNo: **84903**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00									

Sample ID: **LCS-2590** SampType: **LCS** Units: **µg/L** Prep Date: **6/11/2012** RunNo: **4638**
Client ID: **LCSW** Batch ID: **2590** Analysis Date: **6/15/2012** SeqNo: **84904**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	49.9	1.00	50.00	0	99.7	85	115				

Sample ID: **1206041-001CMS** SampType: **MS** Units: **µg/L** Prep Date: **6/11/2012** RunNo: **4638**
Client ID: **BATCH** Batch ID: **2590** Analysis Date: **6/15/2012** SeqNo: **84907**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	240	1.00	250.0	0.4160	95.8	70	130				

Sample ID: **1206041-001CMSD** SampType: **MSD** Units: **µg/L** Prep Date: **6/11/2012** RunNo: **4638**
Client ID: **BATCH** Batch ID: **2590** Analysis Date: **6/15/2012** SeqNo: **84908**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	233	1.00	250.0	0.4160	93.1	70	130	239.8	2.78	30	

Sample ID: **1206061-001CDUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/11/2012** RunNo: **4638**
Client ID: **060712-MW-01** Batch ID: **2590** Analysis Date: **6/15/2012** SeqNo: **85082**

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

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: 1206061
CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1206061-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/11/2012** RunNo: **4636**
Client ID: **060712-MW-01** Batch ID: **2587** Analysis Date: **6/13/2012** SeqNo: **84816**

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	
Heavy Oil	ND	100						0	0	30	
Surr: 2-Fluorobiphenyl	131		160.0		81.6	50	150		0		
Surr: o-Terphenyl	179		160.0		112	50	150		0		

Sample ID: **MB-2587** SampType: **MBLK** Units: **µg/L** Prep Date: **6/11/2012** RunNo: **4636**
Client ID: **MBLKW** Batch ID: **2587** Analysis Date: **6/13/2012** SeqNo: **84832**

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	118		160.0		73.8	50	150				
Surr: o-Terphenyl	163		160.0		102	50	150				

Sample ID: **LCS-2587** SampType: **LCS** Units: **µg/L** Prep Date: **6/11/2012** RunNo: **4636**
Client ID: **LCSW** Batch ID: **2587** Analysis Date: **6/13/2012** SeqNo: **84833**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,800	50.0	2,000	0	90.0	65	135				
Surr: 2-Fluorobiphenyl	132		160.0		82.2	50	150				
Surr: o-Terphenyl	204		160.0		127	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

Fremont Analytical

Date: *6/15/2012*

Work Order: 1206061
CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **1206061-005ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/9/2012** RunNo: **4571**
Client ID: **060712-MW-05** Batch ID: **R4571** Analysis Date: **6/9/2012** SeqNo: **83655**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0						0	0	30	R
Surr: 1,2-Dichloroethane-d4	9.54		10.00		95.4	65	135		0		
Surr: Fluorobenzene	10.0		10.00		100	65	135		0		

Sample ID: **LCS-R4571** SampType: **LCS** Units: **µg/L** Prep Date: **6/9/2012** RunNo: **4571**
Client ID: **LCSW** Batch ID: **R4571** Analysis Date: **6/9/2012** SeqNo: **83661**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	458	50.0	500.0	0	91.7	65	135				
Surr: 1,2-Dichloroethane-d4	10.2		10.00		102	65	135				
Surr: Fluorobenzene	10.3		10.00		103	65	135				

Sample ID: **MB-R4571** SampType: **MBLK** Units: **µg/L** Prep Date: **6/9/2012** RunNo: **4571**
Client ID: **MBLKW** Batch ID: **R4571** Analysis Date: **6/9/2012** SeqNo: **83662**

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	9.93		10.00		99.3	65	135				
Surr: Fluorobenzene	10.5		10.00		105	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

Fremont Analytical

Date: *6/15/2012*

Work Order: 1206061
CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1206061-005ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/9/2012** RunNo: **4559**
Client ID: **060712-MW-05** Batch ID: **R4559** Analysis Date: **6/9/2012** SeqNo: **83504**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0	0	30	
Toluene	ND	1.00						0	0	30	
Ethylbenzene	ND	1.00						0	0	30	
m,p-Xylene	ND	1.00						0	0	30	
o-Xylene	ND	1.00						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	10.5		10.00		105	79.2	120		0		
Surr: Dibromofluoromethane	9.35		10.00		93.5	76	114		0		
Surr: Toluene-d8	10.3		10.00		103	86.8	119		0		

Sample ID: **1206061-008AMS** SampType: **MS** Units: **µg/L** Prep Date: **6/9/2012** RunNo: **4559**
Client ID: **060712-MW-08** Batch ID: **R4559** Analysis Date: **6/9/2012** SeqNo: **83508**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	9.66	1.00	10.00	0	96.6	75.7	125				
Toluene	9.48	1.00	10.00	0	94.8	75.3	125				
Ethylbenzene	10.8	1.00	10.00	0	108	70	130				
m,p-Xylene	20.6	1.00	20.00	0	103	70	130				
o-Xylene	10.2	1.00	10.00	0	102	70	130				
Surr: 1-Bromo-4-fluorobenzene	10.5		10.00		105	79.2	120				
Surr: Dibromofluoromethane	9.04		10.00		90.4	76	114				
Surr: Toluene-d8	10.0		10.00		100	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

Work Order: 1206061
CLIENT: Fulcrum Environmental
Project: Mountain View Groundwater

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R4559** SampType: **MBLK** Units: **µg/L** Prep Date: **6/9/2012** RunNo: **4559**
Client ID: **MBLKW** Batch ID: **R4559** Analysis Date: **6/9/2012** SeqNo: **83511**

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									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Surr: 1-Bromo-4-fluorobenzene	10.0		10.00		100	79.2	120				
Surr: Dibromofluoromethane	9.22		10.00		92.2	76	114				
Surr: Toluene-d8	10.1		10.00		101	86.8	119				

Sample ID: **LCS-R4559** SampType: **LCS** Units: **µg/L** Prep Date: **6/8/2012** RunNo: **4559**
Client ID: **LCSW** Batch ID: **R4559** Analysis Date: **6/8/2012** SeqNo: **84334**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	10.1	1.00	10.00	0	101	76.2	121				
Toluene	10.0	1.00	10.00	0	100	78.1	124				
Ethylbenzene	10.6	1.00	10.00	0	106	70	130				
m,p-Xylene	21.4	1.00	20.00	0	107	70	130				
o-Xylene	10.2	1.00	10.00	0	102	70	130				
Surr: 1-Bromo-4-fluorobenzene	10.0		10.00		100	79.2	120				
Surr: Dibromofluoromethane	9.47		10.00		94.7	76	114				
Surr: Toluene-d8	10.0		10.00		100	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: **1206061**
Logged by: **Troy Zehr**	Date Received: **6/8/2012 11:00:00 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 1	3.8	Good
Cooler 2	3.1	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): 1206061
Date: 06/07/2012
Page: 01 of: 01

Client: Fulcrum Environmental Consulting
Address: 406 N. 2nd st.
City, State, Zip: Yakima, WA, 98901 Tel: 509.574.0839
Reports To (PM): Jeremy Lynn Fax: 509.575.8453 Email: jlynn@fulcrum.net

Project Name: Mountain View Groundwater
Location: Ellensburg, WA
Collected by: P. Snider
Project No: 11570.02

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: (EPA 8260)	Gasoline Range Organics (EPA 8021b)	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (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)**					Comments/Depth
1	060712-MW-01	06/07/12	1013	H_2O		X	X		X						X	D						.5 L HNO_3
2	060712-MW-02		1342			X	X		X						X	D						containers field
3	060712-MW-03		1043			X	X		X						X	D						filtered using
4	060712-MW-04		1400			X	X		X						X	D						0.45 µm filter
5	060712-MW-05		1200			X	X		X						X	D						
6	060712-MW-06		1239			X	X		X						X	D						
7	060712-MW-07		1310			X	X		X						X	D						
8	060712-MW-08		0900			X	X		X						X	D						
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: 2 coolers

Relinquished	Date/Time	Received	Date/Time
x	06/07/12 ~1615	x	6/8/12 11:00
x		x	

TAT --> Next Day 2 Day 3 Day (STD)

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Appendix E.4

Groundwater Field Data Summary Tables

Table E.4: Groundwater Field Data Summary

	March '12	April '12	June '12	May '12
MW-01				
Depth to Water (ft)	8.099	7.875	7.775	
pH	7.18	6.93	6.89	
Temperature (F)	50.0	51.4	52.9	
Conductivity	650	440	420	
Fe Present (yes/no)	Difficult to measure	no	no	
MW-02				
Depth to Water (ft)	6.500	8.544	8.290	
pH	6.70	6.68	6.68	
Temperature (F)	48.7	49.3	52.7	
Conductivity	310	350	350	
Fe Present (yes/no)	yes	no	no	
MW-03				
Depth to Water (ft)	5.379	4.880	4.575	
pH	6.88	6.74	6.78	
Temperature (F)	45.1	48.4	52.7	
Conductivity	190	310	370	
Fe Present (yes/no)	no	no	no	
MW-04				
Depth to Water (ft)	5.041	4.481	4.075	
pH	Dry	Dry	Dry	
Temperature (F)	Dry	Dry	Dry	
Conductivity	Dry	Dry	Dry	
Fe Present (yes/no)	no	no	no	
MW-05				
Depth to Water (ft)	4.020	3.650	3.288	
pH	6.89	6.88	6.92	
Temperature (F)	48.2	49.6	50.9	
Conductivity	190	260	290	
Fe Present (yes/no)	no	no	no	
MW-06				
Depth to Water (ft)	5.491	3.698	3.325	
pH	6.95	6.90	6.84	
Temperature (F)	43.9	48.0	52.3	
Conductivity	230	350	240	
Fe Present (yes/no)	no	yes	yes	
MW-07				
Depth to Water (ft)	4.039	1.578	0.891	
pH	6.91	6.80	6.89	
Temperature (F)	43.5	49.6	51.1	
Conductivity	160	160	130	
Fe Present (yes/no)	yes	no	no	
Onsite Domestic Well				
Depth to Water (ft)				-
pH				6.94
Temperature (F)				55.4
Conductivity				350
Fe Present (yes/no)				no

Appendix E.5

Laboratory Results Summary Table

Table E.5: Groundwater Laboratory Results – Monitoring Wells

Sample	Analytical Results[1]								
	Diesel	**Diesel (C12-C24)**	**Heavy Oil**	**Gasoline**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylene**	**Lead**
March 12, 2012 Groundwater Sampling Event									
031212-MW01	ND	-	ND	ND	ND	ND	ND	ND	ND
031212-MW02	**697**	-	ND	ND	ND	ND	ND	ND	ND
031212-MW03	ND	-	ND	ND	ND	ND	ND	ND	ND
031212-MW04	ND	-	ND	ND	ND	ND	ND	ND	ND
031212-MW05	ND	-	ND	ND	ND	ND	ND	ND	ND
031212-MW06	ND	-	ND	ND	ND	ND	ND	ND	ND
031212-MW07	ND	-	ND	ND	ND	ND	ND	ND	ND
April 30, 2012 Groundwater Sampling Event									
043012-MW01	ND	-	ND	ND	ND	ND	ND	ND	ND
043012-MW02	ND	189	ND	ND	ND	ND	ND	ND	ND
043012-MW03	ND	-	ND	ND	ND	ND	ND	ND	ND
043012-MW04	ND	-	ND	ND	ND	ND	ND	ND	ND
043012-MW05	ND	-	ND	ND	ND	ND	ND	ND	ND
043012-MW06	ND	-	ND	ND	ND	ND	ND	ND	ND
043012-MW07	ND	-	ND	ND	ND	ND	ND	ND	ND
June 7, 2012 Groundwater Sampling Event									
060712-MW01	ND	-	ND	ND	ND	ND	ND	ND	ND
060712-MW02	ND	220	ND	ND	ND	ND	ND	ND	ND
060712-MW03	ND	-	ND	ND	ND	ND	ND	ND	ND
060712-MW04	ND	-	ND	ND	ND	ND	ND	ND	ND
060712-MW05	ND	-	ND	ND	ND	ND	ND	ND	ND
060712-MW06	ND	-	ND	ND	ND	ND	ND	ND	ND
060712-MW07	ND	-	ND	ND	ND	ND	ND	ND	ND
Method A Cleanup Level	500	500	500	1,000	5	700	1,000	1,000	15

[1] All results and regulatory standards provided in µg/L
ND The analyte was not detected at the method reporting limit

Table E.5: Groundwater Laboratory Results – Domestic Well

Analyte[1]	Domestic Well	MTCA Method A Cleanup Levels
Diesel	ND	500
Heavy Oil	ND	500
Gasoline	ND	1,000
Benzene	ND	5
Toluene	ND	700
Ethylbenzene	ND	1,000
Xylene	ND	1,000
Lead	ND	15
Nitrate	2.31	10
Nitrite	ND	1
Fecal Coliform		<1

[1] All results and regulatory standards provided in µg/L

ND The analyte was not detected at the method reporting limit

APPENDIX F

Domestic Water Well Sampling Event

FULCRUM environmental consulting

MEMORANDUM

DATE March 22, 2012
TO Kittitas Valley Fire and Rescue, Traho Architects
FROM Ryan K. Mathews, Fulcrum Environmental Consulting, Inc.
RE **Mountain View Domestic Water Well Sampling Event**
SUBJECT March 22, 2012 Monitoring Event

The following Site Observation and Field Forms document the March 22, 2012 sampling activities that occurred at the Mountain View Brownfield project site. Please consult the corresponding Sample Collection Form for a data collected and laboratory results for sampling analysis.

P. 509.574.0839 F. 509.575.8453
406 North 2nd Street
Yakima, Washington 98901
efulcrum.net

Fulcrum Environmental Consulting, Inc.
406 North Second Street
Yakima, Washington 98901
(509) 574-0839 Fax (509) 575-8453

Project Name/Number: Mountain View/11-570.02

SAMPLE No. 052212-DW-01
Date Collected 05/22/12 Time 1419
Weather Cool, light rain Collectors P. Snider

Groundwater/Surface Water Sample Collection Form

WATER LEVEL/WELL/PURGE DATA

Sample Type: ✓ Groundwater ❑ Surface Water ❑ Other _____

Sample Location: Onsite domestic well

Depth to Water (ft): - Time: - Measured from: ❑ Top of protective casing ❑ Top of well casing
Well Casing Type: ❑ PVC ❑ Stainless Steel ❑ Fiberglass Casing Diameter: 6-inches
Well Condition: Secure (✓ Yes / ❑ No) Damaged (❑ Yes / ✓ No) Describe: _____
Begin Purge: Date/Time: 05/22/12 1319 Casing Volume (gal): -
End Purge: Date/Time: 05/22/12 1420 Purge Volume (gal): -
Total Depth of Well (ft. below top of well casing): -
Purge Volume Calculation: -
Purge Water Disposal to: ❑ 55-gal Drum ❑ Storage Tank ✓ Ground ❑ Other _____

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

Time	Vol. Purged (gal)	pH	Temperature (ºF/ºC)	Conductivity (µS)	Comments/Observations
1326	~70	6.36	56.5/13.6	350	See Comments Below
1333	~140	6.98	55.9/13.3	350	
1343	~240	6.96	55.4/13.0	350	
1355	~360	6.96	55.4/13.0	350	
1404	~450	6.95	55.4/13.0	350	

SAMPLE COLLECTION DATA

Sample Collected With: ❑ Bailer ✓ Pump/Pump Type Domestic 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	6.95	55.4/13.0	350	
2	6.94	55.4/13.0	350	
3	6.95	55.4/13.0	350	
4	6.94	55.4/13.0	350	

pH Meter: pH Tester 2 Cond. Meter: EC Tester 1 Cond. Range: 0-1990 µS ATC: ❑ On ❑ Off

Meter Calibration Check: pH meter reads 7.01 at 18.4 ºC Before Sample Collection
Conductivity meter reads 350 at 19.6 ºC Before Sample Collection

Ferrous Iron Level: <2 ppm ❑ Present ✓ Absent

Sample Description (color, turbidity, odor, sheen, etc.): Sample water was clear with no odor and no particulates.

QTY	SIZE	TYPE	FIELD FILTERED	PRESERVATIVE	LABORATORY ANALYSIS
1	1 L	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	NWTPH-DxExt
1	500 mL	❑ Glass ✓ Plastic	❑ Yes / ✓ No	❑ Yes (_____)✓ No	Nitrate/Nitrite
1	500 mL	❑ Glass ✓ Plastic	❑ Yes / ✓ No	✓ Yes (HNO_3) ❑ No	Total Lead
3	40 mL	✓ Glass ❑ Plastic	❑ Yes / ✓ No	❑ Yes (_____) ❑ No	NWTPH-Gx/BTEX

Duplicate Sample No(s). 052212-DW-02

Comments: Purge water was clear with no odor and no particulate. Well not accessible to measure depth to groundwater. Purge volume based on measured flow of approximately 10 gallons per minute.

Signature Peter Snider Date 5/22/12

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: Mountain View Brownfield Groundwater
Lab ID: 1205124

May 30, 2012

Attention Jeremy Lynn:

Fremont Analytical, Inc. received 2 sample(s) on 5/23/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Ion Chromatography by EPA Method 300.0
Total Metals by EPA Method 200.8
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

CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield Groundwater
Lab Order: 1205124

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1205124-001	052212-DW-01	05/22/2012 2:30 PM	05/23/2012 9:52 AM
1205124-002	052212-DW-02	05/22/2012 2:35 PM	05/23/2012 9:52 AM

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

Case Narrative

WO#: **1205124**
Date: **5/30/2012**

CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield Groundwater

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#: **1205124**
Date Reported: **5/30/2012**

Client: Fulcrum Environmental
Collection Date: 5/22/2012 2:30:00 PM
Project: Mountain View Brownfield Groundwater
Lab ID: 1205124-001
Matrix: Water
Client Sample ID: 052212-DW-01

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2469		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	5/24/2012 4:42:00 PM
Heavy Oil	ND	100		µg/L	1	5/24/2012 4:42:00 PM
Surr: 2-Fluorobiphenyl	88.1	50-150		%REC	1	5/24/2012 4:42:00 PM
Surr: o-Terphenyl	109	50-150		%REC	1	5/24/2012 4:42:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4386		Analyst: PH
Gasoline	ND	50.0		µg/L	1	5/23/2012 9:56:00 PM
Surr: 1,2-Dichloroethane-d4	102	65-135		%REC	1	5/23/2012 9:56:00 PM
Surr: Fluorobenzene	102	65-135		%REC	1	5/23/2012 9:56:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4387		Analyst: PH
Benzene	ND	1.00		µg/L	1	5/23/2012 9:56:00 PM
Toluene	ND	1.00		µg/L	1	5/23/2012 9:56:00 PM
Ethylbenzene	ND	1.00		µg/L	1	5/23/2012 9:56:00 PM
m,p-Xylene	ND	1.00		µg/L	1	5/23/2012 9:56:00 PM
o-Xylene	ND	1.00		µg/L	1	5/23/2012 9:56:00 PM
Surr: 1-Bromo-4-fluorobenzene	105	79.2-120		%REC	1	5/23/2012 9:56:00 PM
Surr: Dibromofluoromethane	99.8	76-114		%REC	1	5/23/2012 9:56:00 PM
Surr: Toluene-d8	104	86.8-119		%REC	1	5/23/2012 9:56:00 PM
Total Metals by EPA Method 200.8				Batch ID: 2499		Analyst: BR
Lead	ND	1.00		µg/L	1	5/29/2012 5:40:25 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R4380		Analyst: BR
Nitrite	ND	0.100		mg/L	1	5/23/2012 10:24:00 AM
Nitrate	2.31	0.100		mg/L	1	5/23/2012 10:24:00 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#: **1205124**
Date Reported: **5/30/2012**

Client: Fulcrum Environmental
Collection Date: 5/22/2012 2:35:00 PM
Project: Mountain View Brownfield Groundwater
Lab ID: 1205124-002
Matrix: Water
Client Sample ID: 052212-DW-02

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2469		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	5/24/2012 5:10:00 PM
Heavy Oil	ND	100		µg/L	1	5/24/2012 5:10:00 PM
Surr: 2-Fluorobiphenyl	96.0	50-150		%REC	1	5/24/2012 5:10:00 PM
Surr: o-Terphenyl	112	50-150		%REC	1	5/24/2012 5:10:00 PM
Gasoline by NWTPH-Gx				Batch ID: R4386		Analyst: PH
Gasoline	ND	50.0		µg/L	1	5/23/2012 10:53:00 PM
Surr: 1,2-Dichloroethane-d4	100	65-135		%REC	1	5/23/2012 10:53:00 PM
Surr: Fluorobenzene	103	65-135		%REC	1	5/23/2012 10:53:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4387		Analyst: PH
Benzene	ND	1.00		µg/L	1	5/23/2012 10:53:00 PM
Toluene	ND	1.00		µg/L	1	5/23/2012 10:53:00 PM
Ethylbenzene	ND	1.00		µg/L	1	5/23/2012 10:53:00 PM
m,p-Xylene	ND	1.00		µg/L	1	5/23/2012 10:53:00 PM
o-Xylene	ND	1.00		µg/L	1	5/23/2012 10:53:00 PM
Surr: 1-Bromo-4-fluorobenzene	104	79.2-120		%REC	1	5/23/2012 10:53:00 PM
Surr: Dibromofluoromethane	98.1	76-114		%REC	1	5/23/2012 10:53:00 PM
Surr: Toluene-d8	102	86.8-119		%REC	1	5/23/2012 10:53:00 PM
Total Metals by EPA Method 200.8				Batch ID: 2499		Analyst: BR
Lead	ND	1.00		µg/L	1	5/29/2012 5:49:36 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R4380		Analyst: BR
Nitrite	ND	0.100		mg/L	1	5/23/2012 10:40:00 AM
Nitrate	2.30	0.100		mg/L	1	5/23/2012 10:40:00 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

Fremont Analytical

Date: *5/30/2012*

Work Order: 1205124
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield Groundwater

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: **MB-R4380** SampType: **MBLK** Units: **mg/L** Prep Date: **5/23/2012** RunNo: **4380**
Client ID: **MBLKW** Batch ID: **R4380** Analysis Date: **5/23/2012** SeqNo: **79478**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite	ND	0.100									
Nitrate	ND	0.100									

Sample ID: **LCS-R4380 (450)** SampType: **LCS** Units: **mg/L** Prep Date: **5/23/2012** RunNo: **4380**
Client ID: **LCSW** Batch ID: **R4380** Analysis Date: **5/23/2012** SeqNo: **79479**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite	1.64	0.100	1.500	0	109	90	110				
Nitrate	1.59	0.100	1.500	0	106	90	110				

Sample ID: **1205114-001AMS** SampType: **MS** Units: **mg/L** Prep Date: **5/23/2012** RunNo: **4380**
Client ID: **BATCH** Batch ID: **R4380** Analysis Date: **5/23/2012** SeqNo: **79482**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite	1.61	0.100	1.500	0	107	80	120				
Nitrate	2.83	0.100	1.500	1.267	104	80	120				

Sample ID: **1205114-001AMSD** SampType: **MSD** Units: **mg/L** Prep Date: **5/23/2012** RunNo: **4380**
Client ID: **BATCH** Batch ID: **R4380** Analysis Date: **5/23/2012** SeqNo: **79483**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite	1.61	0.100	1.500	0	107	80	120	1.612	0.00620		
Nitrate	2.84	0.100	1.500	1.267	105	80	120	2.825	0.353		

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: *5/30/2012*

Work Order: 1205124
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield Groundwater

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: **1205124-002DDUP** SampType: **DUP** Units: **mg/L** Prep Date: **5/23/2012** RunNo: **4380**
Client ID: **052212-DW-02** Batch ID: **R4380** Analysis Date: **5/23/2012** SeqNo: **79486**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite	ND	0.100						0	0	20	
Nitrate	2.33	0.100						2.305	1.15	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: 1205124
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield Groundwater

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID: **MB-2499**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **5/29/2012**	RunNo: **4414**
Client ID: **MBLKW**	Batch ID: **2499**		Analysis Date: **5/29/2012**	SeqNo: **80229**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00									

Sample ID: **LCS-2499**	SampType: **LCS**	Units: **µg/L**	Prep Date: **5/29/2012**	RunNo: **4414**
Client ID: **LCSW**	Batch ID: **2499**		Analysis Date: **5/29/2012**	SeqNo: **80230**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	50.3	1.00	50.00	0	101	85	115				

Sample ID: **1205123-004BMS**	SampType: **MS**	Units: **µg/L**	Prep Date: **5/29/2012**	RunNo: **4414**
Client ID: **BATCH**	Batch ID: **2499**		Analysis Date: **5/29/2012**	SeqNo: **80271**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	248	1.00	250.0	2.006	98.2	70	130				

Sample ID: **1205123-004BMSD**	SampType: **MSD**	Units: **µg/L**	Prep Date: **5/29/2012**	RunNo: **4414**
Client ID: **BATCH**	Batch ID: **2499**		Analysis Date: **5/29/2012**	SeqNo: **80272**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	245	1.00	250.0	2.006	97.3	70	130	247.6	0.981	30	

Sample ID: **1205124-002CDUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **5/29/2012**	RunNo: **4414**
Client ID: **052212-DW-02**	Batch ID: **2499**		Analysis Date: **5/29/2012**	SeqNo: **80296**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00						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

Fremont Analytical

Date: *5/30/2012*

Work Order: 1205124
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield Groundwater

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **LCS-2469**	SampType: **LCS**			Units: **µg/L**		Prep Date: **5/23/2012**		RunNo: **4391**			
Client ID: **LCSW**	Batch ID: **2469**					Analysis Date: **5/24/2012**		SeqNo: **79689**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,980	50.0	2,000	0	98.8	65	135				
Surr: 2-Fluorobiphenyl	153		160.0		95.7	50	150				
Surr: o-Terphenyl	190		160.0		119	50	150				

Sample ID: **MB-2469**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **5/23/2012**		RunNo: **4391**			
Client ID: **MBLKW**	Batch ID: **2469**					Analysis Date: **5/24/2012**		SeqNo: **79690**			
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	170		160.0		106	50	150				
Surr: o-Terphenyl	179		160.0		112	50	150				

Sample ID: **1205124-002BDUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **5/23/2012**		RunNo: **4391**			
Client ID: **052212-DW-02**	Batch ID: **2469**					Analysis Date: **5/24/2012**		SeqNo: **80006**			
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	
Heavy Oil	ND	100						0	0	30	
Surr: 2-Fluorobiphenyl	158		160.0		99.0	50	150		0		
Surr: o-Terphenyl	194		160.0		121	50	150		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

Fremont Analytical

Date: *5/30/2012*

Work Order: 1205124
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield Groundwater

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-R4386** SampType: **MBLK** Units: **µg/L** Prep Date: **5/23/2012** RunNo: **4386**
Client ID: **MBLKW** Batch ID: **R4386** Analysis Date: **5/23/2012** SeqNo: **79573**

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	10.2		10.00		102	65	135				
Surr: Fluorobenzene	10.2		10.00		102	65	135				

Sample ID: **LCS-R4386** SampType: **LCS** Units: **µg/L** Prep Date: **5/23/2012** RunNo: **4386**
Client ID: **LCSW** Batch ID: **R4386** Analysis Date: **5/23/2012** SeqNo: **79574**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	548	50.0	500.0	0	110	65	135				
Surr: 1,2-Dichloroethane-d4	9.88		10.00		98.8	65	135				
Surr: Fluorobenzene	9.96		10.00		99.6	65	135				

Sample ID: **1205124-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **5/23/2012** RunNo: **4386**
Client ID: **052212-DW-01** Batch ID: **R4386** Analysis Date: **5/23/2012** SeqNo: **79576**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0						0	0	30	
Surr: 1,2-Dichloroethane-d4	10.2		10.00		102	65	135		0		
Surr: Fluorobenzene	10.3		10.00		103	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

Fremont Analytical

Date: *5/30/2012*

Work Order: 1205124
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield Groundwater

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R4387** SampType: **MBLK** Units: **µg/L** Prep Date: **5/23/2012** RunNo: **4387**
Client ID: **MBLKW** Batch ID: **R4387** Analysis Date: **5/23/2012** SeqNo: **79616**

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									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Surr: 1-Bromo-4-fluorobenzene	10.4		10.00		104	79.2	120				
Surr: Dibromofluoromethane	9.97		10.00		99.7	76	114				
Surr: Toluene-d8	10.2		10.00		103	86.8	119				

Sample ID: **LCS-R4387** SampType: **LCS** Units: **µg/L** Prep Date: **5/23/2012** RunNo: **4387**
Client ID: **LCSW** Batch ID: **R4387** Analysis Date: **5/23/2012** SeqNo: **79617**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	9.93	1.00	10.00	0	99.3	73.9	125				
Toluene	10.4	1.00	10.00	0	104	73	126				
Surr: 1-Bromo-4-fluorobenzene	10.7		10.00		107	79.2	120				
Surr: Dibromofluoromethane	10.0		10.00		100	76	114				
Surr: Toluene-d8	10.4		10.00		104	86.8	119				

Sample ID: **1205124-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **5/23/2012** RunNo: **4387**
Client ID: **052212-DW-01** Batch ID: **R4387** Analysis Date: **5/23/2012** SeqNo: **79619**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0	0	30	
Toluene	ND	1.00						0	0	30	
Ethylbenzene	ND	1.00						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: 1205124
CLIENT: Fulcrum Environmental
Project: Mountain View Brownfield Groundwater

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1205124-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **5/23/2012** RunNo: **4387**
Client ID: **052212-DW-01** Batch ID: **R4387** Analysis Date: **5/23/2012** SeqNo: **79619**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	ND	1.00						0	0	30	
o-Xylene	ND	1.00						0	0	30	
Surr: Dibromofluoromethane	10.1		10.00		101	76	114		0		
Surr: Toluene-d8	10.2		10.00		103	86.8	119		0		

Sample ID: **1205092-017AMS** SampType: **MS** Units: **µg/L** Prep Date: **5/23/2012** RunNo: **4387**
Client ID: **BATCH** Batch ID: **R4387** Analysis Date: **5/23/2012** SeqNo: **79622**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	10.3	1.00	10.00	0.6900	95.8	70.7	126				
Toluene	10.3	1.00	10.00	0.1500	101	72.4	122				
Surr: 1-Bromo-4-fluorobenzene	10.5		10.00		105	79.2	120				
Surr: Dibromofluoromethane	10.1		10.00		101	76	114				
Surr: Toluene-d8	10.4		10.00		104	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: **1205124**
Logged by: **Troy Zehr**	Date Received: **5/23/2012 9:52:00 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	4.1	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): 1205124

Date: 05/22/12

Page: 01 of: 01

Client: Fulcrum Environmental
Address: 406 N. 2nd st.
City, State, Zip: Yakima, WA 98901 Tel: 509.574.0835

Project Name: Mtn. View Groundwater
Location: Ellensburg, WA
Collected by: P. Snider

Reports To (PM): jlynn@fulcrum.net Fax: 509.575.8453 Email: jlynn@fulcrum.net

Project No: 11570.02

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8021b)	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) Total (T) Dissolved (D)	Anions (IC)**	Nitrate	PO	Comments/Depth
1	05212-DW-01	05/22/12	1430	H_2O		X	X		X						X		X		
2	05212-DW-02	↓	1435	↓		X	X		X						X		X		
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	05/22/12 @ 1615	x Tony Zahn	5/23/12 9:52
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day (STD)

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

APPENDIX G

MTCA Method B Site-Specific Cleanup Level 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: 03/12/12
Site Name: Mountain View Brownfield
Sample Name: 021412-01.7

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	0	0.00%
AL_EC >8-10	5.46	0.34%
AL_EC >10-12	76.2	4.72%
AL_EC >12-16	539	33.37%
AL_EC >16-21	577	35.73%
AL_EC >21-34	82.4	5.10%
AR_EC >8-10	3.49	0.22%
AR_EC >10-12	58.7	3.63%
AR_EC >12-16	129	7.99%
AR_EC >16-21	73.2	4.53%
AR_EC >21-34	13.2	0.82%
Benzene	0	0.00%
Toluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	1.8	0.11%
1-Methyl Naphthalene	30	1.86%
2-Methyl Naphthalene	25.6	1.59%
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	1615.05	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: 3/12/2012
Site Name: Mountain View Brownfield
Sample Name: 021412-01.7
Measured Soil TPH Concentration, mg/kg: **1,615.050**

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	2,719	0.00E+00	5.94E-01	Pass
	Method C	37,187	0.00E+00	4.34E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	180	0.00E+00	1.43E+00	Fail
	Target TPH GW Conc. @ 500 ug/L	100% NAPL	NA	NA	Pass

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

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

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

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**2,718.73**	**37,186.60**
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	2.72E+03	0.00E+00	1.00E+00	YES	3.72E+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	NA			
EDB	NA	NA	NA	NA	NA			
EDC	NA	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	**127.15**
Protective Soil Concentration, mg/kg	**179.64**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	1.27E+02	0.00E+00	1.00E+00	1.80E+02
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	1.84E+02	0.00E+00	1.51E+00	**100% NAPL**

A2. 2 Worksheet for Calculating Soil Cleanup Levels for the Protection of Ground Water Quality - Leaching Pathway WAC 173-340-740 and 747

Date: 3/12/2012

Site Name: Mountain View Brownfield

Sample Name: 021412-01.7

Chemical of Concern or EC Group	Measured Soil Conc @dry basis	GW Cleanup Level	Adjusted Condition: Soil Conc being tested	Predicted Conc @Well	HQ @ Well	RISK @ Well	Pass or Fail?
	mg/kg	ug/L	mg/kg	ug/L	unitless	unitless	
Petroleum EC Fraction							
AL_EC >5-6	0		0.00E+00	0.00E+00	0.00E+00		
AL_EC >6-8	0		0.00E+00	0.00E+00	0.00E+00		
AL_EC >8-10	5.46		7.91E+00	1.16E-01	4.85E-04		
AL_EC >10-12	76.2		1.10E+02	1.05E-01	4.38E-04		
AL_EC >12-16	539		7.81E+02	1.33E-02	2.78E-05		
AL_EC >16-21	577		8.36E+02	1.80E-05	5.64E-10		
AL_EC >21-34	82.4		1.19E+02	2.02E-11	6.30E-16		
AR_EC >8-10	3.49		5.06E+00	1.13E+01	1.42E-02		
AR_EC >10-12	58.7		8.50E+01	7.03E+01	4.39E-01		
AR_EC >12-16	129		1.87E+02	3.19E+01	3.99E-02		
AR_EC >16-21	73.2		1.06E+02	1.28E+00	2.66E-03		
AR_EC >21-34	13.2		1.91E+01	2.37E-03	3.70E-06		
Benzene	0	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Toluene	0	1000	0.00E+00	0.00E+00	0.00E+00		
Ethylbenzene	0	700	0.00E+00	0.00E+00	0.00E+00		
Total Xylenes	0	1000	0.00E+00	0.00E+00	0.00E+00		
Naphthalene	1.8	160	2.61E+00	2.76E+00	1.72E-02		
1-Methyl Naphthalene	30		4.35E+01	3.27E+01	8.18E-02		
2-Methyl Naphthalene	25.6		3.71E+01	2.75E+01	8.60E-01		
n-Hexane	0		0.00E+00	0.00E+00	0.00E+00		
MTBE	0	20	0.00E+00	0.00E+00	0.00E+00		
Ethylene Dibromide (EDB)	0	0.01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0	for	0.00E+00	0.00E+00		0.00E+00	for
Benzo(b)fluoranthene	0	all	0.00E+00	0.00E+00		0.00E+00	all
Benzo(k)fluoranthene	0	cPAHs	0.00E+00	0.00E+00		0.00E+00	cPAHs
Benzo(a)pyrene	0	Risk=	0.00E+00	0.00E+00		0.00E+00	
Chrysene	0	1E-05	0.00E+00	0.00E+00		0.00E+00	
Dibenz(a,h)anthracene	0		0.00E+00	0.00E+00		0.00E+00	Σ Risk=
Indeno(1,2,3-cd)pyrene	0		0.00E+00	0.00E+00		0.00E+00	0.00E+00
Sum	1615.05		2.34E+03	1.78E+02	1.46E+00	0.00E+00	***Fail***

Site-Specific Hydrogeological Properties previously entered:			
Item	Symbol	Value	Units
Total soil porosity:	n	0.43	unitless
Volumetric water content:	Θ_w	0.3	unitless
Volumetric air content:	Θ_a	0.13	unitless
Soil bulk density measured:	ρ_b	1.5	kg/L
Fraction Organic Carbon:	f_{oc}	0.001	unitless
Dilution Factor:	DF	20	unitless

Target Ground Water TPH conc adjusted previously if any:

Target Ground Water TPH Conc, ug/L ⇒ 500

CALCULATE PROTECTIVE CONDITION OR TEST ADJUSTED CONDITION Calculate

TPH Test button used.

Pass or Fail? *Fail*

Tested TPH Soil Conc, mg/kg = **2340.00**

Predicted TPH GW Conc, ug/L = 1.78E+02

RISK @ Well = 0.00E+00

HI @Well = 1.46E+00

DEDAILED MODEL RESULTS

Type of model used for computation:	4-Phase Model
Computation completed?	Yes!
Initial Weighted Average MW of NAPL, g/mol:	208.6
Equilibrated Weighted Average MW of NAPL, g/mol:	209.1
Initial Weighted Average Density of NAPL, kg/L:	0.815
Volumetric NAPL Content, Θ_{NAPL}:	4.3E-03
NAPL Saturation (%), Θ_{NAPL}/n:	0.99%
100% NAPL, mg/kg	70645.4

Mass Distribution Pattern @ 4-phase in soil pore system:

Total Mass distributed in Water Phase: 0.03% in Solid: 0.71%

Total Mass distributed in Air Phase: 0.00% in NAPL: 99.26%

Please Check Soil Residual Saturation TPH Levels: Refer to Table 747-5!

A2.3 Worksheet for Calculating Soil Cleanup Levels for the Protection of Air Quality: (Vapor Pathway)
Method B: WAC 173-340-740 and 750

Date: 3/12/2012
Site Name: Mountain View Brownfield
Sample Name: 021412-01.7

Warning: This Worksheet is provided for informational purposes only! Background levels entered are not considered for the calculations.

Chemical of Concern or EC Group	Measured Soil Conc @dry basis	Enter Air Background Levels	Adjusted Condition: Soil Conc being tested	Adjusted Condition: Predicted Indoor Air Conc	Adjusted Condition: HQ @ Indoor Air	Adjusted Condition: RISK @ Indoor Air	Pass or Fail?
	mg/kg	ug/m^3	mg/kg	ug/m^3	unitless	unitless	
Petroleum EC Fraction							
AL_EC >5-6	0	0	0.00E+00	0.00E+00	0.00E+00		
AL_EC >6-8	0	0	0.00E+00	0.00E+00	0.00E+00		
AL_EC >8-10	5.46	0	7.91E+00	1.86E+02	1.37E+00		
AL_EC >10-12	76.2	0	1.10E+02	2.52E+02	1.85E+00		
AL_EC >12-16	539	0	7.81E+02	1.39E+02	1.02E+00		
AL_EC >16-21	577	0	8.36E+02	1.77E+00	0.00E+00		
AL_EC >21-34	82.4	0	1.19E+02	4.03E-05	0.00E+00		
AR_EC >8-10	3.49	0	5.06E+00	1.09E+02	5.96E-01		
AR_EC >10-12	58.7	0	8.50E+01	1.97E+02	1.43E+02		
AR_EC >12-16	129	0	1.87E+02	3.39E+01	4.23E-01		
AR_EC >16-21	73.2	0	1.06E+02	3.32E-01	0.00E+00		
AR_EC >21-34	13.2	0	1.91E+01	3.17E-05	0.00E+00		
Benzene	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Toluene	0	0	0.00E+00	0.00E+00	0.00E+00		
Ethylbenzene	0	0	0.00E+00	0.00E+00	0.00E+00		
Total Xylenes	0	0	0.00E+00	0.00E+00	0.00E+00		
Naphthalene	1.8	0	2.61E+00	1.09E+00	7.94E-01		
1-Methyl Naphthalene	30	0	4.35E+01	1.37E+01	1.72E-01		
2-Methyl Naphthalene	25.6	0	3.71E+01	1.17E+01	8.48E+00		
n-Hexane	0	0	0.00E+00	0.00E+00	0.00E+00		
MTBE	0	0	0.00E+00	0.00E+00	0.00E+00		
Ethylene Dibromide (EDB)	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0	0	0.00E+00	0.00E+00		0.00E+00	for
Benzo(b)fluoranthene	0	0	0.00E+00	0.00E+00		0.00E+00	all
Benzo(k)fluoranthene	0	0	0.00E+00	0.00E+00		0.00E+00	cPAHs
Benzo(a)pyrene	0	0	0.00E+00	0.00E+00		0.00E+00	
Chrysene	0	0	0.00E+00	0.00E+00		0.00E+00	
Dibenz(a,h)anthracene	0	0	0.00E+00	0.00E+00		0.00E+00	Σ Risk=
Indeno(1,2,3-cd)pyrene	0	0	0.00E+00	0.00E+00		0.00E+00	0.00E+00
Sum	1615.05		2.34E+03	9.45E+02	1.58E+02	0.00E+00	***Fail***

Enter Vapor Attenuation Factor for all TPH components:	0.001

Site-Specific Hydrogeological Properties previously entered:

Item	Symbol	Value	Units
Total soil porosity: default is 0.43	n	0.43	unitless
Volumetric water content: default is 0.3	Θ_w	0.3	unitless
Initial volumetric air content: default is 0.13	Θ_a	0.13	unitless
Soil bulk density measured: default is 1.5	ρ_b	1.5	kg/L
Fraction Organic Carbon: default is 0.001	f_{oc}	0.001	unitless

TEST ADJUSTED CONDITION

This tool allows the user to test whether a particular TPH soil concentration is protective of indoor air quality. The Workbook uses the same composition ratio as for the measured data and the same hydrogeological data and vapor attenuation factor previously entered by the user.

Test Adjusted TPH Soil Conc

Pass or Fail? *Fail*

Tested TPH Soil Conc, mg/kg = 2340
Predicted TPH Indoor Air Conc, ug/m^3 = 9.45E+02
RISK @ Indoor Air = 0.00E+00
HI @ Indoor Air = 1.58E+02

Type of model used for computation: 4-Phase Model
Computation completed? Yes!

Note: Source of Default Air Background Level:
"Characterizing risk posed by Petroleum Contaminated Sites: Implementation of MADEP VPH/EPH Approach", *Petroleum Equivalent Carbon Fractions: State of Massachusetts, Department of Environmental Protection, 10/21/2002, Policy # WSC02-411

*Benzene and n-Hexane: Washington State Department of Ecology, 1997, "Memorandum: Washington State Air Toxic Monitoring Data Documentation"

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

1. Enter Site Information

Date: 03/12/12
Site Name: Mountain View Brownfield
Sample Name: 021412-12.6

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6	0	0.00%
AL_EC >6-8	0	0.00%
AL_EC >8-10	21.4	0.58%
AL_EC >10-12	270	7.32%
AL_EC >12-16	1540	41.75%
AL_EC >16-21	1260	34.16%
AL_EC >21-34	128.5	3.48%
AR_EC >8-10	3.51	0.10%
AR_EC >10-12	56.4	1.53%
AR_EC >12-16	113	3.06%
AR_EC >16-21	213	5.77%
AR_EC >21-34	25.4	0.69%
Benzene	0	0.00%
Toluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	1.8	0.05%
1-Methyl Naphthalene	30	0.81%
2-Methyl Naphthalene	25.6	0.69%
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	3688.61	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: 3/12/2012
Site Name: Mountain View Brownfield
Sample Name: 021412-12.6
Measured Soil TPH Concentration, mg/kg: **3,688.610**

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	2,677	0.00E+00	1.38E+00	Fail
	Method C	34,889	0.00E+00	1.06E-01	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protectior	100% NAPL	0.00E+00	6.49E-01	Pass
	Target TPH GW Conc. @ 500 ug/L	100% NAPL	NA	NA	Pass

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

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

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

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**2,677.05**	**34,889.41**
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	2.68E+03	0.00E+00	1.00E+00	YES	3.49E+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	NA			
EDB	NA	NA	NA	NA	NA			
EDC	NA	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	**NA**
Protective Ground Water Concentration, ug/L	**NA**
Protective Soil Concentration, mg/kg	**Soil-to-Ground Water is not a critical pathway!**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	8.03E+01	0.00E+00	6.65E-01	100% NAPL
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

Note: 100% NAPL is 69000 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	8.03E+01	0.00E+00	6.65E-01	**100% NAPL**

A2. 2 Worksheet for Calculating Soil Cleanup Levels for the Protection of Ground Water Quality: (Leaching Pathway)

Washington State Department of Ecology, Toxics Cleanup Program - Cleanup Level and Risk Calculation (CLARC) Ground Water

WAC 173-340-740 and 747

Date: 3/12/2012

Site Name: Mountain View Brownfield

Sample Name: 021412-12.6

Chemical of Concern or EC Group	Measured Soil Conc @dry basis	GW Cleanup Level	Adjusted Condition: Soil Conc being tested	Predicted Conc @Well	HQ @ Well	RISK @ Well	Pass or Fail?
	mg/kg	ug/L	mg/kg	ug/L	unitless	unitless	
Petroleum EC Fraction							
AL_EC >5-6	0		0.00E+00	0.00E+00	0.00E+00		
AL_EC >6-8	0		0.00E+00	0.00E+00	0.00E+00		
AL_EC >8-10	21.4		3.48E+01	2.03E-01	8.46E-04		
AL_EC >10-12	270		4.38E+02	1.65E-01	6.88E-04		
AL_EC >12-16	1540		2.50E+03	1.69E-02	3.51E-05		
AL_EC >16-21	1260		2.05E+03	1.75E-05	5.46E-10		
AL_EC >21-34	128.5		2.09E+02	1.39E-11	4.34E-16		
AR_EC >8-10	3.51		5.70E+00	5.29E+00	6.62E-03		
AR_EC >10-12	56.4		9.16E+01	3.07E+01	1.92E-01		
AR_EC >12-16	113		1.84E+02	1.25E+01	1.56E-02		
AR_EC >16-21	213		3.46E+02	1.65E+00	3.43E-03		
AR_EC >21-34	25.4		4.12E+01	2.01E-03	3.15E-06		
Benzene	0	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Toluene	0	1000	0.00E+00	0.00E+00	0.00E+00		
Ethylbenzene	0	700	0.00E+00	0.00E+00	0.00E+00		
Total Xylenes	0	1000	0.00E+00	0.00E+00	0.00E+00		
Naphthalene	1.8	160	2.92E+00	1.24E+00	7.76E-03		
1-Methyl Naphthalene	30		4.87E+01	1.49E+01	3.73E-02		
2-Methyl Naphthalene	25.6		4.16E+01	1.25E+01	3.91E-01		
n-Hexane	0		0.00E+00	0.00E+00	0.00E+00		
MTBE	0	20	0.00E+00	0.00E+00	0.00E+00		
Ethylene Dibromide (EDB)	0	0.01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0	for	0.00E+00	0.00E+00		0.00E+00	for
Benzo(b)fluoranthene	0	all	0.00E+00	0.00E+00		0.00E+00	all
Benzo(k)fluoranthene	0	cPAHs	0.00E+00	0.00E+00		0.00E+00	cPAHs
Benzo(a)pyrene	0	Risk=	0.00E+00	0.00E+00		0.00E+00	
Chrysene	0	1E-05	0.00E+00	0.00E+00		0.00E+00	
Dibenz(a,h)anthracene	0		0.00E+00	0.00E+00		0.00E+00	Σ Risk=
Indeno(1,2,3-cd)pyrene	0		0.00E+00	0.00E+00		0.00E+00	0.00E+00
Sum	3688.61		5.99E+03	7.92E+01	6.55E-01	0.00E+00	Pass

Site-Specific Hydrogeological Properties previously entered:

Item	Symbol	Value	Units
Total soil porosity:	n	0.43	unitless
Volumetric water content:	Θ_w	0.3	unitless
Volumetric air content:	Θ_a	0.13	unitless
Soil bulk density measured:	ρ_b	1.5	kg/L
Fraction Organic Carbon:	f_{oc}	0.001	unitless
Dilution Factor:	DF	20	unitless

Target Ground Water TPH conc adjusted previously if any:

Target Ground Water TPH Conc, ug/L ⇒ 500

CALCULATE PROTECTIVE CONDITION OR TEST ADJUSTED CONDITION Calculate

TPH Test button used.

Pass or Fail? Pass

Tested TPH Soil Conc, mg/kg = **5990.00**

Predicted TPH GW Conc, ug/L = 7.92E+01

RISK @ Well = 0.00E+00

HI @Well = 6.55E-01

DEDAILED MODEL RESULTS

Type of model used for computation:	4-Phase Model	
Computation completed?	Yes!	
Initial Weighted Average MW of NAPL, g/mol:		212.1
Equilibrated Weighted Average MW of NAPL, g/mol:		212.2
Initial Weighted Average Density of NAPL, kg/L:		0.801
Volumetric NAPL Content, Θ_{NAPL} :		1.1E-02
NAPL Saturation (%), Θ_{NAPL}/n:		2.61%
100% NAPL, mg/kg		69391.2

Mass Distribution Pattern @ 4-phase in soil pore system:

Total Mass distributed in Water Phase: 0.01% in Solid: 0.19%

Total Mass distributed in Air Phase: 0.00% in NAPL: 99.81%

Please Check Soil Residual Saturation TPH Levels: Refer to Table 747-5!

A2.3 Worksheet for Calculating Soil Cleanup Levels for the Protection of Air Quality: (Vapor Pathway)
Method B: WAC 173-340-740 and 750

Date: 3/12/2012
Site Name: Mountain View Brownfield
Sample Name: 021412-12.6

Warning: This Worksheet is provided for informational purposes only! Background levels entered are not considered for the calculations.

Chemical of Concern or EC Group	Measured Soil Conc @dry basis	Enter Air Background Levels	Adjusted Condition: Soil Conc being tested	Adjusted Condition: Predicted Indoor Air Conc	Adjusted Condition: HQ @ Indoor Air	Adjusted Condition: RISK @ Indoor Air	Pass or Fail?
	mg/kg	ug/m^3	mg/kg	ug/m^3	unitless	unitless	
Petroleum EC Fraction							
AL_EC >5-6	0	0	0.00E+00	0.00E+00	0.00E+00		
AL_EC >6-8	0	0	0.00E+00	0.00E+00	0.00E+00		
AL_EC >8-10	21.4	0	3.48E+01	3.25E+02	2.39E+00		
AL_EC >10-12	270	0	4.38E+02	3.96E+02	2.91E+00		
AL_EC >12-16	1540	0	2.50E+03	1.75E+02	1.29E+00		
AL_EC >16-21	1260	0	2.05E+03	1.71E+00	0.00E+00		
AL_EC >21-34	128.5	0	2.09E+02	2.78E-05	0.00E+00		
AR_EC >8-10	3.51	0	5.70E+00	5.08E+01	2.79E-01		
AR_EC >10-12	56.4	0	9.16E+01	8.59E+01	6.25E+01		
AR_EC >12-16	113	0	1.84E+02	1.33E+01	1.66E-01		
AR_EC >16-21	213	0	3.46E+02	4.28E-01	0.00E+00		
AR_EC >21-34	25.4	0	4.12E+01	2.70E-05	0.00E+00		
Benzene	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Toluene	0	0	0.00E+00	0.00E+00	0.00E+00		
Ethylbenzene	0	0	0.00E+00	0.00E+00	0.00E+00		
Total Xylenes	0	0	0.00E+00	0.00E+00	0.00E+00		
Naphthalene	1.8	0	2.92E+00	4.92E-01	3.57E-01		
1-Methyl Naphthalene	30	0	4.87E+01	6.26E+00	7.82E-02		
2-Methyl Naphthalene	25.6	0	4.16E+01	5.31E+00	3.86E+00		
n-Hexane	0	0	0.00E+00	0.00E+00	0.00E+00		
MTBE	0	0	0.00E+00	0.00E+00	0.00E+00		
Ethylene Dibromide (EDB)	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0	0	0.00E+00	0.00E+00		0.00E+00	for
Benzo(b)fluoranthene	0	0	0.00E+00	0.00E+00		0.00E+00	all
Benzo(k)fluoranthene	0	0	0.00E+00	0.00E+00		0.00E+00	cPAHs
Benzo(a)pyrene	0	0	0.00E+00	0.00E+00		0.00E+00	
Chrysene	0	0	0.00E+00	0.00E+00		0.00E+00	
Dibenz(a,h)anthracene	0	0	0.00E+00	0.00E+00		0.00E+00	Σ Risk=
Indeno(1,2,3-cd)pyrene	0	0	0.00E+00	0.00E+00		0.00E+00	0.00E+00
Sum	3688.61		5.99E+03	1.06E+03	7.38E+01	0.00E+00	***Fail***

Enter Vapor Attenuation Factor for all TPH components:	0.001

Site-Specific Hydrogeological Properties previously entered:

Item	Symbol	Value	Units
Total soil porosity: default is 0.43	n	0.43	unitless
Volumetric water content: default is 0.3	Θ_w	0.3	unitless
Initial volumetric air content: default is 0.13	Θ_a	0.13	unitless
Soil bulk density measured: default is 1.5	ρ_b	1.5	kg/L
Fraction Organic Carbon: default is 0.001	f_{oc}	0.001	unitless

TEST ADJUSTED CONDITION

This tool allows the user to test whether a particular TPH soil concentration is protective of indoor air quality. The Workbook uses the same composition ratio as for the measured data and the same hydrogeological data and vapor attenuation factor previously entered by the user.

Test Adjusted TPH Soil Conc

Pass or Fail? *Fail*

Tested TPH Soil Conc, mg/kg = 5990
Predicted TPH Indoor Air Conc, ug/m^3 = 1.06E+03
RISK @ Indoor Air = 0.00E+00
HI @ Indoor Air = 7.38E+01

Type of model used for computation: 4-Phase Model
Computation completed? Yes!

Note: Source of Default Air Background Level:
"Characterizing risk posed by Petroleum Contaminated Sites: Implementation of MADEP VPH/EPH Approach", *Petroleum Equivalent Carbon Fractions: State of Massachusetts, Department of Environmental Protection, 10/21/2002, Policy # WSC02-411

*Benzene and n-Hexane: Washington State Department of Ecology, 1997, "Memorandum: Washington State Air Toxic Monitoring Data Documentation"

APPENDIX H

Remedial Action Alternative

Appendix H.1

Remedial Action Alternative Summary Table

Table H.1: Remedial Action Alternative Summary

Appropriate Media	Response Action	Remedial Technology	Process Option	Process Description	Comments
Soil and Groundwater	No Action	None	None	No remedial technology or associated processes are used to reduce the volume, toxicity, mobility, or exposure to constituents of concern. Natural biodegradation processes occur at rates supported by existing site environmental characteristics with no requisite site monitoring.	Does not meet Ecology defined requirements for removal or reduction of contaminant concentrations or protection of human health and the environment. **Not retained for further evaluation.**
	Institutional Controls	None	Access Restrictions	Establishment of access or land use restrictions intended to reduce human exposure to constituents of concern. No remedial technology or associated processes are used to reduce the volume, toxicity, or mobility of constituents of concern. Natural biodegradation processes occur at rates supported by environmental characteristics with no requisite site monitoring.	Does not independently meet all project specific requirements for remediation and reduction of site contaminant concentrations. **Not retained for further evaluation.**
	Natural Processes	None	Monitored Natural Attenuation	Natural subsurface processes - such as dilution, volatilization, biodegradation, adsorption, and chemical reactions with subsurface materials - may be able to reduce the contaminants to acceptable levels. Monitoring is completed at a frequency appropriate to document the rate of natural attenuation of the constituents of concern.	Duration of remediation utilizing monitored natural attenuation is dependent upon site-specific soil and groundwater conditions. While additional information is required to estimate the time-frame for remediation of soil and groundwater, monitored natural attenuation of soils is likely to be greater than the project specified duration. However, monitored natural attenuation of groundwater may be appropriate in conjunction with additional remedial technologies. **Retained for further evaluation.**
	Capping	None		Capping utilizes both natural subsurface processes and institutional controls with the addition of a physical surface barrier, such as an asphalt, concrete, or building footprint, to reduce or eliminate the potential for direct contact exposure with contamination.	Reduces potential exposure through direct contact, but does not meet project specific requirements for reduction of contaminant concentrations. **Not retained for further evaluation.**
	In Situ Remediation	Biological Remediation	Enhanced Bioremediation	The activity of naturally occurring microbes is stimulated by circulating water-based solutions through contaminated soils to enhance *in situ* biological degradation of organic contaminants. The water-based solutions are directly injected into the subsurface through borehole excavations. May require application of additional remedial technology to treat groundwater prior to recirculation to meet regulatory criteria. To enhance biological activity at sites where existing biota is deficient or increased remedial rate is desire, additional soil microbes, including species selected for biological traits can be added into the soil and groundwater.	Considered a long-term technology; however, Biological Remediation has the benefit of reducing contaminant concentrations in both soil and groundwater. Site-specific conditions including average temperature, type of petroleum hydrocarbons present, and soil chemistry greatly effect time required for remediation. Remediation time required is typically measured in years, and is likely to be greater the than the project specified duration. **Not retained for further evaluation.**
		Thermal Treatment	Induction Heating	Electrical resistance, electromagnetic, fiber optic, or radio frequency heating is utilized to increase volatilization of contaminants. Vapors are off-gassed through the surface soils and may be collected for additional remediation through a secondary system. Steam or hot air injection is typically combined with a soil vapor extraction (SVE) system to increase performance of remediation.	Considered a long-term technology; however, Thermal Treatment has the benefit of reducing contaminant concentrations in both soil and groundwater. Most appropriate for fuel hydrocarbons with low volatilization temperatures. The presence of long-chain petroleum hydrocarbons will decrease technology effectiveness and lengthen the duration of remediation. Remediation time required is typically measured years, has a high energy use requirement during the treatment, and is likely to be greater the than the project specified duration. **Not retained for further evaluation.**
			Thermally Enhanced SVE	Steam/hot air injection or electro/radio frequency heating is used to increase the mobility of VOC in the subsurface with Soil Vapor Extraction removing gas-phase components. The process includes a system to treat, either through thermal destruction, carbon filter capture, or a combination of efforts, the off gases and volatile products of thermal destruction.	Reduces contaminant concentrations in soil only. Applicable for full range of petroleum hydrocarbons. Requires a high energy use for equipment. **Retained for further evaluation.**
Soil	*In Situ* Remediation	Biological Remediation	Bioventing	An atmospheric concentration of oxygen, 20.9 percent, is delivered to contaminated unsaturated zone soils by inducing air movement through either extraction of soil gas or injection of ambient air thus increasing the rate of biodegradation. Extracted soil gas may require treatment either through thermal destruction, carbon filter capture, or a combination of these efforts. Air is typically injected at the ambient temperature.	Reduces contaminant concentrations in soil only with little reduction in contaminant concentrations in the vadose zone and no anticipated effect in groundwater. Case studies for volume of impacted soils consistent with site volumes have increased length of time for remediation beyond the project specific criteria. **Not retained for further evaluation.**
		Physical/Chemical Treatment	Soil Vapor Extraction (SVE)	Vacuum is applied through extraction wells to create a pressure gradient that induces gas-phase volatile (halogenated and non-halogenated) organic compounds to diffuse through soil to the extraction wells. The process includes a system to treat the off gases with either through thermal destruction, carbon filter capture, or a combination of efforts,	Reduces contaminant concentrations in soil only. Site-specific soil type and constituents present at the site may limit effectiveness of the technology. Limited success on diesel range hydrocarbons without secondary remedial technology. System requires high energy use. **Not retained for further evaluation.**
		Thermal Treatment	Steam/Hot Air Injection	Steam or hot air is injected into the subsurface utilizing groundwater wells or slotted boreholes. The steam or hot air is transmitted through the soils, heating the media, and increasing volatilization of contaminants. Vapors are off-gassed through the surface soils and may be collected for additional remediation through a secondary system. Steam or hot air injection is typically combined with an SVE system to increase performance of remediation. When utilized in conjunction with SVE, vapors are collected through extraction wells and processed through a secondary contaminant capture system.	Considered a long-term technology; however, has the benefit of reducing contaminant concentrations in both soil and groundwater. Most appropriate for fuel hydrocarbons with low volatilization temperatures. The presence of long-chain petroleum hydrocarbons will decrease technology effectiveness and lengthen duration of remediation. Remediation time required is typically measured in years, and is likely to be greater the than the project specified duration. **Not retained for further evaluation.**

Table H.1: Remedial Action Alternative Summary

Appropriate Media	Response Action	Remedial Technology	Process Option	Process Description	Comments
	Ex Situ Remediation	Biological Remediation	Biopiles	Soils are excavated and mixed with soil amendments to enhance biological growth. Soils are subsequently placed into above ground containment cells and are continuously purged with air to additionally promote degradation of contaminants.	Requires excavation and onsite treatment; however, soils may be stockpiled up to 20-feet high during remediation. This approach does not address groundwater contamination and discharge of volatile organic compounds from the pile may require additional treatment to meet regulatory air emission criteria. **Retained for further evaluation.**
			Composting	Composting utilizes thermophilic microbial growth to bioremediate soil contaminants. Soils are excavated and mixed with organic materials such as wood chips and hay. The decomposition of organic matter increases the temperature of the compost pile and promotes thermophilic microbial growth.	Onsite application of composting may not be feasible based on site conditions and proposed site use. The approach does not address groundwater contamination. **Not retained for further evaluation.**
			Landfarming	Contaminated soils are applied in a thin layer to a rigid surface and periodically turned to promote aeration. Natural biological degradation is also promoted through the application of fertilizer and water.	Available space within the site boundaries is not likely to be adequate for to facilitate landfarming activities. This approach does not address groundwater contamination. Offsite landfarming may be applicable associated with the disposal remedial alternative. **Onsite landfarming not retained for further evaluation**.
			Slurry Phase Biological Treatment	An aqueous slurry is created by combining soil with water and other additives. The slurry is mixed within a lagoon or reactor to keep solids and microorganisms in contact with the soil contaminants. Upon completion of the process, soil is dewatered and disposed of or reused accordingly.	Reduces contaminant concentrations in soil only. Available space within the site boundaries is not likely to be adequate for lagoon placement. Additionally, soils containing clay are not effectively managed within reactors. Additional treatment of off-gas and dewatering liquid may be required. **Not retained for further evaluation.**
		Thermal Treatment	Thermal Desorption	Contaminated soil is heated to 200 degrees Fahrenheit (°F) to 800°F to vaporize water and organic contaminants. A carrier gas or vacuum system transports the volatilized water and organics to an off-gas treatment system.	Reduces contaminant concentrations in soil only. Soils are processed onsite through the reactor system at a rate of 7 to 20 cubic yards per hour depending on clay content. May require additional remedial technology to treat off-gas. **Retained for further evaluation.**
			Thermal Destruction - Incineration	High temperatures (800°F to 2,200°F) are used to volatilize and combust organic contaminants.	Typically completed at a permitted offsite facility. No permitted facility is present within the Pacific Northwest and onsite technology and air quality permitting process, permits, costs are prohibitive. **Not retained for further evaluation.**
Soil	Excavation and Offsite Disposal	None	Disposal or Treatment	Contaminated soil is removed and transported offsite to a permitted disposal or remediation facility for treatment. Depending on contaminant type and concentration, pretreatment prior to disposal may be required.	Meets project objectives for reducing contaminant concentrations at the site, does not require energy input for treatment or disposal, and can be completed in a timely manner. All excavation extents can be evaluated until all areas of soil contamination have been removed. **Retained for further evaluation.**
Groundwater	Containment	None	Physical Barriers	Vertical separation using slurry walls are placed in the subsurface to eliminate horizontal migration of contaminants in groundwater. The technology does not remove or reduce contaminant concentrations and only prevents migrations.	Does provide management of contaminants at point of compliance; however, a contaminant strategy does not meet the site-specific objectives of reducing contaminant concentrations and does not promote a decrease in contaminant concentrations. **Not retained for further evaluation**.
	In Situ Remediation	Physical/Chemical Treatment	Air Sparging	Air is injected into the saturated soils below the static groundwater elevation through injection wells. The air traverses horizontally and vertically through the subsurface and volatilizes contaminants. The contaminants are discharged through the surface or through collection wells. Air sparging can be used in conjunction with other remedial methods such as SVE to capture or thermally destroy volatilized compounds.	Reduces contaminant concentrations in groundwater only. Site-specific soil type may limit effectiveness of technology. Limited success with diesel range hydrocarbons due to low volatilization temperatures achieved by technology. **Not retained for further evaluation.**
			Bioslurping	Bioslurping incorporates elements of bioventing with the addition of a vacuum enhanced free product recovery system. Vacuum is applied to the soil/groundwater interface to remove free product. In the process, air movement is induced through the unsaturated soils, promoting the bioremediation by natural microbes. Removed water and vapor contaminates may require additional remediation through a secondary system, such as SVE.	Primarily designed for free product removal from groundwater surface. Not applicable to site conditions as no free product has been identified. **Not retained for further evaluation.**
			Dual Phase Extraction	Dual phase extraction removes groundwater, vapor, and free product through a pumping well. Removed liquid and vapor is subsequently processed through an above ground phase separator and/or a vapor recovery system to remove contaminants.	Reduces contaminant concentrations in groundwater only. Well suited for volatile organic compounds with high vapor pressures and recovery of free product. **Retained for further evaluation.**

Table H.1: Remedial Action Alternative Summary

Appropriate Media	Response Action	Remedial Technology	Process Option	Process Description	Comments
	Ex Situ Remediation	Biological Remediation	Bioreactors	Groundwater is removed from the subsurface through extraction wells and transferred into bioreactor containment basins. The bioreactors are enhanced with product and/or matrices to promote microbial growth and reduce contaminant concentrations.	Bioreactors are considered a long-term remedial technology and may take several years to complete. Potential for implementation in conjunction with site redevelopment. **Retained for further evaluation.**
		Physical/Chemical Treatment	Advanced Oxidation Processes	Advanced oxidation utilizes ultraviolet light, hydrogen peroxide, radiation, or other high energy process to oxidize contaminants. Contaminated groundwater is removed from the subsurface and purged into treatment basins. The water is passed through the oxidizing process and contaminants are destroyed.	Reduces contaminant concentrations in groundwater only. Required a high energy investment. **Retained for further evaluation.**
			Granulated Activated Carbon/Liquid Phase Carbon Adsorption	Adsorption technology utilizes a membrane to remove contaminants from the liquid phase. Subsequent to removal of groundwater from the subsurface, the water is passed over the surface of the selected membrane, where the contaminants are adsorbed to the surface of the membrane and removed from the water.	Reduces contaminant concentrations in groundwater only. Technology is not applicable for diesel range hydrocarbons. **Not retained for further evaluation.**
			Separation	Separation technology removes contaminants from groundwater through one or more filtration process including, but not limited to, reverse osmosis, distillation, microfiltration, etc.	Reduces contaminant concentrations in groundwater only. Not applicable for diesel range hydrocarbons. **Not retained for further evaluation.**
	Air Emissions/Off-Gas Treatment	Biological Remediation	Bio-filtration	Bio-filtration technology is utilized to treat air emissions or off-gas and is intended to be utilized in conjunction with other remedial technologies. Bio-filtration technology injects contaminated vapor into controlled near surface soils which are subsequently bioremediated.	Air emissions and off-gas treatments are intended to be utilized in conjunction with other remedial technologies. The identified treatment technologies will be additionally evaluated for use at the site should vapor phase contaminant remediation be necessary as a portion of the selected primary remedial technology.
		Thermal Remediation	High Energy Destruction	High energy destruction technology is utilized to treat air emissions or off-gas. Thermal Remediation is intended to be utilized in conjunction with other remedial technologies. High energy destruction incorporates utilizes electricity to destroy contaminates within the vapor phase.	
		Physical/Chemical Treatment	Oxidation	Oxidation technology is utilized to treat air emissions or off-gas and is intended to be utilized in conjunction with other remedial technologies. The contaminated vapor is passed through a thermal or catalyst chamber to either destroy or extract contaminates.	
			Vapor Phase Carbon Adsorption	Carbon adsorption technology is utilized to treat air emissions or off-gas and is intended to be utilized in conjunction with other remedial technologies. Similar to catalyst oxidation, vapor is passed through a series of chambers filled with activated carbon. Contaminates are adsorbed to the activated carbon.	

Appendix H.2

Remedial Cost Summary

FULCRUM environmental consulting

MEMORANDUM

DATE	August 13, 2012
TO	Chief John Sinclair, Kittitas Valley Fire & Rescue Nancy Charron, Traho Architects
FROM	Ryan K. Mathews, Fulcrum Environmental Consulting, Inc.
RE	**Site Cleanup and Remediation Estimate**
SUBJECT	Mountain View Brownfield Site

Thank you for the opportunity to present this site cleanup and remediation estimate for the Mountain View Brownfield Site in Ellensburg, Washington. Fulcrum Environmental Consulting, Inc. (Fulcrum) has completed environmental investigation at the site and confirmed the presence of 1,250 to 1,650 cubic yards of petroleum contained soil. Remedial strategies and approaches have been evaluated and the preferred alternative: excavation, transport, and offsite treatment of petroleum contaminated soil (PCS), has been selected as the most likely to achieve site cleanup within the established project timeframe.

Attached please find a detailed remedial estimate for identified alternative methods and approaches to address identified contamination at the site. As described in the associated investigation report, the intent of the remedial alternative analysis is to compare and contrast the timeline, probability of success, and associated costs with each strategy. Where assumptions have been made, these are footnoted and a description of the assumption provided.

Included within the remedial cost summary are the following categories:

- Data Gap Investigation
- Initial Excavation
- Offsite Transportation
- System Setup
- Remediation
- Permitting Costs
- Design Fees
- Public Bidding Costs
- Oversight Fees
- Groundwater Monitoring
- Confirmation Sampling

As presented in the investigation report, the recommended remedial strategy is the excavation, transport, and treatment of petroleum contaminated soils. Costs associated with replacement of the soil volume removed from the site have not been included in this estimate. Following completion of site soil remediation efforts, a period of additional groundwater monitoring, consisting of not less than 8 consecutive quarters (about 2

P. 509.574.0839 F. 509.575.8453
406 North 2nd Street
Yakima, Washington 98901
efulcrum.net

years), will be required to meet Washington State Department of Ecology's (Ecology) site closure requirements. Please note that some costs, such as the Data Gap Investigation may be supported by Ecology grant funding.

In addition to the remedial costs we estimate the following:

Building Demolition and Site Cleanup	$132,000 to $156,000
Hazardous Building Materials Testing and Abatement	$5,500 to $7,500

As such, Fulcrum's total site cleanup and remediation estimate to prepare the site sufficient for site redevelopment is approximately 2 ½ years at a projected cost of $376,500 to $511,000.

We recommend that a contingency of 5 to 7% be added for each year from the present to accommodate anticipated increase in project costs. Additionally, depending on the source of remediation funds or if funds are generated through a federally supported bond, additional project costs related to Davis-Bacon Act provisions may apply.

If you should have any questions, please feel free to contact me at 509.574.0839.

P. 509.574.0839 F. 509.575.8453
406 North 2nd Street
Yakima, Washington 98901
efulcrum.net

Table H.2: Remedial Alternative Cost Summary Analysis

Technology	Timeline	Data Gap Investigation	Initial Excavation	Offsite Transportation	System Setup	Remediation		Permitting Costs	Design Fees	Public Bidding Costs	Oversight Fees	Groundwater Monitoring	Confirmation Sampling	Total Projected Fee
						Unit Cost	Total							
Thermally Enhanced Soil Vapor Extraction (onsite)	Less than 1 Year	$20,000	$0	$0	$0	$300 [1]	$600,000	$0	$0	$6,000	$0	$15,000	$10,000	$651,000
		$35,000	$0	$0	$0	$722 [1]	$1,444,000	$0	$0	$8,000	$0	$20,000	$15,000	$1,522,000
Biopiles (onsite)	About 2 to 3 Years	$20,000	$52,000 [2]	$0	$40,000	$60 [3, 4]	$66,000	$12,000	$3,000	$6,000	$31,500	$15,000	$15,000	$270,500
		$35,000	$65,000 [2]	$0	$100,000	$120 [3, 4]	$168,000	$15,000	$4,000	$8,000	$35,500	$20,000	$25,000	$475,500
Thermal Desorption (onsite)	Less than 2 months, plus groundwater monitoring (8 quarters with results below MTCA)	$20,000	$62,000 [3]	$0	$0	$160 [5]	$176,000	$12,000	$0	$6,000	$26,500	$25,000 [4]	$10,000	$337,500
		$35,000	$75,000 [3]	$0	$0	$225 [5]	$315,000	$40,000	$0	$8,000	$29,500	$30,000 [4]	$15,000	$547,500
Disposal/Treatment (offsite)	**Less than 2 months, plus groundwater monitoring (8 quarters with results below MTCA)**	**$20,000**	**$44,000**	**$52,000**	**$0**	**$40 [4, 7]**	**$50,000**	**$1,500**	**$6,000**	**$4,000**	**$26,500**	**$25,000 [4]**	**$10,000**	**$239,000**
		$35,000	**$58,000**	**$82,000**	**$0**	**$50 [4, 7]**	**$85,500**	**$1,500**	**$8,000**	**$6,000**	**$29,500**	**$30,000 [4]**	**$15,000**	**$347,500**
Monitored Natural Attenuation	More than 20 Years	-	$0	$0	$0	$0	$0	$2,000	$0	$0	$2,000	$52,000 [6]	$0	$56,000
		-	$0	$0	$0	$0	$0	$2,000	$0	$0	$4,000	$78,000 [6]	$0	$84,000
Dual Phase Extraction *Requires Pilot Study*	About 2 to 3 Years	-	$0	$0	$125,000	$0.23 to $7.00 per gallon; however, highly variable	$256,320 [8]	$0	$8,000	$6,000	$28,800	$35,000	$20,000	$479,120
		-	$0	$0	$180,000		$2,136,000 [9]	$0	$1,000	$9,000	$54,000	$40,000	$25,000	$2,445,000
Bioreactors *Requires Pilot Study*	About 3 to 5 Years	-	$0	$0	$150,000	$0.143 to $0.167 per gallon per year; however, highly variable	$366,538 [10]	$20,000	$50,000	$6,000	$86,400	$15,000	$20,000	$713,938
		-	$0	$0	$200,000		$713,424 [11]	$25,000	$65,000	$9,000	$108,000	$20,000	$25,000	$1,165,424
Advanced Oxidation Processes *Requires Pilot Study*	About 1 to 3 Years	$20,000	$0	$0	$25,000	$0.001 to $0.10 per gallon per year; however, highly variable	$170,880 [12]	$15,000	$30,000	$6,000	$24,000	$35,000	$20,000	$345,880
		$35,000	$0	$0	$30,000		$512,640 [13]	$20,000	$40,000	$9,000	$43,200	$40,000	$25,000	$754,840

Assumptions and Unit Cost Estimates:

Excavation completed with CAT 320 or similar	$115 to $125 per hour	Traffic control flagger	$35 to $45 per hour
Onsite transport of soil by CAT 938 or similar	$120 to $130 per hour	Treatment of petroleum contaminated soil with taxes	$31.45 to $34.25 per ton
Truck and pup	$110 to $125 per hour	Roundtrip Soil Transport from project site to Anderson's Rock and Demolition Pits	4 hours with 25 to 30 tons, returns empty
Laborer	$45 to $55 per hour	Truck wheel wash for the project (rental)	$10,000 to $12,000

Footnotes:

1. Estimate includes all project costs for representative projects, including operations and maintenance, design and engineering, bidding costs, and permitting fees.
2. Includes onsite relocation of site soils, construction of biopile areas, etc.
3. Biopiles calculated at a rate of 2x case study estimated range of $30 to $60 per yard.
4. Anticipates installation of one to two additional groundwater monitoring wells.
5. Thermal desorption calculated at a rate of 3x to 4x case study estimated range of $40 to $75 per ton at study volumes of 300,000 tons and 10,000 tons, respectively.
6. Based on an estimate of 4 years of quarterly groundwater monitoring, 6 years of semi-annual monitoring, and 10 years of annual monitoring
7. Estimates do not include costs of replacement soil for material excavated offsite or associated transport, placement, compaction, etc.
8. Based on an estimate of $0.30 per gallon, 1,200 gallons per day, 365 days per year, for 3 years.
9. Based on an estimate of $0.30 per gallon, 1,200 gallons per day, 365 days per year, for 5 years.
10. Based on an estimate of $0.143 per gallon, 2,400 gallons per day, 365 days per year, for 3 years.
11. Based on an estimate of $0.137 per gallon, 2,400 gallons per day, 365 days per year, for 3 years.
12. Based on an estimate of $0.05 per gallon, 4,800 gallons per day, 365 days per year, for 2 years.
13. Based on an estimate of $0.10 per gallon, 4,800 gallons per day, 365 days per year, for 3 years.