SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102

REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND CLEANUP ACTION PLAN REPORT

Property:
Myers Way Property
9501 Myers Way South
Seattle, Washington

Report Date:
October 12, 2016

Prepared for:
City of Seattle
Department of Finance and
Administrative Services
700 Fifth Avenue
Seattle, Washington

Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report

Prepared for:

City of Seattle
Department of Finance and Administrative Service
700 Fifth Avenue
Seattle, Washington 98124

Myers Way Property
9501 Myers Way South
Seattle, Washington 98108

Project No.: 0987-010

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October 12, 2016

SoundEarth Strategies

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ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
ARAR	applicable or relevant and appropriate requirement
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	below ground surface
CAP	cleanup action plan
CAR	Cleanup Action Report
CFR	Code of Federal Regulations
CKD	cement kiln dust
COC	chemical of concern
CSM	conceptual site model
CUL	cleanup level
DCA	disproportionate cost analysis
DRPH	diesel-range petroleum hydrocarbons
Ecology	Washington State Department of Ecology
EEI	Environmental Equalizers, Inc.
EPA	U.S. Environmental Protection Agency
ESA	environmental site assessment
FC	Field Coordinator
FS	feasibility study
GAC	granular-activated carbon
HASP	Health and Safety Plan
mg/kg	milligrams per kilogram
MTCA	Washington State Model Toxics Control Act
NAVD88	North American Vertical Datum of 1988

ACRONYMS AND ABBREVIATIONS (CONTINUED)

NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	No Further Action
O&M	operation and maintenance
OMB	U.S. Office of Management and Budget
PacRim	Pacific Rim Environmental Inc.
PAH	polycyclic aromatic hydrocarbon
PGG	Pacific Groundwater Group
PRB	permeable reactive barrier
the Property	9501 Myers Way South, Seattle, Washington, comprised of King County tax parcel numbers 0523049012 and 0523049013
QA/QC	quality assurance/quality control
RAO	remedial action objective
RCW	Revised Code of Washington
RI	remedial investigation
RI/FS/CAP Report	Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report
ROW	right-of-way
SAP	Sampling and Analysis Plan
the Site	soil and groundwater contaminated with arsenic, cadmium, and lead beneath the eastern-central portion of the Property
SoundEarth	SoundEarth Strategies, Inc.
TCLP	toxicity characteristic leaching procedure
TEE	Terrestrial Ecological Evaluation
Terra	Terra Associates, Inc.
TESC	temporary erosion and sediment control
USC	United States Code

ACRONYMS AND ABBREVIATIONS (CONTINUED)

VCP	Voluntary Cleanup Program
WAC	Washington Administrative Code

EXECUTIVE SUMMARY

SoundEarth Strategies, Inc. has prepared this Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report (the RI/FS/CAP Report) for the Myers Way Property located at 9501 Myers Way South in Seattle, Washington (the Property). The Property is comprised of two irregularly shaped tax parcels (King County Parcel Nos. 0523049012 and 0523049013) that cover a total of approximately 339,768 square feet (7.8 acres) of land.

This RI/FS/CAP Report was prepared for submittal to the Washington State Department of Ecology (Ecology). It was developed to meet the general requirements of a remedial investigation, feasibility study, disproportionate cost analysis, and cleanup action plan in accordance with the Washington State Model Toxics Control Act (MTCA) and associated cleanup regulations, including chapters 173-340-350 through 173-340-390 and 173-340-430 of the Washington Administrative Code (WAC 173-340-350 through 173-340-390 and 173-340-430).

Historical records indicate that sand pit mining activities occurred on and around the Property, under multiple owners, starting at least 1936. In the early 1980s garbage was reportedly fly-dumped on or in the vicinity of the Property. Reclamation activities began on and around the Property in 1984. Approximately 1.3 million cubic yards of sand was removed from the western portion of the Property and adjoining properties between 1986 and 1988. In the mid-1980s, approximately 36,000 cubic yards of additional fill material was added to the southern portion of the Property and adjoining properties to fill a 50-foot-deep ravine during restoration activities.

Geotechnical and environmental investigations began on the Property in 1985. In preparation for potential commercial or industrial redevelopment, subsurface investigations were performed that identified a whitish ash located beneath the eastern portion of the Property. This ash was likely cement kiln dust (CKD), a byproduct material of cement manufacturing. Laboratory analyses performed as part of a 2005 limited site assessment confirmed that soil and reconnaissance groundwater samples contained concentrations of arsenic, cadmium, and lead that exceeded their respective MTCA Method A cleanup levels. Soil samples additionally contained detectable concentrations of polycyclic aromatic hydrocarbons, chromium, lead, arsenic, cadmium, naphthalene, benzene, toluene, ethylbenzene, and xylenes; however, most of these contaminants were present at concentrations below their current MTCA Method A cleanup levels.

In 2014, SoundEarth conducted a Phase I Environmental Site Assessment on eight irregularly shaped tax parcels, including the Property, in which we confirmed presence of soil and groundwater impacts from fill material beneath the Property as a recognized environmental condition. In November of 2014, SoundEarth conducted a Phase II Environmental Site Assessment on and upgradient of the Property to further assess the environmental quality of soil and groundwater. Work completed by SoundEarth included advancing 19 borings and installing 17 groundwater monitoring wells between 2014 and 2016. SoundEarth conducted groundwater sampling events in November 2014 and June 2015 and conducted limited sampling events in January and April 2016 following the installation and development of additional groundwater monitoring wells MW14 through MW16, and MW17 respectively.

Based on the findings of investigations performed at and in the vicinity of the Property, the site is defined as the full lateral and vertical extent of the contamination exceeding applicable cleanup levels, attributable to uncontrolled fill and CKD historically deposited on the Property (the Site). The primary chemicals of concern (COCs) at the Site are arsenic, cadmium, and lead in soil and groundwater. Upon completion of the remedial investigation and preparation of a conceptual site model, a feasibility study was completed to develop and evaluate cleanup action alternatives that would facilitate selection of a final cleanup action under WAC 173-340-350(8).

The feasibility study and associated disproportionate cost analysis were conducted to develop and evaluate remedial alternatives and select an appropriate remedial alternative for contaminated media at the Property, in accordance with WAC 173-340-350 through 173-340-390. The objective is for the selected remedial action to constitute a final cleanup action for the Property. Common to all alternatives is the planned sale and potential redevelopment of the Property for commercial or industrial land use and assumed covering of the Property by a building and/or an asphalt-paved parking lot, which would act as a cap and engineering control to limit direct contact with soil that exceeds the applicable cleanup levels and the infiltration of surface water. All the alternatives additionally assume that metals-impacted soil meets disposal facility Toxicity Characteristic Leaching Procedure requirements for a Class 3 soil disposal, and no soil would be required to be disposed of as hazardous waste at a Subtitle C landfill.

- **Cleanup Action Alternative 1, Excavation of Contaminated Soil.** Soil containing concentrations of COCs exceeding the applicable cleanup levels would be excavated from within the Property boundaries. The soil excavation would extend to a depth of 15 feet below ground surface (bgs) across the remedial excavation area with an estimated 51,000 tons of metals-impacted soil to be removed. Excavated soil would be disposed of at a Subtitle C landfill. A soldier pile and wood lagging shoring system would be required along the eastern Property boundary to protect the stability of the right-of-way and allow for the excavation to extend to the appropriate depth. Soil would be laid back at a 1-foot horizontal to 1-foot vertical slope along the north, south, and west limits of the excavation, generating approximately 10,000 tons of non-impacted soil to reach the depth of excavation. Clean structural fill would be imported and compacted to restore the Property to its original grade.
- **Cleanup Action Alternative 2, Permeable Reactive Barrier with an Environmental Covenant.** A permeable reactive barrier would be installed east (downgradient) from the confirmed and suspected source area, which would result in the protection human health and the environment by preventing contaminants from migrating off Property. Groundwater would flow through a permeable reactive barrier wall containing a mixture of zero-valent iron acting as an adsorbent to arsenic and other metals dissolved in the groundwater and through granular-activated carbon acting as an adsorbent for lead and other metals dissolved in groundwater. An environmental covenant would be recorded against the Property to ensure that potential future owners of the Property are notified of the metals-impacted soil and groundwater that would remain beneath the Property.
- **Cleanup Action Alternative 3, Soil Stabilization with an Environmental Covenant.** Contamination in the confirmed and suspected source area would be solidified/immobilized, resulting in the protection of human health and the environment and thereby preventing COCs in impacted soil from leaching to groundwater. Immobilization requires using an auger to disturb and mix in a binder/stabilizer with the soil containing concentrations of COCs exceeding the applicable cleanup levels. The soil immobilization would extend up to 15 feet bgs. The estimated limits of soil contamination are based on COCs that exceed the applicable cleanup levels. The estimated total volume of soil to be immobilized is 26,100 bank cubic yards. An

environmental covenant would be recorded to notify future owners of the Property that some COCs were solidified/immobilized, but that COCs remain under the Property in excess of applicable cleanup levels.

- **Cleanup Action Alternative 4, No Further Action with an Environmental Covenant**. An environmental covenant would be recorded against the Property in accordance with WAC 173-340-440. The determination not to treat the contamination would be based on a continued demonstration that COCs are restricted to the Property, thereby resulting in the protection of human health and the environment by eliminating exposure pathways. Periodic reviews would be performed by Ecology to confirm that the terms of the environmental covenant were being met. A monitoring well network of seven monitoring wells would be monitored quarterly for 1 year, and then annually for 4 years. The need to perform additional groundwater monitoring would be evaluated by the Property owner and Ecology at that time.

Alternative 4, which involves installation of a containment cap and recording an environmental covenant against the Property, is the recommended alternative because it achieves the remedial action objectives, meets the statutory requirements for cleanup actions, and exhibits the lowest cost-to-benefit ratio of the four alternatives.

The Cleanup Action Plan, including the Sampling and Analysis and Quality Assurance Plan, and the Property-Specific Health and Safety Plan, was prepared based on the results of the feasibility study and disproportionate cost analysis and presents the methods proposed to address the contaminated soil and groundwater beneath the Property.

Performance and confirmational groundwater monitoring would be conducted at the proposed compliance points following the placement of the cap. Quarterly groundwater monitoring would continue for 4 consecutive events to confirm concentrations of COCs in groundwater are stable or decreasing. Annual groundwater monitoring would continue for 4 consecutive years following completion of the quarterly monitoring, at which time a No Further Action determination for the Site would be requested from Ecology and the wells would be decommissioned.

This executive summary is presented solely for introductory purposes, and the information contained in this section should be used only in conjunction with the full text of this RI/FS/CAP Report. A complete description of the project, Site conditions, investigation results, cleanup action objectives, implementation of the selected cleanup action, and associated compliance monitoring is contained within this RI/FS/CAP Report.

1.0 INTRODUCTION

SoundEarth Strategies, Inc. (SoundEarth) has prepared this Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report (RI/FS/CAP Report) for the property located at 9501 Myers Way South in Seattle, Washington (the Property; Figure 1). This RI/FS/CAP Report was prepared for submittal to the Washington State Department of Ecology (Ecology), and it was developed to meet the general requirements of a remedial investigation (RI), feasibility study (FS), disproportionate cost analysis (DCA), and cleanup action plan (CAP) in accordance with the Washington State Model Toxics Control Act (MTCA) and its associated cleanup regulations, including chapters 173-340-350 through 173-340-390 and 173-340-430 of the Washington Administrative Code (WAC 173-340-350 through 173-340-390 and 173-340-430).

According to Ecology's *Guidelines for Property Cleanups under the Voluntary Cleanup Program*, a site is defined by the nature and extent of contamination associated with one or more releases of hazardous substances (such as the release of gasoline from a leaking underground storage tank) prior to any cleanup of that contamination (Ecology 2008).

Based on findings of investigations performed at and in the vicinity of the Property, the site is defined as the full lateral and vertical extent of the contamination exceeding applicable cleanup levels (CUL), attributable to uncontrolled fill and cement kiln dust (CKD) historically deposited on the Property (the Site). The primary chemicals of concern (COCs) at the Site are arsenic, cadmium, and lead in soil and arsenic and lead in groundwater. These impacts resulted from sand pit mining activities that occurred on and around the Property, under multiple owners, since at least 1936. In the early 1980s garbage was reportedly fly-dumped on or in the vicinity of the Property. Reclamation activities began on and around the Property in 1984. Approximately 1.3 million cubic yards of sand was removed from the western portion of and adjacent to the Property between 1986 and 1988. In the mid-1980s, approximately 36,000 cubic yards of additional fill material was added to the southern portion of and adjacent to the Property to fill a 50-foot-deep ravine during restoration activities.

The purpose of the RI is to summarize data necessary to adequately characterize the extent of contamination at the Property and to allow for the development and evaluation of potential remedial alternatives that would constitute final cleanup actions. This RI/FS/CAP Report presents historical information regarding the former use of the Property and surrounding parcels, summarizes the scope and findings of each subsurface investigation that has been conducted at the Property, and presents a conceptual site model (CSM) for the Site.

The purpose of the FS and DCA is to develop and evaluate remedial alternatives for the Site and to select the most appropriate alternative based on future land use and the evaluation criteria specified in WAC 173-340-360(2).

The purpose of the CAP is to describe the remedial alternative that will be implemented at the Property to satisfy MTCA and achieve regulatory closure. The objective of the remedial alternative is to obtain a written determination issued by Ecology that no further action is necessary (an NFA determination) to address impacts associated with CKD. The CAP addresses the remediation and/or containment of the COCs present in soil and groundwater beneath the Property and includes a discussion of the selected cleanup and interim actions and the steps required to implement them. Additional documents included in the CAP are the Sampling and Analysis Plan (SAP; Appendix A), which details sampling methods and quality assurance procedures, and the Property-Specific Health and Safety Plan (HASP; Appendix B).

1.1 GENERAL FACILITY INFORMATION

This section provides a summary of the Site, including the Site name and relevant identifiers, contact information of the Property owner/operator/manager and project consultant (SoundEarth), and both local and regional location information.

1.1.1 Site and Contact Information

Due to the nature of contamination present, the Property is not currently included on Ecology's Confirmed or Suspected Cleanup Site List, and as such does not have an associated Cleanup Site Identification Number or Facility Site Identification Number. Application for this Site into the Voluntary Cleanup Program (VCP) is planned concurrent with the final submission of this RI/FS/CAP Report. Parties relevant to the Site and this document, their responsibilities, and contact information, are detailed below.

Regulatory Agency. Ecology is the lead regulatory agency for the RI at the Site, as promulgated in MTCA. The RI is being conducted as an independent remedial action in accordance with WAC 173-340-515 of MTCA. A Site Manager will be assigned following application into the VCP.

Washington State Department of Ecology
3190 160th Avenue Southeast
Bellevue, Washington 98008
425-649-7098

Project Contact. SoundEarth has been contracted by the City of Seattle to prepare the RI/FS/CAP Report for this Site. The Project Contact for the City of Seattle is:

Daniel Bretzke
City of Seattle
Department of Finance and Administrative Service
700 Fifth Avenue
Seattle, Washington 98124
206-684-2489
Daniel.Bretzke@seattle.gov

Project Principal. The Project Principal provides oversight of all project activities and reviews all data and deliverables prior to their submittal to the Project Contact or Regulatory Agency. The Project Principal for SoundEarth is:

Ryan Bixby, LG, President/CEO
SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
206-306-1900
rbixby@soundearthinc.com

Project Manager. The Project Manager has overall responsibility for developing the SAP, monitoring the quality of the technical and managerial aspects of the RI, and implementing the

SAP and corresponding corrective measures, where necessary. The Project Manager for SoundEarth is:

Beau Johnson, LG, Associate Geologist
SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
206-306-1900
Fax 206-306-1907
bjohnson@soundearthinc.com

Laboratory Project Manager. The Laboratory Project Manager will provide analytical support and will be responsible for providing certified, pre-cleaned sample containers and sample preservatives (as appropriate) and for ensuring that all chemical analyses meet the project quality specifications detailed in this SAP. Friedman & Bruya, Inc. of Seattle, Washington, will be utilized by SoundEarth to perform the chemical and physical analysis for compliance samples collected during the RI. The Laboratory Project Manager is:

Mike Erdahl
Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, Washington 98119
206-285-8282
merdahl@friedmanandbruya.com

Project QA/QC Officer. The Project QA/QC Officer (quality assurance/quality control) has the responsibility to monitor and verify that the work is performed in accordance with the SAP and other applicable procedures. The Project QA/QC Officer has the responsibility to assess the effectiveness of the QA/QC program and to recommend modifications to the program when applicable. The Project QA/QC Officer is responsible for assuring that the personnel assigned to the project are trained relative to the requirements of the QA/QC program and for reviewing and verifying the disposition of nonconformance and corrective action reports. The Project QA/QC Officer for SoundEarth is:

Tom Cammarata
SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
206-306-1900
tcammarata@soundearthinc.com

Field Coordinator. The Field Coordinator (FC) will supervise field collection of all samples. The FC will ensure proper recording of sample locations, depths, and identification; sampling and handling requirements, including field decontamination procedures; physical evaluation and logging of samples; and completion of chain-of-custody forms. The FC will ensure that all field staff follow the SAP, will ensure that the physical evaluation and logging of soil is based on the visual-manual classification method ASTM D2488, and will adhere to standardized methods for sample acceptability and physical description of samples. The FC will ensure that field staff maintains records of field sampling events using the forms included as Attachment A of the SAP.

The FC will be responsible for proper completion and storage of field forms. The FC for SoundEarth is:

Logan Schumacher
SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
206-306-1900
lschumacher@soundearthinc.com

Field Staff. Members of the field staff are responsible for understanding and implementing the QA/QC program, coordinate and participate in the field sampling activities, coordinate sample deliveries to laboratory, and report any deviations from project plans as they relate to the CAP objectives. Major deviations from the CAP, such as the inability to collect a sample from a specific sampling location, obtaining an insufficient sample volume for the required analyses, or a change in sampling method, must be reported to the Project Manager.

Subcontractors. All subcontractors will follow the protocols outlined in the attached SAP and will be overseen and directed by SoundEarth. Subcontractors will be identified once the project is implemented.

1.1.2 Property Description and Location

The Property is located approximately 6 miles south of downtown Seattle, Washington, as shown on Figure 1. The Property consists of two irregularly shaped tax parcels (King County Parcel Nos. 0523049012 and 0523049013) that cover a total of approximately 339,768 square feet (7.8 acres) of land in Township 23/Range 4/Section 5. Legal descriptions of the parcels comprising the Property are included as Appendix A of the Phase I Environmental Site Assessment (ESA), completed for the Property in 2015 (SoundEarth 2015a). The Parcels comprising the Property are identified as Parcel C (King County Parcel No. 052304012) and Parcel D (King County Parcel No. 0523049013) in the 2015 Phase I ESA.

The Property is currently undeveloped and unoccupied, with no identified on-Property utilities. The Property includes a gravel parking area comprising the eastern portion, with partially vegetated fields to the west and south, and a gravel road running east–west along the Property boundary bisecting the two parcels (Figure 2). A chain link fence and padlocked gate runs along the eastern Property boundary, adjacent to Myers Way South. Vertical relief across the Property ranges from approximately 245 feet above sea level (North American Vertical Datum of 1988 [NAVD88]) along the eastern Property boundary, up to approximately 255 feet along the western Property boundary. The Property lies approximately 1.2 miles west of the Duwamish River, upon a north–south trending hillside above the Duwamish River Valley.

Land use in the vicinity of the Property is primarily residential. The Property is bounded to the north, south, and west by undeveloped and partially vegetated parcels. The land farther to the south and west is developed with residential neighborhoods. The land farther to the north is developed with the Seattle Fire Department and Seattle Public Utilities joint training facility. Myers Way South forms the eastern Property boundary, beyond which lies primarily undeveloped forested land, with a church to the northeast.

1.2 SITE HISTORY

The following is a summary of the historical land use on and in the immediate vicinity of the Property, including mining, grading, and filling activities that occurred on the Property between 1936 and 2011. A more complete description of the historical use of the Property and adjoining properties is provided in the Phase I ESA (SoundEarth 2015a) and Site Characterization Report (SoundEarth 2015c) prepared by SoundEarth. The Phase I ESA and Site Characterization Report were completed on eight irregularly shaped tax parcels (King County Parcel Nos. 3224049082, 0623049001, 0523049012, 0523049013, 0623049328, 0523049218, 0623049053, and 0523049259), which include the two parcels of Property.

1.2.1 Historical Use of the Property

Aerial photographs indicate that mining activities first occurred on and around the Property between 1936 and 1943. A sand pit operated by the Desimone family is visible to the north of the Property by 1943. By 1953, the sand pit operation had expanded onto the northern portion of the Property. At some point between 1965 and 1968, mining operations further expanded to include the entire northern parcel comprising the Property.

By 1969, the mining operation had expanded to the northwest and southwest of the Property, with vertical sand cliffs approximately 100 feet high to the southwest of the Property. The Desimone family received a 1-year permit to remove additional sand from the area in November 1970. No permits are on file with the Washington State Department of Natural Resources regarding mining operations on the Property between 1971 and 1980.

In 1980, Duwamish Heights Joint Venture purchased land, including the Property and the north-adjoining sand and gravel pit operation, and proposed to begin restoration activities on both properties. King County issued a grading permit to allow for regrading, mining, and filling activities on the Property. Sand was sporadically removed between 1980 and 1983 as required by market demand. Fill material was proposed to raise a deep gulch on the eastern portion of the Property.

Garbage was reportedly fly-dumped on or in the vicinity of the Property in the early 1980s. Reclamation activities began on the Site in 1984. Approximately 1.3 million cubic yards of sand were removed from the hillside, which included the western portion of the Property, between 1986 and 1988. In the mid-1980s, approximately 36,000 cubic yards of additional fill material were added to the southern portion of the Property to fill a 50-foot-deep ravine during restoration activities.

A surface mine reclamation permit was issued to Nintendo of America in 1994; mining activities were apparently allowed under the reclamation permit. Aerial photographs indicate that the northern parcel of the Property was utilized for continued mining operations through at least 2000. The permit was transferred to the City of Seattle in 2003. The permit was closed in 2011.

1.2.2 Historical Use of the Surrounding Parcels

The following section summarized the findings of SoundEarth's research into the historical usage of the properties adjoining the Property. These adjoining properties are depicted on Figure 2.

The land north of the Property was vacant forested land through at least 1943. A quarry extended onto the property starting in at least 1953 and continuing through at least 1990. The currently existing Seattle Fire Department and Seattle Public Utilities joint training facility was constructed adjacent to the north of the Property in 2005.

The residential neighborhood south of the Property was first developed with single-family residences between 1919 and 1922. According to historical tax assessor records, one residence had an oil-burning furnace. This residence was replaced by the existing residence in 1979, which uses electric heat. Additional residences were added in the 1940s, which used wood stoves for heat.

Myers Way South forms the eastern boundary of the Property. The east-adjoining properties, located opposite Myers Way South, have been vacant forested land since at least 1937. The northeast-adjoining property was developed with the existing church in 1996. At the time of this RI/FS/CAP Report, the east- and southeast- adjoining properties remain vacant forested land.

The residential neighborhood west of the Property was first developed with single-family residences in 1943 as part of White Center Heights housing development. Heating sources were not reported. By at least 2009, the houses were demolished and the properties became part of a greenbelt.

1.3 SITE USE

According to the City of Seattle online Property & Building Activity map (SDCI), the Property is zoned Commercial 2, which is used for primarily non-retail commercial area, characterized by larger lots, parking, and a wide range of commercial uses. The Property is currently vacant, with gravel parking area, gravel roads, and power transmission lines.

It is our understanding that the Property is under consideration for sale and future development for commercial or industrial purposes. This RI/FS/CAP Report has been prepared to detail the current understanding of contamination present beneath the Property and to detail and assess the viability of alternatives for remediating and monitoring the Site with the intent of requesting of an NFA determination from Ecology.

2.0 FIELD INVESTIGATIONS

The following subsections summarize the results of subsurface investigations and remedial actions conducted on the Property and adjacent parcels since 1985. The locations of monitoring wells and other features and the locations of soil samples collected in the vicinity of the Property are shown on Figure 2. Cross-sectional views of borings, monitoring wells, and test pits are shown on Figures 3 and 4. Soil analytical results are summarized on Figure 5, and Tables 1 and 3. Groundwater analytical results are summarized on Figure 6, and in Tables 2 and 4. The remainder of this RI/FS/CAP Report includes references to CULs; unless otherwise specified, these refer to the MTCA Method A Soil cleanup levels for Unrestricted Land Uses and Method A cleanup levels for Groundwater.

2.1 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

This section provides a description of the geotechnical and environmental investigations conducted at and adjacent to the Property between 1985 and 2014 by other consultants, prior to work completed by SoundEarth. Included is a summary of the field work performed and results obtained. Copies of prior reports were acquired through review of documents retained by Ecology or provided to SoundEarth by the City of Seattle Department of Finance and Administrative Services. A more complete description of the prior investigation on the Property and adjoining properties is provided in the Site Characterization Report (SoundEarth 2015c) prepared by SoundEarth in August 2015.

2.1.1 1985 Preliminary Subsurface Exploration

In February 1985, Terra Associates, Inc. (Terra) conducted a subsurface investigation across the Property and the north-adjoining parcels consisting of 13 test pits (TP-1 through TP-13) to depths ranging from 7 to 13.5 feet below ground surface (bgs). Terra identified evidence of fill material reportedly containing pieces of asphalt, wood, bricks, and concrete, intermittently covering an area of approximately 7.5 to 8.0 acres of land west of Myers Way South. A whitish ash was observed in test pit TP-6, located on the eastern portion of the Property. This ash was likely CKD, a byproduct material of cement manufacturing.

2.1.2 2003 Geotechnical Investigation

In June 2002, Pacific Rim Environmental, Inc. (PacRim) conducted a geotechnical investigation to the north the Property, on behalf of the City of Seattle. The investigation consisted of nine borings (BH-1 through BH-9) and 14 test pits (Test Pit #1 through Test Pit #14). Four of the test pits were advanced on the parcel adjacent to the north of the Property. PacRim identified 1 to 3 feet of dense silty sand, identified as fill material, with interspersed asphalt, concrete, and brick fragments, which PacRim reported was likely fill derived from previous mining activities that had been conducted on and adjacent to the Property.

2.1.3 2005 Geotechnical Investigation and Limited Site Assessment Sampling Report

In February 2005, Environmental Equalizers Inc. (EEI) conducted a geotechnical investigation (PacRim 2005b) and Limited Site Assessment (PacRim 2005c) on and around the Property, consisting of 23 borings (B1 through B23) advanced to depths ranging from 16.5 feet to 50.5 feet bgs. Groundwater was reportedly encountered at 6 to 7 feet bgs. The report indicated that approximately 36,000 cubic yards of additional fill material were added to the eastern portion of the Property between 1986 and 1990, during restoration activities to fill a 50-foot-deep ravine. The fill extends west from the edge of Myers Way South and north from the power transmission line easement. Undocumented fill material was encountered at depths between 10 and 50 feet bgs. Brick, concrete, metal, and wood fragments were encountered in the upper 10 to 13 feet of the fill material.

EEI conducted a limited environmental investigation on and around the Property on April 4 and 26, 2005, consisting of 10 borings at the Property (DP-1 through DP-10) within the area determined to be fill. Laboratory analysis confirmed that soil and groundwater beneath and in the vicinity of the Property contained detectable concentrations of polycyclic aromatic hydrocarbons (PAHs), chromium, lead, arsenic, cadmium, naphthalene, benzene, toluene, ethylbenzene, and xylenes; however, most of these contaminants were present at concentrations below their current MTCA Method A CULs (Tables 1 through 4). Soil samples collected from boring DP-10 contained concentrations of arsenic, cadmium, and lead that exceeded their respective MTCA Method A CULs. Reconnaissance groundwater samples collected from borings DP-2 through DP-9 contained concentrations of one or more of arsenic, cadmium, chromium, and lead that exceeded their respective MTCA Method A CULs. A groundwater sample was not collected from boring DP-10, and soil samples were not collected from borings DP-1 through DP-9. EEI prepared a Limited Site Assessment Sampling Report indicating that a “suspected burn-ash material” was noted during the 2005 geotechnical investigation, although the Geotechnical Investigation report did not specifically reference the burn ash. The borings that reportedly contained ash were not identified in either report, and boring logs that may contain additional information regarding the location of the ash material were not included in the information provided by the City of Seattle.

2.1.4 2005 Subsurface Investigation and Groundwater Monitoring

On May 31, 2005, Pacific Groundwater Group (PGG) installed three groundwater monitoring wells (PGG-1 through PGG-3) to assess whether previously encountered metals in groundwater extended east of the Property boundary beneath Myers Way South. PGG collected groundwater samples from each of the monitoring wells and from a roadside seep located along Myers Way South. Soil samples were not collected during the PGG investigation. The groundwater samples were analyzed for dissolved metals, including arsenic, cadmium, chromium, lead, and mercury, as well as other field parameters. None of the groundwater samples collected from the monitoring wells or the roadside seep contained concentrations of metals that exceeded the laboratory's lower reporting limit.

2.1.5 2014 Geotechnical Investigation

On September 26, 2014, AMEC Environment & Infrastructure, Inc. conducted a geotechnical evaluation on and around the Property consisting of nine test pits (TP-1 through TP-9), most of which were excavated on the north-adjoining property. Fill material was encountered to depths between 1.5 and 13.5 feet bgs, containing fragments of construction debris and organic material.

2.2 SITE CHARACTERIZATION

This section provides a description of the investigations conducted on and adjacent to the Property between 1985 and 2014 by SoundEarth. Included is a summary of the field work performed and results obtained. Details regarding the results of previous investigations at the Property are included in the Phase I ESA, Phase II ESA, and Site Characterization Report (SoundEarth 2015a, 2014b, 2015c) completed by SoundEarth during 2014 and 2015.

2.2.1 2015 Phase I Environmental Site Assessment

In 2014, SoundEarth conducted a Phase I ESA on eight irregularly shaped tax parcels including the Property (King County Parcel Nos. 3224049082, 0623049001, 0523049012, 0523049013, 0623049328, 0523049218, 0623049053, and 0523049259) to identify, to the extent feasible, recognized environmental conditions (RECs) that may have resulted from the use, manufacture, storage, and disposal of hazardous or toxic substances that could affect the future acquisition and/or development of the Property. The ESAs identified the following RECs associated with the Property:

- The confirmed presence of soil and groundwater impacts from fill material beneath the Property.

As detailed in the Phase I ESA, the source of the fill material was not included in the available historical records, and previous subsurface investigations had demonstrated that at least one soil sample and at least three groundwater samples were impacted by PAHs, chromium, lead, arsenic, and cadmium at concentrations above their respective CULs established under MTCA.

2.2.2 2015 Phase II Environmental Site Assessment

In 2014, SoundEarth conducted a Phase II ESA (SoundEarth 2015b) on and upgradient of the Property to further assess the environmental quality of soil and groundwater beneath and in the vicinity of the Property. In November 2014, 14 soil borings (P01 through P14) were advanced in the vicinity of the Property, 13 of which were completed as monitoring wells (MW01 through MW13; Appendix C of this RI/FS/CAP Report). One or two soil samples were collected from each of the borings. As part of the field activities, the 13 newly installed monitoring wells and the three wells previously installed by PGG were developed and sampled for groundwater. Soil and groundwater samples were analyzed for total petroleum hydrocarbons, metals, and PAHs (Tables 1 through 4). The results of the subsurface investigation indicated that fill material present beneath the eastern portion of the Property was impacted with metals in exceedance of their respective MTCA Method A CULs (Figure 5; Tables 1 and 3). A whitish-ash, concluded to be CKD, was observed in borings P02, P03, P05, P06, P13, and P14. The CKD was concluded to be the source of elevated concentrations of metals ranging from 5 to 10 feet bgs and in saturated conditions (i.e., in direct contact with groundwater). Petroleum-contaminated soil was not encountered during the Phase II ESA. A slight exceedance of the MTCA Method A CUL for diesel-range petroleum hydrocarbons (DRPH) in groundwater was reported in one groundwater sample collected from monitoring well MW07 during the Phase II ESA; however, the DRPH results were flagged by the laboratory and are likely the result of organic interference from rootlets and pieces of wood encountered in the borings rather than an indication of DRPH impacts in groundwater. None of the other groundwater samples contained DRPH concentrations that exceeded the CUL.

2.2.3 2015 Site Characterization

In 2015, SoundEarth produced a Site Characterization Report (SoundEarth 2015c) for eight tax parcels, including the Property (King County Parcel Nos. 3224049082, 0623049001, 0523049012, 0523049013, 0623049328, 0523049218, 0623049053, and 0523049259). The report summarized the current understanding of contamination present at the Property based on historical research identified during the Phase I ESA (SoundEarth 2015a) and on the results of geotechnical and environmental investigations completed on the Property by SoundEarth and others. The report also presented a preliminary CSM for of metals in soil and groundwater present under the Property at concentrations above MTCA Method A CULs. Further information from the 2015 Site Characterization regarding prior investigations is summarized in the preceding sections. Analytical results presented in the 2015 Site Characterization have been updated to include additional borings and groundwater sampling events and are detailed in Section 2.3.2.

2.2.4 Sampling and Monitoring

SoundEarth collected soil and groundwater samples during the advancement of borings P01 through P19 on the Property, concurrent with installation of groundwater monitoring wells MW01 through MW17. Analytical results of soil samples collected from borings are detailed in Section 2.3.2.1.

Following the first round of monitoring well installations, SoundEarth conducted a groundwater sampling event in November 2014. Samples were collected from all wells installed on the Property at the time (PGG-1 through PGG-3 and MW01 through MW13) and were analyzed for total petroleum hydrocarbons, metals, and PAHs. A second groundwater sampling event was conducted by SoundEarth in June 2015. Samples were collected from the same wells as the previous event, and were analyzed for dissolved metals. A third groundwater sampling event was conducted in March 2015. Samples were collected from wells PGG-1 through PGG-3, MW06 and MW07, MW12, and MW14 through MW16 and were analyzed for dissolved metals.

Two additional limited groundwater sampling events were conducted following the installation and development of groundwater monitoring wells MW14 through MW16 on January 4 and 5, 2016, and MW17 on April 14, 2016, which were installed to better define the horizontal and vertical extent of COCs present in groundwater. MW14 through MW16 were sampled in January 2016, and MW17 was sampled in April 2016, in both cases independently of quarterly sampling events.

Groundwater samples were collected in accordance with the U.S. Environmental Protection Agency's (EPA) *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures* (EPA 1996). Groundwater sampling methods are detailed in section 2.3.1 and the SAP (Appendix A) Analytical results of groundwater samples collected are detailed in section 2.3.2.2.

2.2.5 Site Geology

Previous subsurface investigations conducted by SoundEarth and others indicated that the soil conditions at the Property generally consist of three predominant soil types: glacial till, sandy to silty sand alluvial sediments, and uncontrolled fill. Historical aerial photographs indicate that the entire Property has been disturbed by regrading activities at some point between 1943 and 2000, during which uncontrolled fill was brought to the Property and placed beneath and to the north of the power transmission line easement (Parcel E; Figure 2). The uncontrolled fill material extends to depths of 50 feet or more beneath the central portion of the Property. The fill material consists of loose to slightly dense, gray and brown silty sands with locally observed fragments of asphalt, brick, concrete, metal, and wood fill material in the upper 10 to 13 feet.

During the 2014 Phase II ESA conducted by SoundEarth, the general soil conditions at the Property consisted of silty sandy gravel in the upper 3 to 5 feet. The gravels were underlain by silty sand fill material with variable amounts of organic material (e.g., rootlets and wood) to the total depth explored. Localized pockets of sand, clay, and gravel were encountered within the fill material. CKD, a fine-grained, chalk-like, gray stratified material, was observed in borings P02, P03, P05, P06, P13, and P14 at depths between 5 and 10 feet bgs. The CKD was located within the saturated zone in each of the borings where it was encountered, except boring P02 where CKD was present above the zone of saturation (Figures 3 and 4).

2.2.6 Site Hydrogeology

Groundwater has been observed in wells screened at shallow intervals on the Property, at depths ranging between 1.62 to 8.95 feet below the top of well casings. Groundwater depths measured in three wells installed by PGG (PGG-1 to PGG-3) to the east and southeast of the Property along Myers Way South range from 8.29 to 25.80 feet below the top of well casings.

Figure 7 presents the groundwater contour map based on the most recent groundwater elevation measurements collected by SoundEarth on March 31, 2016. Groundwater flow direction was generally to the east, conforming with local topography. Groundwater elevations measured in wells MW05 and MW13 have been significantly higher than adjacent wells, leading to localized high points in groundwater elevation when mapping groundwater contours (Figure 7).

2.2.7 Other Site Information

Climate in the Seattle area is generally mild and experiences moderate seasonal fluctuations in temperature. Average temperatures range from the 60s in the summer to the 40s in the winter. The warmest month of the year is August, which has an average maximum temperature of 74.9 degrees Fahrenheit, while the coldest month of the year is January, which has an average minimum temperature of 36 degrees Fahrenheit.

The annual average rainfall in the Seattle area is 38.25 inches, with December as the wettest month of the year when the area receives an average rainfall total of 6.06 inches (IDcide 2016). The prevailing wind direction in the Seattle area is from the south to southwest in winter and spring, and southwest to north in the summer and fall (Western Regional Climate Center 2016).

The main underlying sources for ambient air pollutants in Seattle are motor vehicle traffic and residential wood burning (Puget Sound Clean Air Agency 2011).

2.3 SAMPLING AND ANALYTICAL RESULTS

Below is a summary of the scope, method and analytical results for soil and groundwater samples collected during RIs and groundwater sampling events conducted by SoundEarth on the Property.

2.3.1 Quality Analyses

Soil samples were collected for analysis of metals by EPA Method 200.8. Samples were collected during direct push and hollow stem auger borings P01 through P19 advanced on the Property under the direction of a SoundEarth geologist. All SoundEarth borings, with the exception of P12 and P15, were developed as groundwater monitoring wells following their completion.

Groundwater samples were collected in accordance with EPA's *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures* (EPA 1996). Purging and sampling of each well were performed using a peristaltic pump and dedicated polyethylene tubing. During purging, water quality parameters that were monitored and recorded included temperature, pH, specific conductivity, dissolved oxygen, turbidity, and oxidation-reduction potential. Each well was purged until, at a minimum, pH, specific conductivity, and turbidity or dissolved oxygen stabilized. Following purging, groundwater samples were collected from the pump outlet tubing, located upstream of the flow-through cell, and placed directly into laboratory-prepared sample containers. Each container was labeled with unique sample identification, placed on ice in a cooler, and transported to Friedman & Bruya, Inc., of Seattle, Washington, under standard chain-of-custody protocols for laboratory analysis.

A detailed scope for soil and groundwater sampling procedures, decontamination procedures and quality assurances is discussed in the SAP (Appendix A).

2.3.2 Results

This section details the analytical results of soil and groundwater samples collected by SoundEarth at the Property during RI work. Soil samples were collected from borings P01 through P14 in November 2014, from borings P15 through P16 in January 2016, and from P19 in April 2016. Groundwater samples were collected from select wells during groundwater sampling events conducted by SoundEarth in November 2014, June 2015, March 2016, and from MW17 following its installation in April 2016.

2.3.2.1 Soil

The analytical results of soil sampling conducted on the Property by SoundEarth demonstrate that arsenic, cadmium, and lead are present in soil beneath the Property at concentrations exceeding their respective MTCA Method A cleanup levels. There is a close correlation between these elevated metals concentrations and the distribution of CKD beneath the Property. Impacted soil was encountered in borings P02, P03, P05, P06, and P17 in soil samples collected from depths of approximately 7 to 10 feet. The impacts to soil are centered around boring DP-10, and extend in an east-west direction, consistent with the former location of a ravine on the Property. None of the analyzed soil samples contained concentrations of petroleum hydrocarbons, benzene, toluene, ethylbenzene, xylenes, PAHs, or carcinogenic PAHs that exceeded their respective MTCA Method A CULs.

Analytical results for soil samples are presented in Tables 1 and 3 and on Figure 5. The laboratory analytical reports are presented in Appendix D.

2.3.2.2 Groundwater

Elevated concentrations of arsenic, cadmium, chromium, and lead have been detected in reconnaissance groundwater samples (i.e., samples collected from push probe borings and not from properly developed monitoring wells) collected throughout much of the central portion of the Property. However, these elevated concentrations are likely the result of high turbidity in the groundwater samples. For that reason, reconnaissance groundwater samples were not considered representative of actual groundwater conditions or included in our evaluation of the CSM. A single concentration of DRPH exceeding the MTCA Method A CUL was detected in one groundwater sample collected from monitoring well MW07 during the Phase II ESA; however, as detailed in the Phase II ESA (SoundEarth 2015b) the DRPH results were flagged by the laboratory and are likely the result of organic interference from rootlets and pieces of wood encountered in the borings rather than an indication of DRPH impacts in groundwater.

Groundwater samples collected from several of the monitoring wells at the Property have been found to contain concentrations of arsenic in excess of its MTCA Method A cleanup level. Lead was detected in a single groundwater sample collected from monitoring well MW11. Cadmium and chromium have not been detected at concentrations exceeding their respective CUL in any of the groundwater samples collected from properly developed wells.

Similar to the soil results, the highest concentrations of arsenic in groundwater were generally encountered in areas where CKD has been identified (e.g., monitoring wells MW02, MW05, MW06, MW12, and MW13). Concentrations of arsenic slightly exceeding the MTCA Method A cleanup level have also been sporadically detected in groundwater samples collected from monitoring wells advanced in areas where CKD is not present (e.g., MW07, MW14, and MW17); however, these elevated concentrations are interpreted to be the result of high turbidity and natural background concentrations, for the reasons provided below:

- Monitoring well MW07 is located more than 150 feet from any known area of CKD and only one of the two groundwater samples collected from it have contained arsenic at a concentration exceeding the MTCA Method A cleanup level.
- Monitoring well MW14, which is located in a crossgradient hydrologic position relative to the known areas of CKD, contained an arsenic concentration that was initially well below the MTCA Method A cleanup level and subsequently found to

contain an arsenic concentration of 5.27 micrograms per liter (µg/L), which only slightly exceeded the MTCA Method A cleanup level of 5 µg/L.

- Groundwater collected from monitoring well MW17 contained 6.2 µg/L of arsenic, but is located upgradient of all known areas of CKD and has only been sampled one time.

Analytical results for groundwater samples are presented in Tables 2 and 4 and on Figure 6. The laboratory analytical reports are presented in Appendix D.

3.0 CONCEPTUAL SITE MODEL

A CSM identifies confirmed and suspected source areas of hazardous substances, affected environmental media, fate and transport mechanisms, environmental media of potential concern, and exposure pathways for potential receptors. The CSM is the basis for developing technically feasible cleanup alternatives from which a final cleanup action approach is selected. A CSM may be refined when additional information becomes available during the implementation of the FS and cleanup action. A preliminary exposure assessment, based on a zoning designation of residential and commercial use, is presented on Figure 8.

This section discusses the components of the CSM developed for the Site, based on completion of the various phases of investigation conducted by SoundEarth and others. Included in the following sections is a discussion of the confirmed and suspected source areas, affected environmental media, fate and transport mechanisms, COCs, exposure pathways and potential receptors, the Terrestrial Ecological Evaluation (TEE), and the CSM summary.

3.1 CONFIRMED AND SUSPECTED SOURCE AREA

A source area is the location of a release of a hazardous substance (e.g., arsenic) that has affected one or more of the following at the Property: soil, surface water, groundwater, or air quality. Based on the results of investigations conducted at the Property, metals are present in soil and groundwater beneath the central and eastern portions of the Property, (Figures 2 and 3) and are attributed to CKD-containing fill material present deposited beneath the Property during its use as a sand and gravel pit and dumping site between at least 1936 and 2003.

3.2 AFFECTED ENVIRONMENTAL MEDIA

Affected environmental media consists of soil and groundwater with COCs that were detected at concentrations exceeding their respective CULs and/or screening levels. The distribution of these contaminants in the affected environmental media has been investigated sufficiently for definition of the Site under MTCA and subsequent evaluation of remedial alternatives. Based on results from previous investigations, concentrations of arsenic, cadmium, and lead have been confirmed in soil at the Site at concentrations that exceed applicable MTCA CULs/screening levels. Concentrations of arsenic have been confirmed in groundwater at the Site at concentrations that exceed applicable MTCA CUL. Lead has been detected at a concentration exceeding the MTCA CUL in a single groundwater sample.

3.3 CHEMICALS OF CONCERN

Based on the findings of the historical research and previous investigations, the COCs at the Property are arsenic, cadmium, and lead. Elevated concentrations of chromium have been detected in reconnaissance groundwater samples, but not in soil or in groundwater collected from properly developed wells. DRPH has been detected in a single groundwater sample collected from the northern portion of the Property, but is not considered to be a COC because the analytical results were flagged by the laboratory as anomalous, it was detected in only a single groundwater sample and not in any soil samples, and there is no known potential source for DRPH. Other potential COCs, including naphthalene, PAHs, benzene, ethylbenzene, toluene, and xylenes, have not been encountered at concentrations above their respective CULs and are, therefore, not considered to be COCs.

3.4 CONTAMINANT FATE AND TRANSPORT

Fate and transport of COCs in affected environmental media are dependent on the physical and chemical properties of the COC and the geochemical and hydraulic properties of the subsurface environment. Contaminants may exist in four phases in a subsurface environment from a release of a hazardous substance. The four phases include: free phase (nonaqueous-phase liquid), sorbed phase (adsorbed to organics or clay soil particles), aqueous phase (dissolved in water), and gaseous phase (volatilization from soil or water to air). Commonly, contaminants exist in multiple phases with some degree of partitioning between phases. The contaminant phase depends not only on the properties of the COC and the site-specific geological properties, but also on the magnitude and extent of the release. This section discusses the fate and transport characteristics of metals in soil, groundwater, and soil vapor at the Site that are relevant to the evaluation of potential remedial technologies.

3.4.1 Environmental Fate of Metals in the Subsurface

Following is a discussion of the fate and transport mechanisms of heavy metals in the subsurface.

Lead and Cadmium. Once lead and cadmium enter the subsurface, they tend to remain adsorbed to the soil. Lead does not degrade or undergo chemical alteration processes, except under acidic (low pH) conditions (Agency for Toxic Substances and Disease Registry [ATSDR] 2007b). Cadmium is also stable in the subsurface and only likely to become mobile under acidic conditions. The ability of the soil to bind to these metals is dependent on soil pH and cation exchange capacity of the soil components. Lead and cadmium are most soluble in soft, acidic waters (ATSDR 2007a, 2007b). The solubility of these metals in water is generally a function of pH, oxidation-reduction potential, hardness, salinity, and the presence of other cations and anions. Their transport and mobility in groundwater is retarded by absorption and adsorption by organic matter, oxyhydroxides, and clays present in the aquifer material. The pH of groundwater beneath the Property has been shown to be mostly neutral. These neutral pH readings, in conjunction with the fact that the concentrations of dissolved cadmium and lead in groundwater are mostly below the laboratory detection limits, suggest that the lead and cadmium are unlikely to significantly mobilize in groundwater and be transported off Property or to significant depths beneath the Property (ATSDR 2007a).

Arsenic. Like lead and cadmium, the solubility of arsenic is generally a function of pH, oxidation-reduction potential, hardness, salinity, the presence of other cations and anions. Arsenic is most soluble in soft, acidic waters. In general, the mobility of arsenic will increase in environments with low pH (typically pH less than 4) due to the enhanced solubility of arsenic in acidic conditions, while neutral to reducing subsurface conditions will encourage arsenic compounds to precipitate and be adsorbed to the soil. The generally neutral pH of the groundwater beneath the Property suggests that it is unlikely that the arsenic will mobilize in groundwater and be transported off Property or to significant depths beneath the Property (ATSDR 2007a).

3.4.2 Transport Mechanism Affecting the Distribution of Metals in the Subsurface

The two transport mechanisms for migration of lead, cadmium, and arsenic at the Property are:

- Leaching of metals in the vadose zone soil to the underlying saturated zone soils and/or groundwater.
- Leaching of metals in the saturated zone soil to groundwater.

3.5 EXPOSURE PATHWAYS AND POTENTIAL RECEPTORS

The preliminary exposure assessment identifies potential receptors for exposure pathways for environmental media of potential concern from contaminant fate and transport mechanisms. Potential receptors at risk from exposure associated with the presence of COCs at the Site are human and ecological receptors. The human receptor was segregated into subcategories to better identify the potential receptors at risk of exposure from the presence of COCs in environmental media of potential concern. The subcategories for human health include workers, drinking water consumption, and residential; the ecological receptor was identified as terrestrial wildlife (birds and burrowing animals).

The objective of the preliminary exposure assessment is to assess the completeness of exposure pathways from environmental media of potential concern and associated contaminant fate and transport mechanisms for the potential receptors for the Site. The results from the preliminary exposure assessment will assist with the evaluation of potential feasible cleanup alternatives that are protective of the potential receptors identified as complete. The CSM is presented on Figures 8 and 9 and discussed below.

3.5.1 Soil

Soil with concentrations of arsenic, cadmium, and lead exceeding applicable MTCA Method A CULs presents a potential risk to human receptors.

The principal contaminant fate and transport mechanisms for soil at the Site include adsorption, volatilization, leaching, advection, dispersion, diffusion, and biodegradation (Figure 8). Leaching of metals from soil by dissolution and desorption to groundwater is discussed below. The exposure pathway for soil at the Site includes direct contact with soil or inhalation of airborne soil particles. The potential exposure pathways for soil are discussed in the sections below:

- **Dermal Contact and Ingestion (Direct Contact) of Contaminated Soil.** Although metals-impacted soil is general present at a depth of approximately 8 feet, this exposure pathway may be complete for environmental field personnel and construction and utility workers who may come in contact with contaminated soil during excavation activities. When the Property is redeveloped, source removal and engineering controls will eliminate the dermal contact pathway for future residents and commercial workers.

- **Inhalation of Airborne Soil.** The release mechanism for this exposure pathway is the inhalation of airborne soil particles during excavation and construction activities on the Property. This exposure pathway could be complete for environmental field personnel and construction and utility workers during redevelopment.

3.5.2 Groundwater

Contaminated groundwater presents a limited potential risk to workers during construction. Groundwater beneath the Site is not a potential source for drinking water, and the groundwater does not discharge to any nearby surface water body. The potential exposure pathways for groundwater are discussed in the sections below:

- **Direct Contact and Ingestion of Contaminated Groundwater.** This exposure pathway may be complete for environmental field personnel or construction and utility workers during any future redevelopment of the Property. Future use of the Property is expected to be commercial or industrial in nature and is, therefore, unlikely to lead to residential exposure of contaminated groundwater. Groundwater at the Site is not a current or future source for drinking water.

3.5.3 Vapor

The vapor inhalation pathway is incomplete. According to Ecology's draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* (Ecology 2009), vapor intrusion assessment is recommended when there is the presence of chemicals of sufficient volatility and toxicity to pose a threat, and occupied buildings are present or could be constructed in the future above or near the contamination. Metals in soil and groundwater under the Property are not volatile and do not present a vapor intrusion risk; therefore, the vapor intrusion pathway is not considered complete.

3.6 TERRESTRIAL ECOLOGICAL EVALUATION

A TEE is required by WAC 173-340-7940 at locations where a release of a hazardous substance to soil has occurred. The TEE is intended to assess potential risk to plants and animals that live entirely or primarily on affected land. A simplified TEE was required under MTCA to assess the potential ecological risks posed by contamination at the Site, and to evaluate whether a more detailed investigation of potential ecological risk would be required. SoundEarth conducted a simplified TEE in accordance with Table 749-1 of WAC 173-340-900 and the protocols established in WAC 173-340-7492 to assess the potential ecologic risk associated with the presence of COCs at the Site.

The Property does not qualify for a TEE exclusion based on WAC 173-340-7491. The results of ranking for the simplified TEE under Table 749-1 of WAC yields a score of 7 compared to an area value of 12. A full Site-Specific TEE is included as Appendix E of this RI/FS/CAP Report.

3.7 CONCEPTUAL SITE MODEL SUMMARY

Soil and groundwater beneath the Property contain concentrations of arsenic, cadmium, and lead that exceed applicable MTCA Method A CULs. The absence of groundwater contamination at monitoring wells PGG-1 through PGG-3, MW07 through MW10, MW11, and MW14 through MW16 indicate the extent of contamination is contained to the southern portion of parcel 0523049012 and potentially the northernmost portion of parcel 0523049013 (Figure 2). Impacts do not appear to extend beyond the eastern boundary of the Property. The approximate extents of soil and groundwater contamination comprising the Site are shown on Figures 5 and 6.

4.0 CLEANUP STANDARDS AND TECHNICAL ELEMENTS

Remedial action objectives (RAOs) are used to define the cleanup standards and technical elements for the screening evaluation and to select remedial alternatives. The technical elements include an evaluation of applicable cleanup standards and the associated points of compliance for the COCs and media of concern discussed above in Section 3.3.

4.1 REMEDIAL ACTION OBJECTIVES

RAOs are statements of the goals that a remedial alternative should achieve in order to be retained for further consideration as part of the FS. The purpose of establishing RAOs for a site is to provide remedial alternatives that protect human health and the environment (WAC 173-340-350). In addition, RAOs are designated in order to:

- Implement administrative principles for cleanup (WAC 173-340-130).
- Meet the requirements, procedures, and expectations for conducting an FS and developing remedial alternatives as discussed in WAC 173-340-350 through 173-340-370.
- Develop CULs (WAC 173-340-700 through 173-340-760) and remedial alternatives that are protective of human health and the environment.

In particular, RAOs must address the following threshold requirements set forth in WAC 173-340-360(2)(a):

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

4.2 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Under WAC 173-340-350 and 173-340-710, applicable requirements include regulatory cleanup standards, standards of control, and other environmental requirements, criteria, or limitations established under state or federal law that specifically address a contaminant, remedial action, location, or other circumstances at a site.

MTCA defines relevant and appropriate requirements as:

> those cleanup action standards, standards of control, and other human health and environmental requirements, criteria or limitations established under state and federal law that, while not legally applicable to the hazardous substance, cleanup action, location, or other circumstances at a site, the department determines address problems or situations sufficiently similar to those encountered at the site that their use is well suited to the particular site. The criteria specified in WAC 173-340-710(3) shall be used to determine if a requirement is relevant and appropriate.

Remedial actions conducted under MTCA must comply with the substantive requirements of the applicable or relevant and appropriate requirements (ARARs) but are exempt from their procedural requirements (WAC 173-340-710[9]). Specifically, this exemption applies to state and local permitting requirements under the Washington State Water Pollution Control Act, Solid Waste Management Act, Hazardous Waste Management Act, Clean Air Act, State Fisheries Code, and Shoreline Management Act. ARARs were screened to assess their applicability to the Site. The following table summarizes the preliminary ARARs.

Preliminary ARARs

Preliminary ARAR	Citation or Source
MTCA	Chapter 70.105 of the RCW
MTCA cleanup regulations	Chapter 173-340 WAC
Ecology, Toxics Cleanup Program – Guidance To Be Considered	*Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, Review DRAFT, October 2009, Publication No. 09-09-047
Ecology, Toxics Cleanup Program – Guidance To Be Considered	*Guidance to Remediation of Petroleum Contaminated Soils*, October, 2011, Publication No. 10-09-057
State Environmental Policy Act	RCW 43.21C
Washington State Shoreline Management Act	RCW 90.58; WAC 173-18, 173-22, and 173-27
The Clean Water Act	33 United States Code (USC) 1251 et seq.
Comprehensive Environmental Response, Compensation, and Liability Act of 1980	42 USC 9601 et seq. and Part 300 of Title 40 of the Code of Federal Regulation (CFR 40 CFR 300)
The Fish and Wildlife Coordination Act	16 USC 661-667e; the Act of March 10, 1934; Ch. 55; 48 Stat. 401)
Endangered Species Act	16 USC 1531 et seq.; 50 CFR 17, 225, and 402
Native American Graves Protection and Repatriation Act	25 USC 3001 through 3013; 43 CFR 10 and Washington's Indian Graves and Records Law (RCW 27.44)
Archaeological Resources Protection Act	16 USC 470aa et seq.; 43 CFR 7
Washington Dangerous Waste Regulations	WAC 173-303
Solid Waste Management Act	RCW 70.95; WAC 173-304 and 173-351
Occupational Safety and Health Administration Regulations	29 CFR 1910, 1926
Washington Department of Labor and Industries Regulations	WAC 296
Water Quality Standards for Surface Waters of the State of Washington	RCW 90.48 and 90.54; WAC 173-201A
Water Quality Standards for Ground Water	WAC 173-200
Department of Transportation Hazardous Materials Regulations	40 CFR Parts 100 through 185

Preliminary ARAR	Citation or Source
Washington State Water Well Construction Act	RCW 18.104; WAC 173-160
City of Seattle regulations, codes, and standards	All applicable or relevant and appropriate regulations, codes, and standards
King County regulations, codes, and standards	All applicable or relevant and appropriate regulations, codes, and standards

NOTES:
ARAR = applicable or relevant and appropriate requirements
CRF = Code of Federal Regulations
Ecology = Washington State Department of Ecology
MTCA = Washington State Model Toxics Control Act
RCW = Revised Code of Washington
USC = United States Code
WAC = Washington Administrative Code

4.3 CONTAMINANT-SPECIFIC STANDARDS

The selected cleanup alternative must comply with the MTCA cleanup regulations specified in WAC 173-340 and with applicable state and federal laws. The CULs selected for the Site located within the Property boundary are consistent with the RAOs, which state that the remedial objective is to contain existing contamination of soil and/or groundwater to limit exposure to humans or the environment and prevent contaminants in groundwater from migrating off the Property. In addition to mitigating risks to human health and the environment, achieving the RAOs will allow Ecology to issue an NFA determination for the Property. The associated media-specific CULs for the identified COCs are summarized in the following sections.

4.3.1 Indicator Hazardous Substances

Based on the limited number of identified COCs at the Property and similar source material, specific indicator hazardous substances have not been identified and applicable soil and groundwater CULs listed below shall be used for the purpose of defining Site cleanup requirements.

4.4 SOIL CLEANUP STANDARDS

The COCs and CULs for the soil at the Property are tabulated below, including the source of the cleanup standard. The proposed CULs for soil at the Site are the MTCA Method A CULs for Unrestricted Land Use for COCs that have a Method A CUL.

Proposed Cleanup Levels for Soil

COC	Cleanup Level (mg/kg)	Source
Arsenic	20	MTCA Method A, Unrestricted; WAC 173-340-740(2)(b)(i)
Cadmium	2	
Lead	250	

NOTES:
COC = chemical of concern
MTCA = Washington State Model Toxics Control Act
mg/kg = milligrams per kilogram
WAC = Washington Administrative Code

4.4.1 Points of Compliance for Soil

The point of compliance is the location where the enforcement limits that are set in accordance with WAC 173-200-050 will be measured and cannot be exceeded (WAC 173-200-060). Once the

CULs have been attained at the defined points of compliance, the impacts present beneath the Property will no longer be considered a threat to human health or the environment.

In accordance with WAC 173-340-740(6)(b-d), the standard point of compliance for direct contact exposure is throughout the Property from the ground surface to 15 feet bgs, which is a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of development activities. Depending upon the selected remedial alternative, soils containing COCs above the direct contact threshold within 15 feet of the ground surface may remain on the Site.

4.5 GROUNDWATER CLEANUP STANDARDS

The COCs and CULs for groundwater beneath the Property are tabulated below, including the source of the cleanup standard. The proposed CULs for groundwater at the Site are the MTCA Method A CULs for Unrestricted Land Use.

Proposed Cleanup Levels for Groundwater

COC	Cleanup Level (µg/L)	Source
Arsenic	5	MTCA Method A, Table Value; WAC 173-340-720(3)(b)(i)
Cadmium	5	
Lead	15	

NOTES:
µg/L = micrograms per liter
COC = chemical of concern
MTCA = Washington State Model Toxics Control Act
WAC = Washington Administrative Code

4.5.1 Points of Compliance for Groundwater

The point of compliance is the location where the enforcement limits that are set in accordance with WAC 173-200-050 will be measured and cannot be exceeded (WAC 173-200-060). Once the CULs have been attained at the defined points of compliance, the impacts present beneath the Property will no longer be considered a threat to human health or the environment.

In accordance with WAC 173-340-720(8)(a)(b), the point of compliance for groundwater is defined as the uppermost level of the saturated zone extending vertically to the lowest depth that potentially could be impacted by the COCs throughout the Site. The existing monitoring wells PGG-1 through PGG-3, MW07, and MW15 through MW17 will be used to evaluate groundwater after implementation of the cleanup and interim action.

4.6 CLEANUP STANDARDS FOR OTHER MEDIA

Cleanup standards and points of compliance for soil vapor are identified in a draft guidance released by Ecology (Ecology 2009) and are included as ARARs for this document. The points of compliance for soil vapor are identified in the referenced guidance for both sub-slab vapor (soil vapor encountered immediately beneath a building) and deeper soil vapor (defined as equal to or greater than 15 feet bgs). As metals in soil and groundwater are not susceptible to volatilization into soil vapor (ATSDR 2007a, 2007b, 2012), no soil vapor CULs or points of compliance have been defined for the COCs identified at the Property.

5.0 FEASIBILITY STUDY AND DISPROPORTIONATE COST ANALYSIS

The purpose of this FS is to develop and evaluate cleanup action alternatives to facilitate selection of a final cleanup action at the Property in accordance with WAC 173-340-350(8). An FS includes the development, screening, and evaluation process for numerous remedial alternatives. Because Property-specific conditions preclude the implementation of many potential remedial components, a more focused evaluation was prepared, including only those alternatives which are implementable and capable of achieving the remediation objectives.

The FS is used to screen cleanup alternatives and eliminate those that are not technically possible, those with costs that are disproportionate under WAC 173-340-360(3)(e), or those that will substantially affect the future planned business operations at the Property. Based on the screening, the FS presented below evaluates the most practicable remedial alternatives in order to recommend a cleanup action for the Site, in conformance with WAC 173-340-360 through 173-340-390.

5.1 IDENTIFICATION OF ALTERNATIVES

Remedial components (technologies) were evaluated with respect to the degree to which they comply with the cleanup requirements set forth in MTCA. According to MTCA, a cleanup alternative must satisfy all of the following threshold criteria as specified in WAC 173-340-360(2):

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

These criteria represent the minimum standards for an acceptable cleanup action.

WAC 173 340-360 (2)(b) also requires the cleanup action alternative to:

- Use permanent solutions to the maximum extent practicable.
- Provide for a reasonable restoration time frame.
- Consider public concerns on the proposed cleanup action alternative.

Using the above criteria, several remedial technologies were evaluated and screened for effectiveness, implementability, and relative cost to produce a short list for further inclusion in the development of alternatives. Table 5 summarizes the remedial component screening process. The remedial technologies that passed the screening process include the following:

- **Excavation and Land Disposal of Contaminated Soil (Source Removal).** The excavation of contaminated soil from the confirmed and suspected source area will result in the removal of the majority of metal-impacted soil from the Property and limit the source of COCs impacting groundwater. Land disposal is the act of removing contaminated soil from an uncontrolled condition and placing it in a controlled condition where it will produce fewer adverse environmental impacts. A controlled condition generally refers to engineered landfills that feature low permeability liners, witness systems, and leachate collection systems to prevent the disposed soil from leaching into the environment and mitigate future liability associated with the contamination.

- **Dewatering during Excavation.** Dewatering is the process of pumping groundwater collected in sumps, trenches, and wells along the construction excavation perimeter. Removal of impacted groundwater during the excavation will remove contaminants in the aqueous phase to provide a more thorough cleanup of groundwater and help with the groundwater restoration time frame.

- **Passive Treatment Wall or Permeable Reactive Barrier.** A permeable reactive barrier (PRB) is an in situ engineering control designed to passively treat contaminated groundwater. Groundwater flows through a PRB wall containing a mixture of zero-valent iron, granular-activated carbon (GAC), and sand and gravel; treated water exits the other side of the PRB. This in situ method combines a passive chemical treatment zone with subsurface fluid flow management.

- **Immobilization with an Environmental Covenant.** Soil immobilization involves the bulk excavation of soil containing concentrations of COCs exceeding the applicable CULs and the ex situ mixing of the soil with a binder or stabilizer. The amended soil is then placed back in the excavation to cure or solidify. The amended soil typically has an increase in compressive strength, a decrease of permeability, and encapsulation of hazardous constituents, which limits the soil to groundwater pathway.

- **No Further Action with an Environmental Covenant.** The existing groundwater monitoring well network indicates that groundwater is compliant with applicable CULs at the downgradient, eastern Property boundary. The impacted area will be covered with a containment cap. The cap would consist of an impermeable geomembrane and 6 inches of gravel cover. Implementation of this technology will also include groundwater monitoring to demonstrate plume stability.

- **Containment Cap.** The identified cleanup alternatives are in part based on the assumption that future development will be commercial or industrial and will include a building and a containment cap (asphalt parking lot) with appropriate stormwater retention and treatment engineering controls.

  Under MTCA, engineering controls such as a containment cap can be considered a remedial alternative if site conditions conform to the expectations listed in WAC 173-340-370. and the alternative complies with the remedy selection process in WAC 173-340-350 through 173-340-360, which include:

  - Engineering controls, such as containment, can be used at sites or portions of sites that contain large volumes of materials with relatively low levels of hazardous substances where treatment is impracticable.

  - Active measures must be taken to prevent precipitation runoff from coming into contact with contaminated soils and waste materials.

  - Hazardous substances that remain at the Site at concentrations exceeding CULs must be consolidated to the maximum extent practicable where needed to minimize the potential for direct contact and migration of hazardous substances.

  - Action must be taken to prevent/minimize releases to surface water via stormwater runoff and groundwater discharges in exceedance of CULs.

- Cleanup actions must not result in a significantly greater overall threat to human health and the environment than other alternatives.
- Appropriate monitoring requirements must be conducted to ensure that human health and the environment are protected.

5.2 INITIAL SCREENING OF ALTERNATIVES

This section presents the criteria used to evaluate the potentially feasible remedial alternatives with respect to the RAOs established for the Site and the Property. Remedial components were identified in accordance with the requirements set forth in MTCA under WAC 340-350(8)(b), and the focused screening of potential remedial components was conducted using the requirements and procedures for selecting cleanup actions as set forth in MTCA under WAC 173-340-360(2)(a)(b). The criteria used to evaluate and compare applicable remedial alternatives were derived from WAC 173-340-360(3)(f) and include the following:

- **Protectiveness.** The overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, the risks resulting from implementing the alternative, and improvement of overall environmental quality.
- **Permanence.** The degree to which the alternative permanently reduces the toxicity, mobility, or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and the sources of releases, the degree of irreversibility of the waste treatment process, and the characteristics and quantity of treatment residuals generated during the treatment process.
- **Effectiveness over the long term.** The degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time over which hazardous substances are expected to remain on the site, and the magnitude of residual risk associated with the contaminated soil and/or groundwater components. The following types of cleanup action components, presented in descending order, may be used as a guide when assessing the relative degree of long-term effectiveness of the chosen alternative:
  - Reuse or recycling
  - Destruction or detoxification
  - Immobilization or solidification
  - On-site or off-site disposal in an engineered, lined, and monitored facility
  - On-site isolation or containment with attendant engineering controls
  - Institutional controls and monitoring
- **Management of Short-Term Risks.** The risk to human health and the environment associated with the alternative during its construction and implementation, and the effectiveness of measures that will be taken to manage such risks.
- **Technical and Administrative Implementability.** The ability to implement the alternative, including consideration of the technical feasibility of the alternative, administrative and

regulatory requirements, permitting, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with the future development plans for the Property.

- **Consideration of Public Concerns.** The protection of the public interest, including considerations of perception, protection of the community, trust in the cleanup and involved parties, and impact on the surrounding areas.

5.3 DETAILED EVALUATION OF CLEANUP ALTERNATIVES

The focused evaluation of cleanup action alternatives considered the practicable remedial components confirmed to be effective at treating COCs in the affected media of concern. SoundEarth also considered whether Site-specific constraints would preclude application of a remediation technology due to the creation of a greater risk to human health and/or the environment, or that such constraints could result in the remedial technology being technically or administratively infeasible to implement.

The four cleanup action alternatives that were retained for additional consideration, which are described in more detail below in the following subsections, include the following:

- Cleanup Action Alternative 1, Excavation of Soil
- Cleanup Action Alternative 2, Permeable Reactive Barrier with an Environmental Covenant
- Cleanup Action Alternative 3, Soil Immobilization with an Environmental Covenant
- Cleanup Action Alternative 4, No Further Action with an Environmental Covenant

5.3.1 Common Components and Basic Assumptions

Common to all alternatives is the planned sale and potential redevelopment of the Property for commercial or industrial land use. Under this redevelopment scenario it is assumed that the Property would be covered by a building and an asphalt paved parking lot, which would act as a cap and engineering control to limit direct contact with any soil that exceeds the applicable CULs and surface water infiltration and contact with metals-impacted soil. All the alternatives assume that metals-impacted soil meet disposal facility toxicity characteristic leaching procedure (TCLP) requirements for a Class 3 soil disposal, and no soil would be required to be disposed of as hazardous waste at a Subtitle C landfill.

5.3.2 Cleanup Action Alternative 1, Excavation of Soil

Cleanup Action Alternative 1 includes all the future land use assumptions discussed above in Section 5.3.1. Under this alternative the cleanup action involves the removal of soil from the confirmed and suspected source area, which would result in the removal of the majority of metal-impacted soil from the Property and limit the source of COCs impacting groundwater (Figures 6 and 7). All removed soil would be properly characterized for proper off-Property disposal at a permitted landfill. With the removal of the metals contaminated soil, groundwater would naturally attenuate across the Property and meet the groundwater point of compliance at the eastern Property boundary. This alternative includes compliance groundwater monitoring to document the natural attenuation of metals in groundwater across the Property. Figure 10 provides an illustration of the conceptual implementation of this cleanup action alternative.

The soil excavation would extend to a depth of 15 feet bgs across the remedial excavation area located on parcel 0523049013 (Figure 10). The estimated volume of metals-impacted soil to be removed is approximately 51,600 tons. The perimeter of the excavation would be sloped back at a ratio of 1.5 feet horizontally to 1 foot vertically, except along the eastern Property boundary where shoring would be required due to the adjacent Myers Way South right-of-way (ROW). A conceptual layout of the excavation can be found on Figure 10.

Key assumptions for this alternative include the following:

- Approximately 3,000 square feet of shoring would be required along the eastern Property boundary. Shoring would consist of soldier piles and wood lagging, to protect the stability of the ROW and allow for the excavation to extend to the appropriate depth.
- Soil would be laid back at a one foot horizontal to 1 foot vertical slope along the north, south, and west limits of the excavation. Approximately 10,000 tons of non-impacted soil would be generated to reach the depth of excavation. The soil generated from the lay back area has no known impacts and would be disposed of off Property as non-impacted soil.
- The seven existing groundwater monitoring wells with the excavation extent (MW01 through MW06 and MW15) would be abandoned prior to commencing excavation activities.
- Approximately 51,600 tons of metals-impacted soil are anticipated to be generated during the remedial excavation. No clean overburden is anticipated within the limits of the remedial excavation. A soil disposal profile would be developed for the Property prior to excavation activities.
- Based on the limited number of soil samples that were analyzed for metals and no previous TCLP data, TCLP analysis may be needed to determine the appropriate disposal method. It is assumed that all soil would be appropriate for off-Property disposal as Class 3 generated waste. Material that has TCLP concentrations above the acceptance criteria for Class 3 waste would be disposed of at an appropriate Subtitle C licensed facility.
- Depth to water is encountered at 4 to 9 feet bgs or approximately at elevation 246 feet NAVD88. Due to the anticipated depth of the excavation to an elevation of 230 feet NAVD88, dewatering is anticipated. Recovered groundwater would be treated for COCs prior to discharging to surface water.
- Limited dewatering would be required to excavate to a depth of 15 feet bgs. The excavation activities would be completed during the summer, when groundwater elevations are lowest.
- The mass of imported fill would be equivalent to the contaminated soil hauled off the Property (61,500 tons).
- The estimated time frame for the excavation is approximately 3 months, and backfill and compaction activities are approximately 1.5 months.

- Approximately 78 compliance soil samples would be collected using a 30-foot by 30-foot soil sampling grid across the remedial excavation area to document the removal of metals-contaminated soil.
- Three monitoring wells would be installed post excavation for compliance groundwater monitoring.
- Quarterly groundwater monitoring would be performed for 1 year following completion of the excavation and backfilling activities in order to confirm the effectiveness of the remediation. The results of the groundwater monitoring would be presented in a Cleanup Action Report (CAR).
- Monitoring wells installed at the Site would be decommissioned once points of compliance are met and upon the receipt of an NFA determination from Ecology.

The present worth cost estimate to complete Alternative 3, assuming a 0.1 percent real discount rate as per Circular A-94 Appendix C Revised November 2015 (Circular A-94) and a life cycle of 1 year, is approximately $8,968,000 (Table 6).

5.3.3 Cleanup Action Alternative 2, Permeable Reactive Barrier with an Environmental Covenant

This alternative involves the installation of a PRB east (downgradient) of the confirmed and suspected source area and would result in the protection of human health and the environment by preventing contaminants from migrating off Property (Figure 11). A PRB is an in situ engineering control designed to passively treat contaminated groundwater. Groundwater flows through a PRB wall containing a mixture of zero-valent iron, GAC, and sand. The zero-valent iron acts as an adsorbent to arsenic and other metals dissolved in the groundwater, and the GAC acts as an adsorbent for lead and other metals dissolved in groundwater.

An environmental covenant would be recorded against the Property to ensure that potential future owners of the Property are notified of the metals-impacted soil and groundwater that would remain beneath the Property.

This alternative would include monitoring of the groundwater to demonstrate concentrations of COCs in groundwater are stable or decreasing and are not migrating beyond the Property boundaries. Figure 11 provides a conceptual illustration of how Alternative 2 might be implemented.

Key assumptions for Alternative 2 include the following:

- Limited dewatering would be required to excavate a trench to a depth of 15 feet bgs. The excavation and installation activities would be completed during the summer, when groundwater elevations are lowest.
- The trench would be approximately 550 feet long, 6 feet wide, and 15 feet deep. The volume of imported barrier materials would be equivalent to the contaminated soil hauled off the Property during the trench installation (3,700 tons).
- The estimated time frame is 1 month of field work.
- Guar gum is assumed to be priced at $5.00 a pound at the time of construction.

- A minimum of 27 compliance soil samples would be required to profile soil that is generated from the PRB installation, and samples would be collected every 20 linear feet of trench.
- Quarterly groundwater monitoring would be performed for 1 year following completion of the installation of the PRB and annually for a period of 4 years in order to confirm the effectiveness of the remediation. The results of the groundwater monitoring from year 1 would be presented in a CAR. The subsequent groundwater monitoring events would be presented to Ecology to support the environmental covenant.
- Periodic reviews would be performed by Ecology to confirm that the terms of the environmental covenant are being met, including the integrity of the PRB.
- An environmental covenant would be recorded against the Property in accordance with WAC 173-340-440. The covenant would require periodic groundwater monitoring in accordance with an approved Property Management Plan.

The present worth cost estimate to complete Alternative 2, assuming a 0.6 percent real discount rate as per Circular A-94 and a life cycle of 5 years, is approximately $1,971,000 (Table 7).

5.3.4 Cleanup Action Alternative 3, Soil Immobilization with an Environmental Covenant

This alternative involves the immobilization of contamination in the confirmed and suspected source area resulting in the protection of human health and the environment by solidifying and immobilizing the contaminants and thereby preventing contamination from impacted soil leaching to groundwater. Immobilization requires using an auger to disturb, and mix in a binder/stabilizer with the soil containing concentrations of COCs exceeding the applicable CULs. The soil immobilization would extend up to 15 feet bgs. The estimated limits of soil contamination are based on COCs that exceed the applicable CULs. The estimated total volume of soil to be immobilized is 26,100 bank cubic yards. An environmental covenant would be recorded to notify future owners of the Property that some COCs were solidified/immobilized, but COCs remain under the Property in excess of applicable CULs.

Due to the extent of the proposed excavation, it is assumed that parts of the Property not being excavated would be used to stage the treatment equipment and materials; however, the soil would be vigorously mixed in situ with a mixture of pozzolan and Portland cement and water. This mixture would be compacted and allowed to cure. Figure 12 provides a conceptual illustration of how this alternative would be implemented.

Due to the addition of material in the process, there would be a generation of soil. This soil would be stockpiled on the Property, characterized using standard analytical methods, and disposed of at an appropriate facility.

Solidification and stabilization immobilization technologies are most commonly selected for the treatment of metals-contaminated sites (Connor 1990). The cement-based binders and stabilizers are common materials used for implementation of solidification and stabilization technologies (Connor 1990).

This alternative would include monitoring of the groundwater to demonstrate concentrations of COCs in groundwater are stable or decreasing and do not extend beyond the Property boundaries.

Key assumptions for this alternative include the following:

- The seven existing groundwater monitoring wells located within the excavation areas (MW01 through MW06 and MW15) would be abandoned prior to commencing excavation activities. No shoring would be required; mixing would occur in situ using an auger.
- Fill would not be imported since the excavated material is being amended and then replaced within the limits of the excavation.
- The amended materials that cannot be placed back in the excavation due to an increase in volume would not be spread or used on site and must be hauled off for Class 3 disposal. This has been estimated at 10,400 tons.
- The estimated time frame is 5 months of field work.
- The unit cost rate to stabilize and solidify contaminated soil is less than that of the cost for direct loading and disposal of contaminated soil as Class 3 waste at an appropriate landfill.
- Three monitoring wells may be installed post-excavation for compliance groundwater monitoring.
- Quarterly groundwater monitoring would be performed for 2 years to ensure concentrations of COCs in groundwater are stable or decreasing following completion of the immobilization activities in order to confirm the effectiveness of the remediation. The results of the groundwater monitoring would be presented in a CAR. An environmental covenant would be recorded against the Property in accordance with WAC 173-340-440. The covenant would require periodic groundwater monitoring in accordance with an approved Property Management Plan.

The present worth cost estimate to complete Alternative 3, assuming a 0.1 percent real discount rate as per Circular A-94 and a life cycle of 2 years, is approximately $6,835,000 (Table 8).

5.3.5 Cleanup Action Alternative 4, No Further Action with an Environmental Covenant

For the purposes of this FS, the determination not to treat the contamination is based on the COCs being restricted to the Property. The installation of a containment cap consisting of an impermeable geomembrane would limit direct contact and meteoric water contact with impacted soils (Figure 13).

This alternative would include monitoring of the groundwater to demonstrate concentrations of COCs in groundwater are stable or decreasing.

- An environmental covenant would be recorded against the Property in accordance with WAC 173-340-440.
- 60,000 square feet of geomembrane would be installed over the impacted soils; 6 inches of gravel would be placed above the geomembrane.
- Quarterly groundwater monitoring would be performed for 5 years to ensure concentrations of COCs in groundwater are stable or decreasing year following

completion of the immobilization activities in order to confirm the effectiveness of the remediation. The results of the groundwater monitoring would be presented in a CAR.

- Periodic reviews would be performed by Ecology to confirm that the terms of the environmental covenant are being met.
- A monitoring well network of seven monitoring wells would be monitored quarterly for 1 year, and then annually for 4 years. The estimated 5 years of compliance groundwater monitoring is based on the Ecology review time for Sites with environmental covenants. The need to perform additional groundwater monitoring would be evaluated by the Property owner and Ecology at that time.

The present worth cost estimate to complete Alternative 4, assuming a 0.6 percent real discount rate as per Circular A-94 and a life cycle of 5 years, is approximately $411,000 (Table 9).

5.4 COMPARISON OF CLEANUP ACTION ALTERNATIVES

A summary of the evaluation of the alternatives described above using the MTCA evaluation criteria (WAC 173-340-360[3][f]) is presented below (Table 10):

- **Protectiveness.** All four alternatives provide a measure of protectiveness for human health and the environment, but Alternative 1 is the most protective of human health and the environment because of the permanent removal and off-Property disposal of metals-contaminated soil. Alternative 2 and 3 have a lesser degree of protectiveness because the stabilized hazardous material remains on the Property and is not physically removed, as in Alternative 1. Alternative 4 was judged to have less protectiveness than Alternatives 1, 2, and 3 because the contamination remains in place and remains potentially mobile, even though direct contact with soil is mitigated by the installed containment cap, future development activities, and an environmental covenant. The protectiveness of all four alternatives mitigates the ongoing risk associated with impacts that will remain on-Property.
- **Permanence.** All four alternatives are similarly rated, because Alternatives 1 through 3 result in the reduction in the toxicity, mobility, and volume of COCs through containment or removal and Alternative 4 utilizes the naturally occurring barriers that have prevented transport of contaminants off site. Alternatives 2, 3, and 4 score lower than Alternative 1 for this criterion due to the permanent removal of contaminated soil included in Alternative 1, even though direct contact with soil would be mitigated by the future development and an environmental covenant.
- **Effectiveness over the Long Term.** Three of the four alternatives employ proven technologies for the remediation of the identified COCs. The long-term effectiveness for Alternative 2 and 3 are less than Alternative 1 because of the uncertainty with respect to the COCs remaining on site. Alternative 4 has good long-term effectiveness because the COCs would be mitigated by the impermeable cap and future development with an environmental covenant, but receives a lower rating because of the uncertainty with respect to the COCs remaining on Site. Alternative 1 would be most effective in addressing on-Property contamination over the long term.
- **Management of Short-Term Risks.** The short-term risks are significantly higher for Alternatives 1 and 3 than for Alternatives 2 and 4 because the former involve considerable operation of heavy equipment, transportation of large volumes of materials and soil, and other material

handling hazards. Alternative 2 and Alternative 4 score high due to the reduced use of heavy equipment, transportation of minimized volumes of materials and soil, and other material handling hazards compared to Alternatives 1 and 3. Alternative 4 scores the highest due to reducing the risk associated with disturbing soils impacted with the COCs.

- **Technical and Administrative Implementability.** The technical and administrative obstacles to the implementation of Alternatives 1 and 3 are substantial. Alternatives 1 and 3 would result in significant disruption to the Property and the area. Alternatives 1 through 3 include administrative obstacles associated with securing shoring and grading permits from the City of Seattle to enable fill, excavation, or auguring. For Alternative 1, the grading and soil hauling would have to be accomplished only at certain times of the year and limited hours of the day because of weather considerations and hauling restrictions. The technical obstacles include the difficulties related to the installation of the shoring and excavation of the contaminated soil in such a large area. Alternative 2 reduces the obstacles associated with construction and scores high. This reduction in administrative issues includes: shorter construction time, less material for export, and less disruption on Property. Alternative 3 would reduce the soil hauling compared to Alternative 1, but would also involve similar restrictions for import, export, and weather. Alternative 3 would also involve restrictions and coordination to complete the soil mixing with the binding agent. Alternative 4 presents fewer obstacles in comparison to Alternatives 1 and 3 as it requires no ground disturbance, or hauling; however, it requires extended groundwater sampling and regulatory reporting.
- **Consideration of Public Concern.** An evaluation of public concern would require public involvement, but we assume that all four alternatives would be graded high due to addressing the potential exposure pathways. Alternative 2 is assumed to have a slightly higher grade for the overall reduced construction time and reduced disruption to the area. Alternative 4 is assumed to also have a slightly higher grade as there will be a minimized disruption to the area by having the shortest interval of disruption.

As indicated in Table 11, when equal-weighting factors are used for each of the evaluation criteria, Alternative 2 and 4 achieved the highest-ranking score (7.9). Alternatives 1 and 3 achieved lower-ranking scores (7.2 and 6.4, respectively).

5.5 DISPROPORTIONATE COST ANALYSIS

The purpose of a DCA is to facilitate selection of the remedial alternative providing the highest degree of permanence to the maximum extent practicable. This DCA considers Alternatives 1 through 4. Costs are considered disproportionate if the incremental costs of one alternative versus a less expensive alternative exceed the incremental benefit achieved by the more expensive alternative.

5.5.1 Cleanup Action Alternative Cost Estimating

- **Capital Costs.** These costs include expenditures for equipment, labor, and material necessary to install a remedial action. Indirect costs may be incurred for engineering, financial, or other services not directly involved with installation of remedial alternatives but necessary for completion of this activity.
- **Operation and Maintenance Costs.** Operation and maintenance (O&M) costs are post-construction costs necessary to provide effective implementation of the alternative. Such costs may include, but are not limited to, operating labor;

maintenance materials and labor; disposal of residues; and administrative, insurance, and licensing costs.

- **Monitoring Costs.** These costs are incurred from monitoring activities associated with remedial activities. Cost items may include sampling labor, laboratory, analyses, and report preparation.
- **Present Worth Analysis.** Present worth analysis provides a method of evaluating and comparing costs that occur over different time periods by discounting all future expenditures to the present year. The present worth cost or value represents the amount of money which, if invested in year 0 and disbursed as needed, would be sufficient to cover all costs associated with a remedial alternative. The assumptions necessary to derive a present worth cost are inflation rate, discount rate, and period of performance. A discount rate, which is similar to an interest rate, is used to account for the time value of money. EPA policy on the use of discount rates for DCA cost analyses are stated in the preamble to the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) published at the Federal Register (55 FR 8722) and in Office of Solid Waste and Emergency Response Directive 9355.3-20 titled *Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis* (EPA 1993). Based on the NCP and this directive, a discount rate of 1 percent is recommended in developing present value cost estimates for remedial alternatives during the DCA. This specified rate of 1 percent represents a "real" discount rate in that it approximates the marginal pretax rate of return on an average investment in the private sector in recent years and has been adjusted to eliminate the effect of expected inflation. For this DCA, a more conservative real discount rate was selected based on the December 2015 revisions to Appendix C of the U.S. Office of Management and Budget (OMB) Circular A-94. The real discount rates used to estimate the present worth of annual operating costs are based on the estimated restoration time frame (life cycle) for each alternative and are extrapolated from the referenced OMB Circular, which is published annually.

Because it is assumed that all capital costs are incurred in year 0, the present worth analysis is performed only on annual O&M and groundwater monitoring costs. The total present worth for a given alternative is equal to the sum of the capital costs and the present worth of annual O&M and monitoring costs over the anticipated life cycle of the alternative.

Using these criteria, the present worth costs of Alternatives 1 through 4 are as follows:

- Alternative 1, $8,968,000 (Table 6)
- Alternative 2, $1,971,000 (Table 7)
- Alternative 3, $6,835,000 (Table 8)
- Alternative 4, $411,000 (Table 9)

As indicated above, the cost to implement Alternatives 1, 2, or 3 is more than 5 to 21 times that of Alternative 4. The ranking score for Alternative 4 is also higher than Alternatives 1 and 3, and the score is equal to Alternative 2. Chart 1 plots the relative cost and ranking scores, and Chart 2 plots the cost–to-benefit ratios for the four alternatives in order to illustrate the relative cost and benefits afforded by each alternative. The charts clearly demonstrate that Alternative 4 exhibits the lowest cost-to-benefit ratio.

5.6 RECOMMENDED CLEANUP ACTION ALTERNATIVE

After performing the analysis and ranking of alternatives in accordance with MTCA, Alternative 4 is the most feasible and most cost-effective remedy. Alternative 4 is the recommended alternative for the Site because it achieves the RAOs, meets the requirements set forth in WAC 173-340-360(3) and WAC 173-340-370, and is favorable with respect to the established evaluation and ranking criteria. Alternative 4 would mitigate the threat to human health and the environment associated with the Site by reducing exposure pathways in soil and groundwater. Finally, Alternative 4 exhibits the lowest cost-to-benefit ratio compared to the competing alternatives, as discussed in Section 5.5.

6.0 CLEANUP ACTION IMPLEMENTATION PLAN

This section provides a description of the cleanup and interim action components, which consists of the installation of an impermeable cap and the future development of the Property. The cap will cover 60,000 square feet, covering roughly from PGG-3 to the parcel boundary along the eastern Property line. It will then extend west from the eastern Property boundary to the former location of test pit TP-7 (Figures 13 and 14). The cap will be a 20-mil PVC geoliner, covered with 6 inches of crushed rock or other suitable structural fill. The components of the cleanup and interim action are described below:

6.1 CLEANUP ACTION OBJECTIVES

The objectives of the cleanup action for the Site established in consideration of the future use of the Property include the following:

- Provide engineering controls to mitigate arsenic, cadmium, and lead in groundwater from migrating off the Property by preventing stormwater infiltration.
- Obtain an environmental covenant for the Property and an NFA determination for the Site from Ecology.

6.2 CLEANUP ACTION IMPLEMENTATION DOCUMENTS

SoundEarth has prepared a detailed SAP and HASP, respectively included as Appendices A and B of this RI/FS/CAP Report. The purpose of the SAP is to ensure that the sample collection, handling, and analysis conducted after completion of the cleanup action will result in data that meet the data quality objectives for the proposed cleanup action. The SAP includes requirements for sampling activities and sample collection procedures, including sampling frequency and location, analytical testing methods, documentation and data quality reviews, and QA/QC for compliance monitoring (Appendix A).

The purpose of the HASP is to outline the health and safety requirements for the cleanup action. The HASP includes guidelines for SoundEarth personnel to reduce the potential for injury during implementation of the cleanup action. The HASP includes incident preparedness and response procedures, emergency response and evacuation procedures, local and project emergency contact information, appropriate precautions for potential airborne contaminants and Property hazards, and expected characteristics of the waste generated by the proposed work (Appendix B).

7.0 CLEANUP ACTION PLAN COMPONENTS AND IMPLEMENTATION SCHEDULE

The following sections summarize the components of the selected cleanup and interim action and the sequence in which the components will be implemented.

7.1 PREPARATION AND MOBILIZATION

Prior to initiating grading activities, temporary erosion and sediment control (TESC) measures will be established and implemented. Once all TESC measures are implemented in accordance with the construction project plan, construction equipment and supplies will be mobilized to the Property. Controls such as fencing will be placed around the perimeter of the work area for pedestrian and personnel safety.

7.2 IMPERMEABLE LINER INSTALLATION

The impermeable liner cap shall cover the area bounded by the eastern Property boundary on the east, monitoring well PGG-3 on the north, extending to the former test pit TP-7 on the west, and extending 200 feet south of PGG-3 (Figures 13 and 14). The contractor shall overlap the panels of geomembrane as per the manufacturer's recommendations.

Once a section of geomembrane has been installed, it shall be covered with 6 inches of compacted structural fill to protect the membrane from damage and to allow infiltrated water to move around the membrane.

Stormwater that infiltrates will flow across the membrane and drain off of the sides of the membrane to fully infiltrate. This water will be diverted away from contaminated material to prevent further leaching into the soil.

7.3 CAP INSTALLATION

It is assumed that future redevelopment of the Property for commercial or light industrial use will include building(s) foundation and an asphalt parking lot. The final new pavement sections will be underlain by a compacted crushed rock base, and the asphalt cap will be placed, compacted, and seal-coated. The final design and installation shall also have appropriately sized and installed stormwater collection and treatment equipment. Final grading and pavement section design criteria will be determined by the project civil engineer.

7.4 ENVIRONMENTAL COVENANT

An environmental covenant will be recorded against the Property in accordance with provisions in WAC 173-340-440. The covenant would require inspection and maintenance of the containment cap and periodic groundwater monitoring in accordance with an approved property management plan.

7.5 INSPECTION AND MAINTENANCE OF CONTAINMENT CAP

The asphalt cap will be inspected in its entirety (within the Property boundary) for evidence of cracking, erosion, animal burrows, settlement, ponded water, sloughing, seepage, or any other potentially damaging conditions that may compromise the integrity of the asphalt cap.

7.6 WELL DECOMMISSIONING

If COCs in groundwater are stable or decreasing after 5 years of groundwater monitoring, and once Ecology issues an NFA determination, then the monitoring well network will be decommissioned by a licensed well driller or under the supervision of a professional engineer in accordance with the Ecology Water Well Construction Act (1971), RCW 18.104 (WAC 173-160-460). The wells will be decommissioned in place using bentonite clay.

8.0 COMPLIANCE MONITORING

There are three types of compliance monitoring identified for remedial actions performed under MTCA (WAC 173-340-410): protection, performance, and confirmational monitoring. A paraphrased definition for each is presented below (WAC 173-340-410[1]). Additional details regarding procedures for sample collection, handling, and quality assurance procedures are included in the SAP and HASP attached to this CAP as Appendices A and B, respectively.

- **Protection Monitoring.** To evaluate whether human health and the environment are adequately protected during construction and the O&M period of a cleanup action.
- **Performance Monitoring.** To document that the cleanup action has attained cleanup standards.
- **Confirmational Monitoring.** To evaluate the long-term effectiveness of the cleanup action once cleanup standards or other performance standards have been attained.

8.1 PROTECTION MONITORING

A HASP has been prepared for the remedial action that meets the minimum requirements for such a plan identified in federal (29 Code of Federal Regulations 1910.120 and 1926) and state regulations (WAC 296). The HASP identifies the known physical, chemical, and biological hazards; hazard monitoring protocols; and administrative and engineering controls required to mitigate the identified hazards (Appendix B).

8.2 PERFORMANCE MONITORING

Performance monitoring includes the collection of soil samples from the sidewalls and floor of any remedial excavation areas, the collection of soil samples during excavation and removal of any previously unidentified contamination, and the collection of quarterly groundwater samples from the points of compliance.

8.2.1 Soil Performance Monitoring

Excavation activities are not currently planned, but performance monitoring for soil will be conducted if future excavation or trenching activities are performed as a result of redevelopment. Soil samples will be collected directly from the sidewalls and/or bottom of the remedial excavation area using either stainless steel or plastic sampling tools. Soil samples collected at depths of less than 4 feet bgs will be collected manually. Samples collected at depths below 4 feet bgs will be collected with the backhoe bucket unless engineering controls are in place that allow for manual sample collection at depths greater than 4 feet bgs. Non-dedicated sampling equipment will be decontaminated between uses. A detailed scope for monitoring, sampling, and analysis is discussed in the SAP (Appendix A).

8.2.2 Groundwater Performance Monitoring

Groundwater samples will be collected on a quarterly basis for the first year and then annually for a period of 4 years from groundwater compliance monitoring wells to document concentrations of COCs in groundwater are stable or decreasing. Compliance wells determined for the Site include PGG-1 through PGG-3, MW07, and MW15 through MW17 (Figure 15). In addition to monitoring concentrations of COCs beneath the Property, critical parameters to be measured include the following:

- pH
- Dissolved oxygen
- Oxidation-reduction potential
- Metals scan (total iron, ferrous iron, calcium, magnesium, dissolved manganese)
- Anion scan (chloride, sulfate, nitrate included)

To the extent that these samples show concentrations of COCs in groundwater are stable or are decreasing, they will also be considered confirmational samples. The scope of monitoring and sampling, including sampling frequencies and data quality objectives, is discussed in detail in the SAP (Appendix A).

Groundwater samples will be handled in accordance with the 1996 EPA guidance document *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*. SoundEarth field staff will follow the procedures detailed in the SAP (Appendix A). Groundwater samples will be submitted to the laboratory and analyzed for all COCs identified for the Property (Section 3.3).

8.3 CONFIRMATIONAL MONITORING

Confirmational monitoring will begin after the analytical data from the performance monitoring indicates that cleanup objectives have been achieved.

8.3.1 Soil Confirmational Monitoring

Confirmational monitoring for soil is typically conducted during remedial excavations to assess the concentrations of COCs in subsurface soil, to verify compliance with applicable cleanup standards, and to confirm the long-term effectiveness of the cleanup action. Confirmational soil monitoring is not anticipated as part of the planned cleanup action, since source removal of all contaminated soil is not feasible due to indistinct extents and depths of uncontrolled fill present on the Property.

8.3.2 Groundwater Confirmational Monitoring

It is anticipated that the groundwater quality will remain stable or decrease and will be limited to within the boundaries of the Property on Property in the future. To confirm the effectiveness of the cleanup action on groundwater quality and to ensure contaminated groundwater is not migrating off the Property, groundwater samples will be collected quarterly for 1 year following installation of the containment cap, followed by annual sampling for 4 additional years.

Once Ecology concurs that the groundwater monitoring analytical data indicate that RAOs are achieved, the groundwater beneath the Property will be considered to be compliant with MTCA.

8.3.3 Containment Cap Monitoring

Following installation, the integrity of the asphalt cap will be monitored annually to evaluate potential cracking of the asphalt surface. Periodic maintenance may include, but is not limited to, sealant coats on the asphalt surface and removal and replacement of cracked or damaged asphalt. The asphalt cap will be maintained until such time as the environmental covenant is removed from the Property or another approved engineered cap is put in place (e.g., a building is constructed on the Property).

9.0 DOCUMENTATION REQUIREMENTS

Documentation of the cleanup action is necessary to meet MTCA requirements. The applicable and relevant documentation generated for the cleanup action will be submitted to Ecology for review and approval.

9.1 DOCUMENTATION MANAGEMENT

An established document control system to be implemented during the cleanup action includes the following elements, as appropriate: field report forms, health and safety forms, excavation logs, sample summary forms, material import and export summary forms, groundwater purge and sample forms, sample chain of custody forms, waste inventory documentation, waste management labels, and sample labels. Disposal manifests for the waste generated during the cleanup action will be maintained and submitted with the project documentation.

9.2 WASTE DISPOSAL TRACKING

Specific documentation requirements will be met for transportation and disposal of the contaminated soil and groundwater during the remediation activities to ensure compliance with state and federal regulations. The waste disposal tracking documentation includes analytical data, waste profiles, waste manifests, and bills of lading.

9.2.1 Waste Profiling

Investigation-derived waste, including but not limited to purge water from groundwater sampling, will be profiled based upon analytical results of soil and/or groundwater samples and as required from composite sampling of drums of investigation-derived waste already present in drums on the Property.

9.3 COMPLIANCE REPORTS

A cleanup action status letter will be prepared following completion of the construction of the containment cap to demonstrate that engineering controls have been put in place. At a minimum, the letter will include the following:

- A description of the containment cap installation process.
- Documentation of waste disposal tracking for the soil, wastewater, and other associated materials.
- A figure depicting the final limits of the containment cap area, redevelopment excavation, and sample locations, as applicable.

- A summary of performance and compliance soil and groundwater monitoring analytical results, as applicable.
- A description of planned work and deliverables for the confirmational monitoring elements of the cleanup action.

A CAR will be prepared following completion of the first year of groundwater monitoring. The CAR will include the following:

- A description of the groundwater monitoring activities.
- A summary of the compliance sampling analytical results for groundwater samples collected during quarterly groundwater monitoring.
- A figure depicting primary Property features and points of compliance/monitoring well locations and groundwater sampling results.
- SoundEarth's conclusions pertaining to the cleanup action following the completion of four consecutive quarters of confirmational groundwater monitoring.

When the compliance report has been finalized, it will be submitted to Ecology for review and approval, and an NFA determination will be requested.

Annual groundwater monitoring events and reports will be completed for an additional 4 years to document compliance.

10.0 PUBLIC PARTICIPATION REQUIREMENTS

This RI/FS/CAP Report falls under the guidance of WAC 173-340-600 and Chapter 70.105D RCW of the MTCA requiring public notice and participation. Methods for public review will be determined by Ecology.

11.0 LIMITATIONS

The services described in this RI/FS/CAP Report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This RI/FS/CAP Report is solely for the use and information of our client unless otherwise noted. Any reliance on this RI/FS/CAP Report by a third party is at such party's sole risk.

Opinions and recommendations contained in this RI/FS/CAP Report are derived, in part, from data gathered by others, and from conditions evaluated when services were performed, and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We do not warrant and are not responsible for the accuracy or validity of work performed by others, nor from the impacts of changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the use of segregated portions of this RI/FS/CAP Report.

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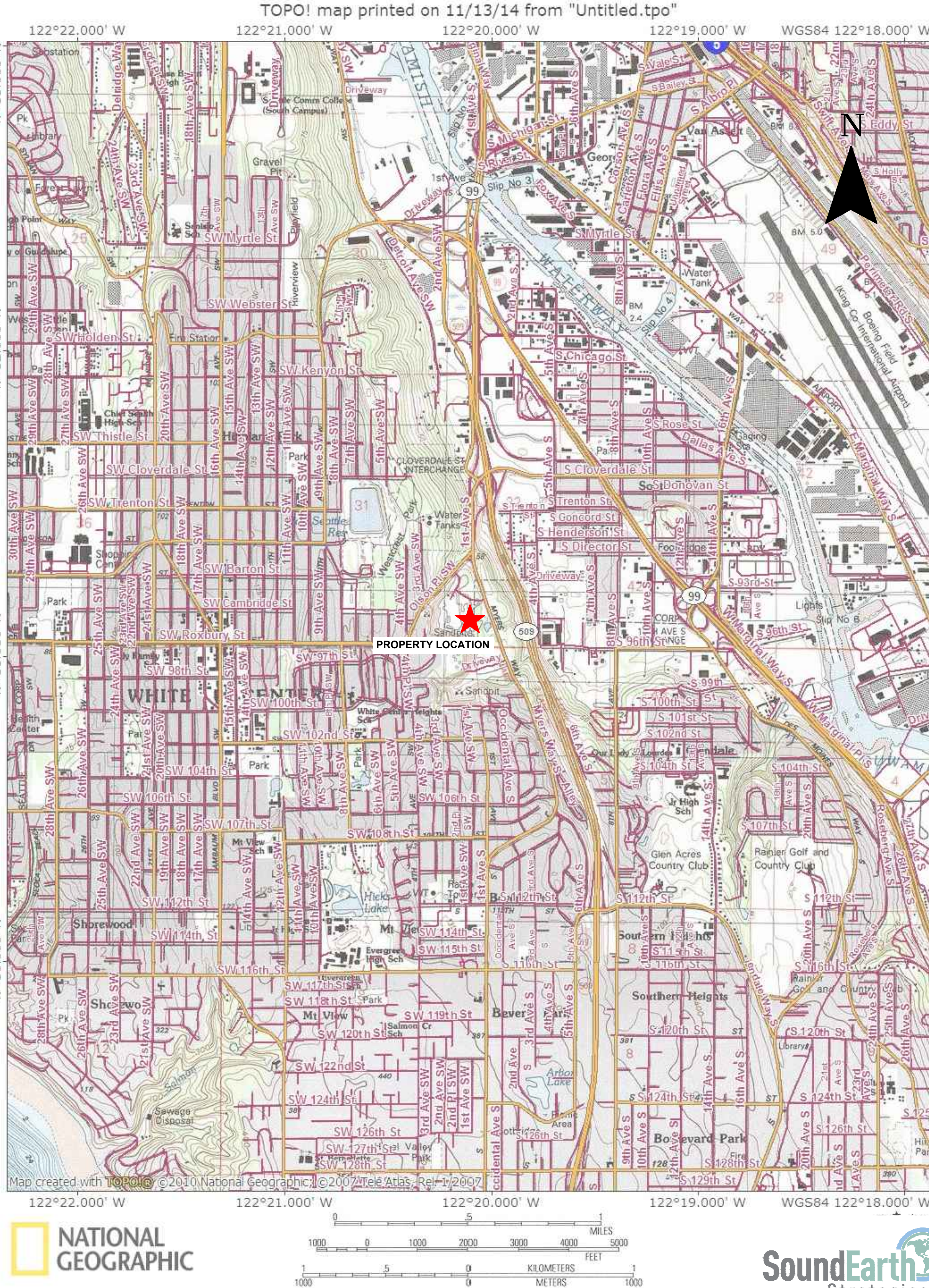
FIGURES

TOPO! map printed on 11/13/14 from "Untitled.tpo"



NATIONAL GEOGRAPHIC

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FIGURE 1
PROPERTY LOCATION MAP

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8/4/2016

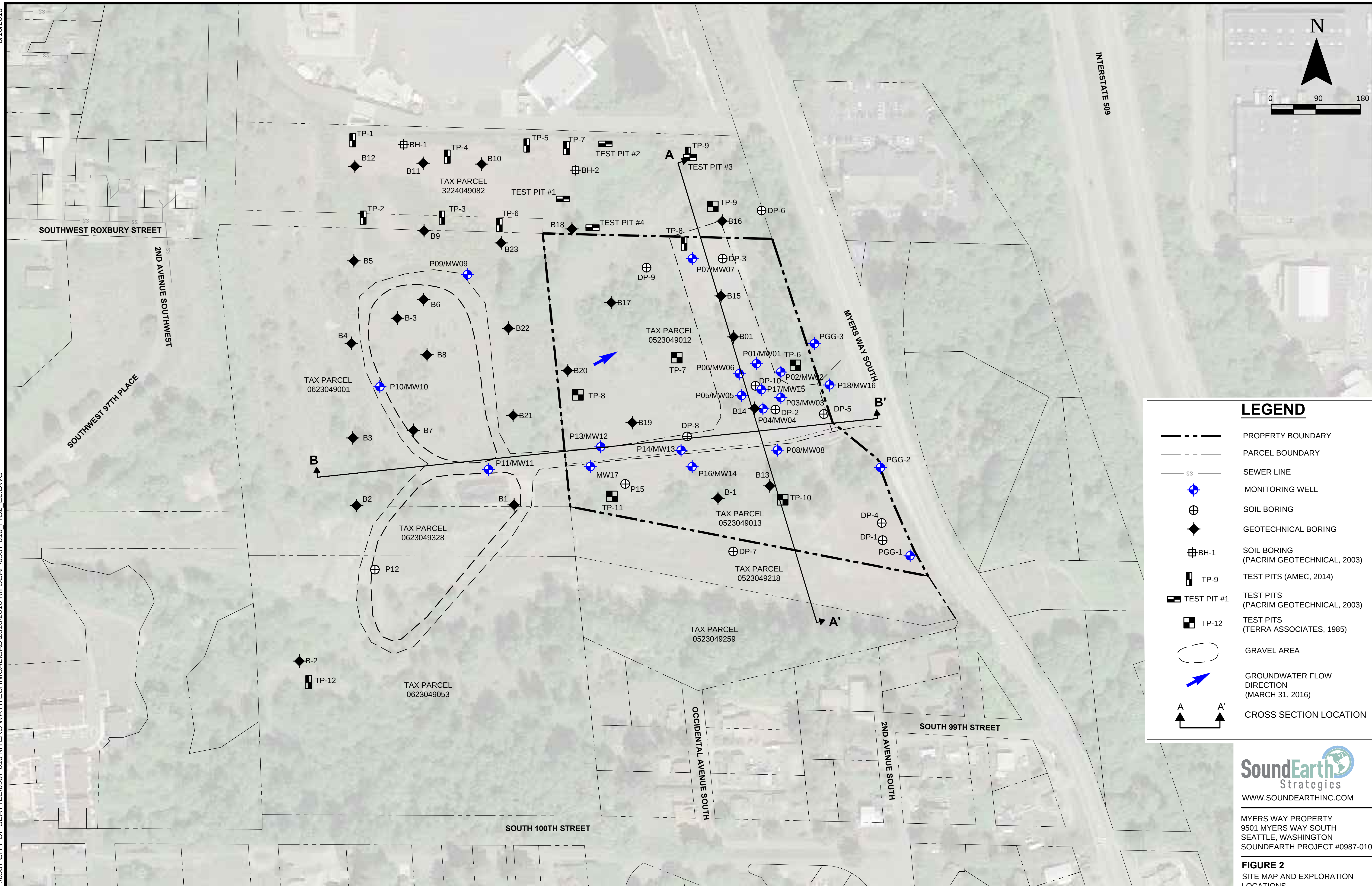

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FIGURE 2
SITE MAP AND EXPLORATION LOCATIONS

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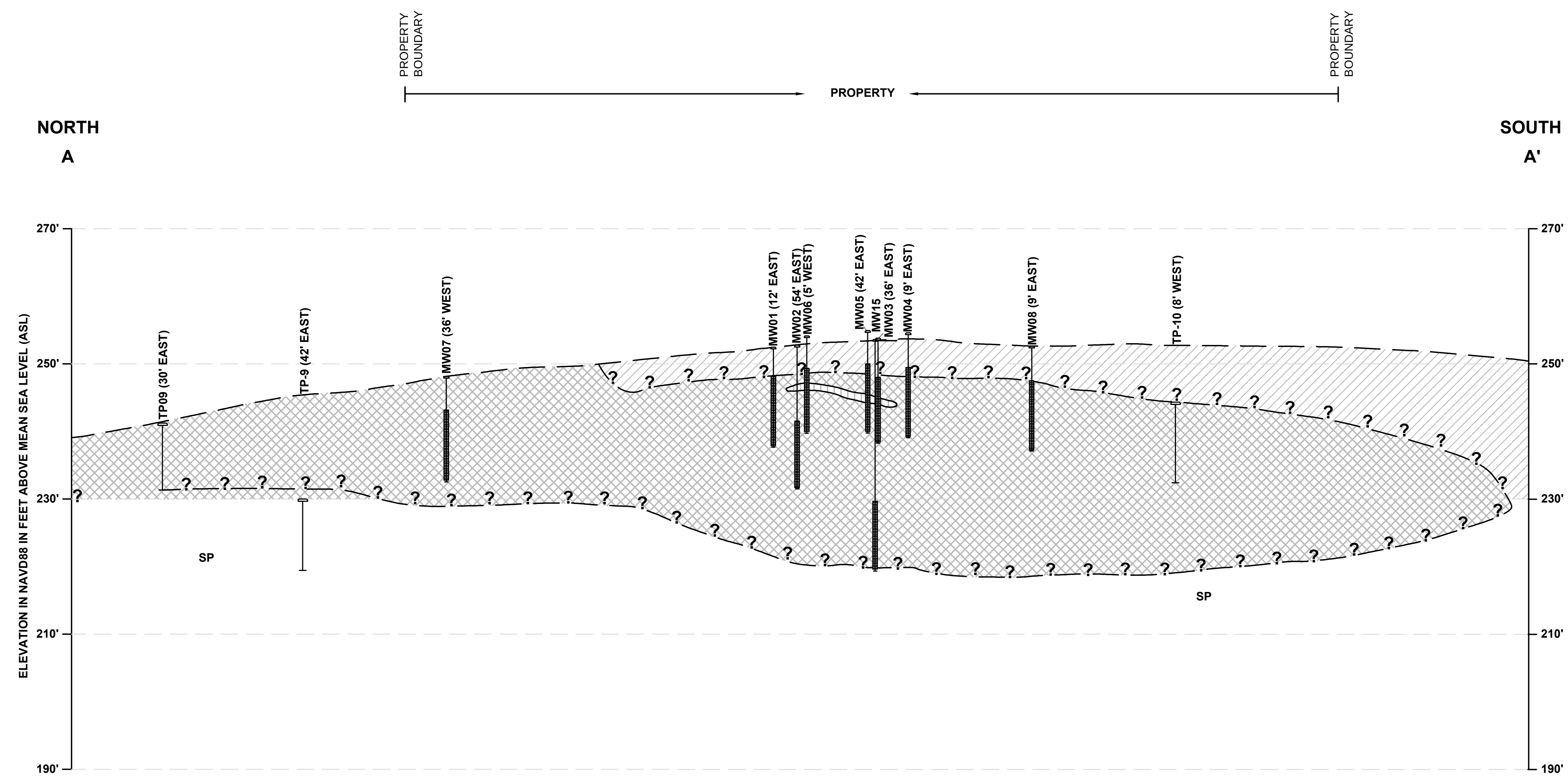

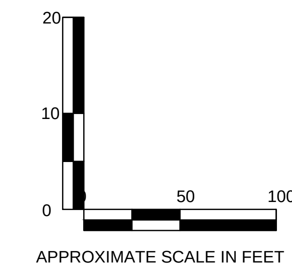

LEGEND

POST-1985 FILL

PRE-1985 FILL

OBSERVED CEMENT KILN DUST

TP-9 TEST PIT BY AMEC, 2014

TP09 TEST PIT BY TERRA ASSOCIATES, 1985

?—?— APPROXIMATE FILL CONTACT

SP POORLY GRADED SAND

MW07 (36' WEST)

MONITORING WELL OFFSET 36' WEST

BLANK CASING

WELL SCREEN INTERVAL

TEST PIT

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FIGURE 3
CROSS SECTION A-A'

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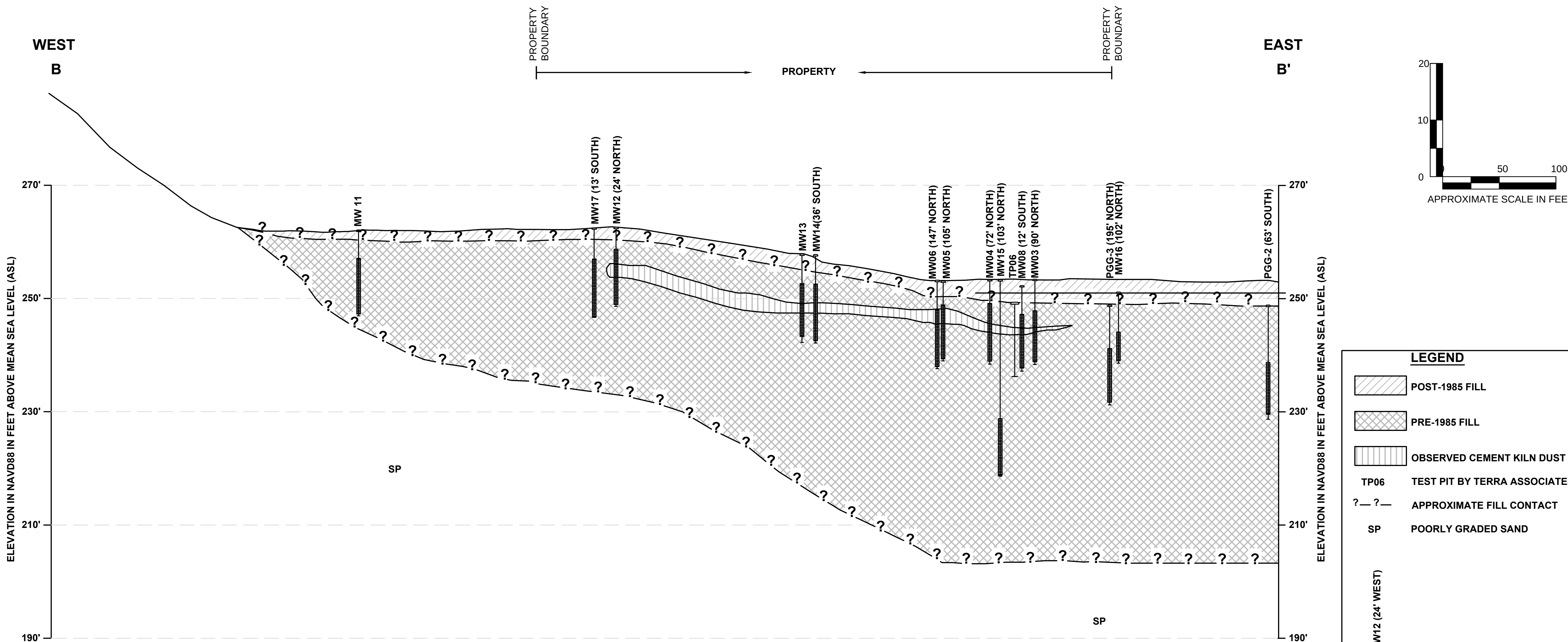

LEGEND

- POST-1985 FILL
- PRE-1985 FILL
- OBSERVED CEMENT KILN DUST
- TP06 — TEST PIT BY TERRA ASSOCIATES, 1985
- ?— ?— — APPROXIMATE FILL CONTACT
- SP — POORLY GRADED SAND
- MW12 (24' WEST) — MONITORING WELL OFFSET 36' WEST
- BLANK CASING
- WELL SCREEN INTERVAL
- TEST PIT

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FIGURE 4
CROSS SECTION B-B'

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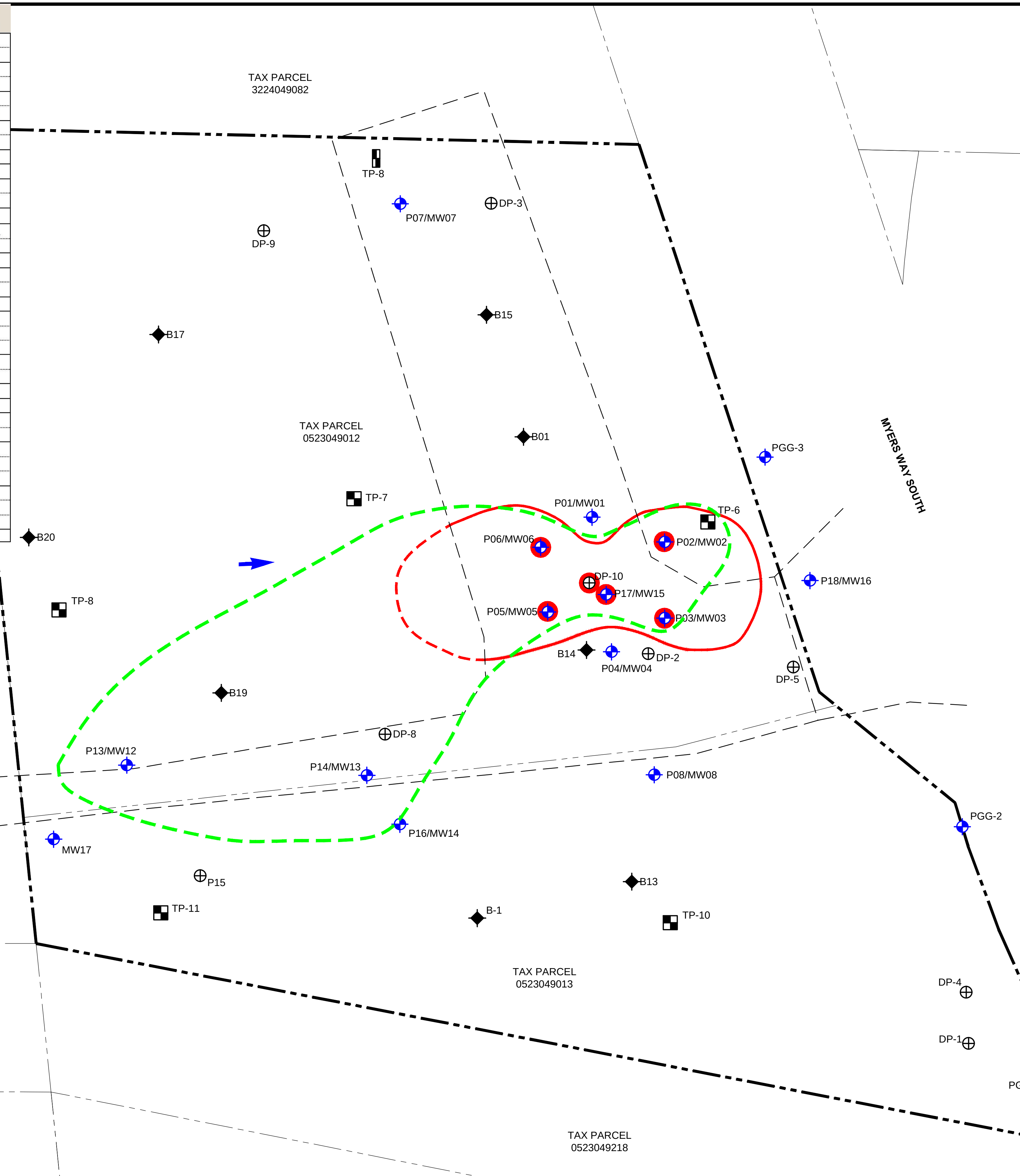
Well/ Boring ID	Date Sampled	Depth (feet bgs)	Analytical Results						Total CPAHs
			DRPH	Arsenic	Cadmium	Chromium	Lead	Mercury	
DP10	04/26/05	5	--	6	0.5	22	7	ND	–
		10	--	23	3.2	120	450	ND	–
P01/MW01	11/18/14	5	--	3.82	<1	12.7	27.4	<1	–
		10	--	6.76	<1	7.54	112	<1	0.020
P02/MW02	11/18/14	5	--	9.12	<1	26.2	14.0	<1	–
		7	--	55.2	1.23	18.4	245	<1	0.010
P03/MW03	11/18/14	4.5	--	1.74	<1	11.5	5.45	<1	–
		9	--	58.7	1.34	18.7	351	<1	0.022
P04/MW04	11/18/14	8	--	6.49	<1	16.9	29.9	<1	0.076
P05/MW05	11/18/14	9	--	71.7	1.33	15.9	338	<1	–
P06/MW06	11/18/14	8.5	--	109	1.63	15.2	524	<1	0.036
		15	--	3.97	<1	8.08	15.4	<1	–
P07/MW07	11/18/14	8.5	<50	4.90	<1	24.8	32.1	<1	<0.01
P08/MW08	11/19/14	4	--	3.35	<1	19.0	13.2	<1	0.0081
		15	<50	<1	<1	8.13	1.65	<1	<0.01
P12	11/19/14	5	--	1.75	<1	11.1	3.71	<1	–
P13/MW12	11/19/14	8	--	16.7	<1	16.4	106	<1	–
		15	--	5.22	<1	23.9	59.0	<1	–
P14/MW13	11/19/14	8.5	--	4.63	<1	13.4	52.7	<1	0.033
P15	P15-05	5	--	1.78	<1	11.0	4.52	<1	–
	P15-07.5	7.5	--	1.55	<1	7.46	1.17	<1	–
	P15-15	15	--	2.03	<1	8.10	2.15	<1	–
P16/MW14	P16-05	5	--	1.99	<1	12.3	3.59	<1	–
	P16-10	10	--	2.86	<1	9.67	1.88	<1	–
	P16-15	15	--	1.78	<1	8.41	1.66	<1	–
P17/MW15	P17-07.5	7.5	--	73.0	1.13	19.5	301	<1	–
	P17-10	10	--	70.6	1.34	22.2	268	<1	–
	P17-20	20	--	<1	<1	6.95	1.19	<1	–
P18/MW16	P18-05	5	--	2.37	<1	10.7	6.65	<1	–
	P18-07.5	7.5	--	1.32	<1	9.23	1.14	<1	–
	P18-15	15	--	<1	<1	6.71	1.02	<1	–
P19/MW17	MW17-09.5	9.5	--	8.28	<1	24.9	30.2	<1	–
	MW17-11	11	--	6.22	1.06	22.8	31.8	<1	–
	MW17-12.5	12.5	--	4.24	<1	18.5	10.9	<1	–
MTCA Method A			2,000	20	2	2,000	250	2	0.1



LEGEND

PROPERTY BOUNDARY
PARCEL BOUNDARY
SEWER LINE
SOIL BORING
MONITORING WELL
GEOTECHNICAL BORING
TEST PITS (AMEC, 2014)
TEST PITS (TERRA ASSOCIATES, 1985)
GRAVEL AREA
GROUNDWATER FLOW DIRECTION

bgs	BELOW GROUND SURFACE
CPAHs	CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS
DRPH	DIESEL-RANGE PETROLEUM HYDROCARBONS
RED	DENOTES CONCENTRATION EXCEEDING MTCA METHOD A CLEANUP LEVEL
MTCA A	WASHINGTON STATE MODEL TOXICS CONTROL ACT
<	RESULT BELOW LABORATORY REPORTING LIMIT
--	NOT ANALYZED

ESTIMATED EXTENT OF SOIL CONTAMINATION, DASHED WHERE INFERRED
ESTIMATED EXTENT OF CKD

ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM

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FIGURE 5
SOIL ANALYTICAL RESULTS

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Well/ Boring ID	Date Sampled	Analytical Results (micrograms per liter) Arsenic T	D
Groundwater Samples			
PGG-1	05/31/05	--	<3.0
	11/19/14	--	<1
	03/31/16	--	<1
PGG-2	05/31/05	--	<3.0
	11/20/14	--	<1
	03/31/16	--	<1
PGG-3	05/31/05	--	<3.0
	11/20/14	--	<1
	03/31/16	--	<1
MW01	11/24/14	3.03	--
MW02	11/24/14	9.78	--
MW03	11/24/14	2.25	--
MW04	11/24/14	<1	--
MW05	11/24/14	6.36	--
MW06	11/24/14	34.0	--
	03/31/16	--	120
MW07*	11/25/14	4.11	4.69
	03/31/16	--	10.9
MW08	11/24/14	1.53	--
MW12	11/25/14	4.98	5.12
	06/04/25	--	8.2
	03/31/16	--	4.14
MW13	11/25/14	32.7	29.7
MW14	01/12/16	--	2.2
	03/31/16	--	5.27
MW15	01/12/16	--	<1
	03/31/16	--	1.6
MW16	01/12/16	--	1.6
	03/31/16	--	1.6
MW17	04/21/16	--	6.2
MTCA Method A		5	

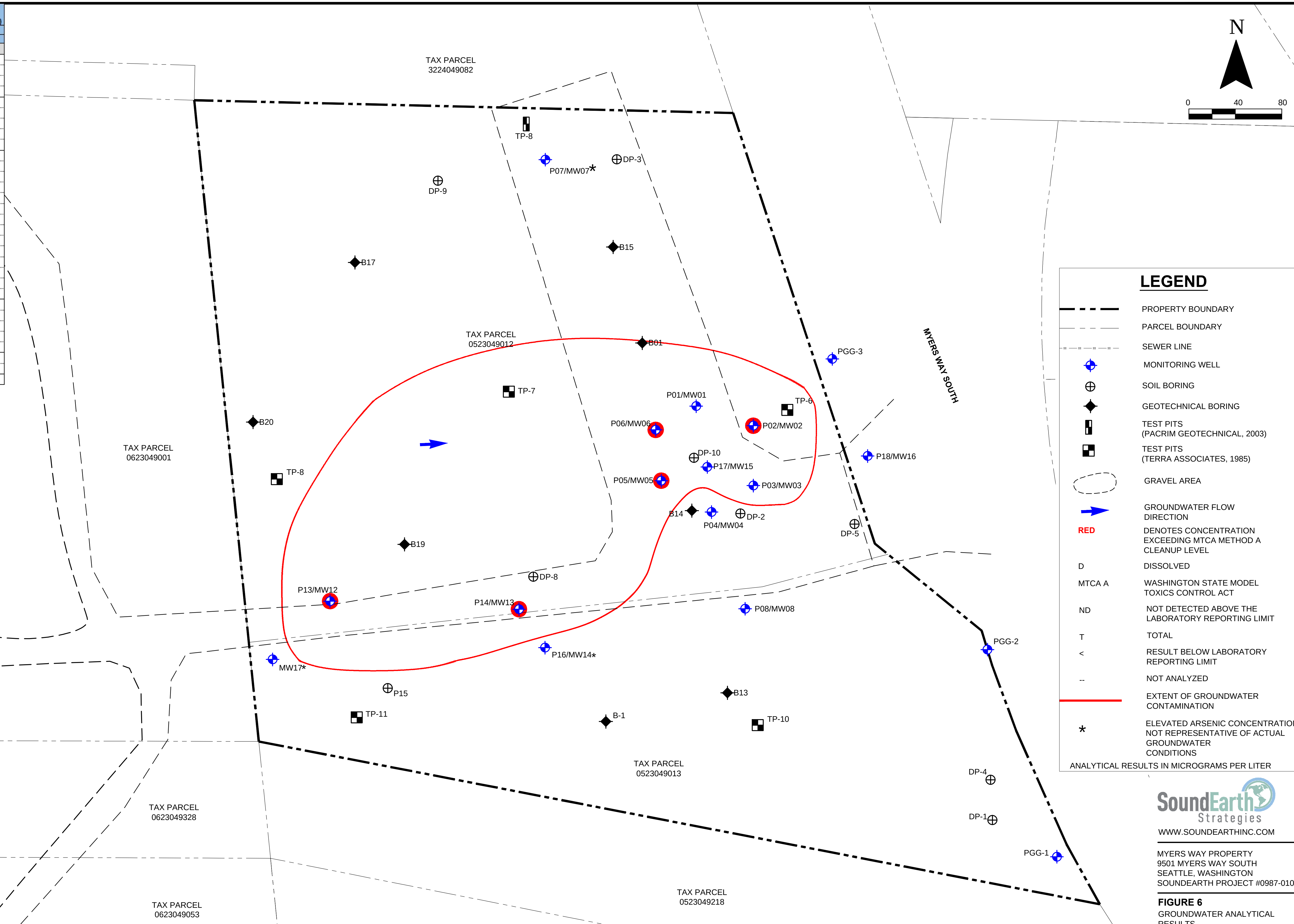

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FIGURE 6
GROUNDWATER ANALYTICAL RESULTS

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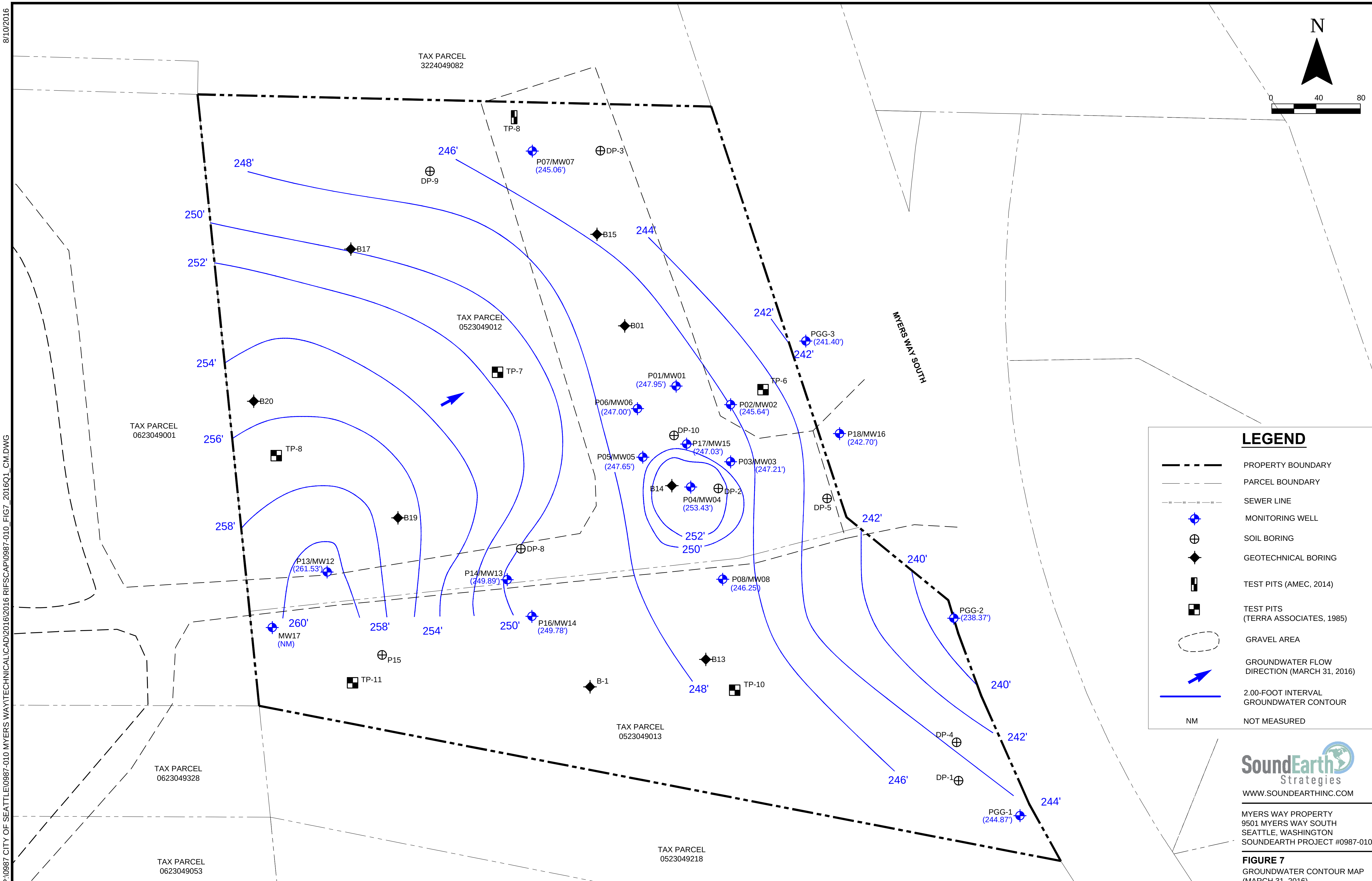

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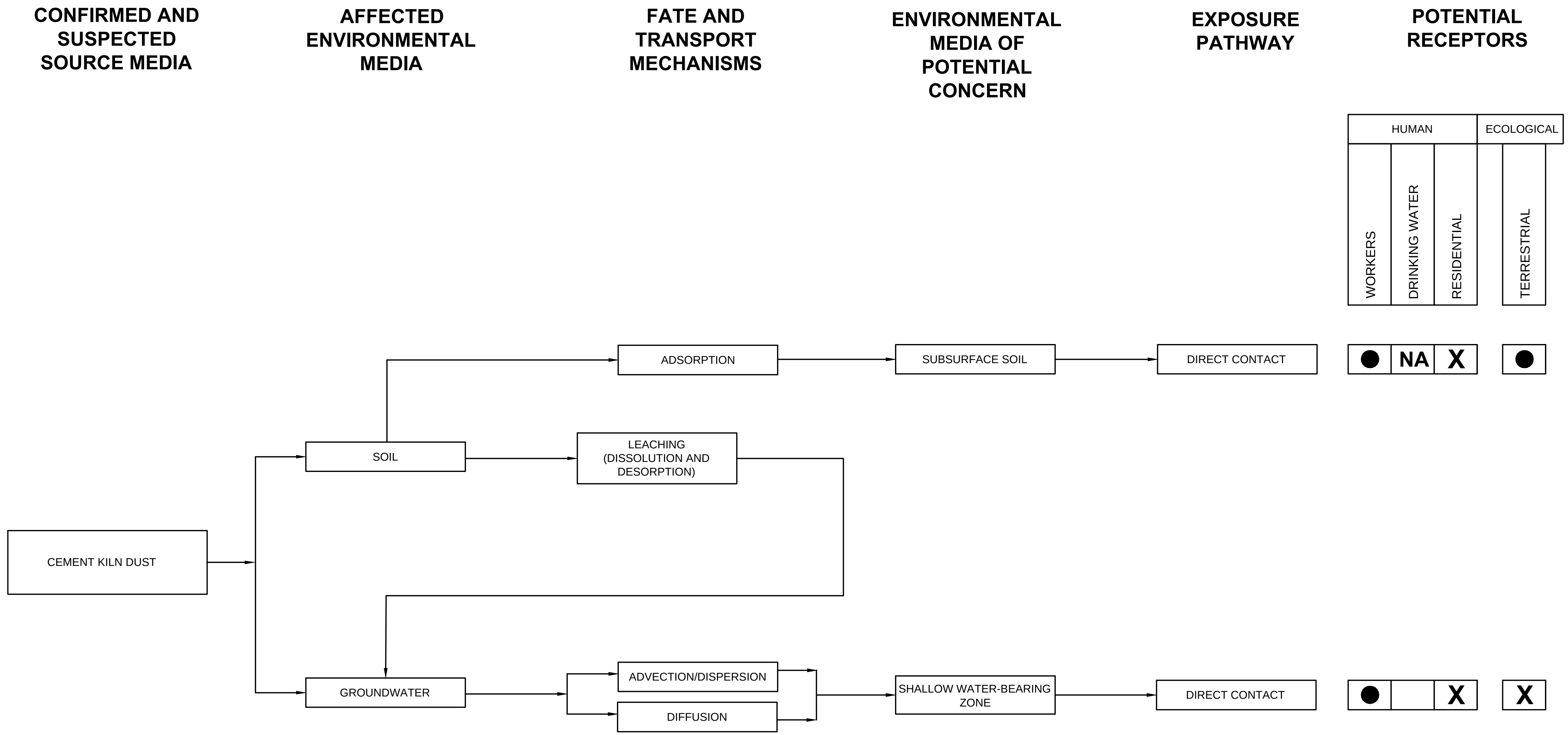

LEGEND

●	EXPOSURE PATHWAY COMPLETE FOR POTENTIAL RECEPTOR
	EXPOSURE PATHWAY COULD BE COMPLETE, BUT THE POTENTIAL RECEPTOR IS UNLIKELY
X	EXPOSURE PATHWAY INCOMPLETE
NA	NOT APPLICABLE

NOTE: DIRECT CONTACT INCLUDES DERMAL AND INGESTION

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FIGURE 8
CONCEPTUAL SITE MODEL
EXPOSURE ASSESSMENT

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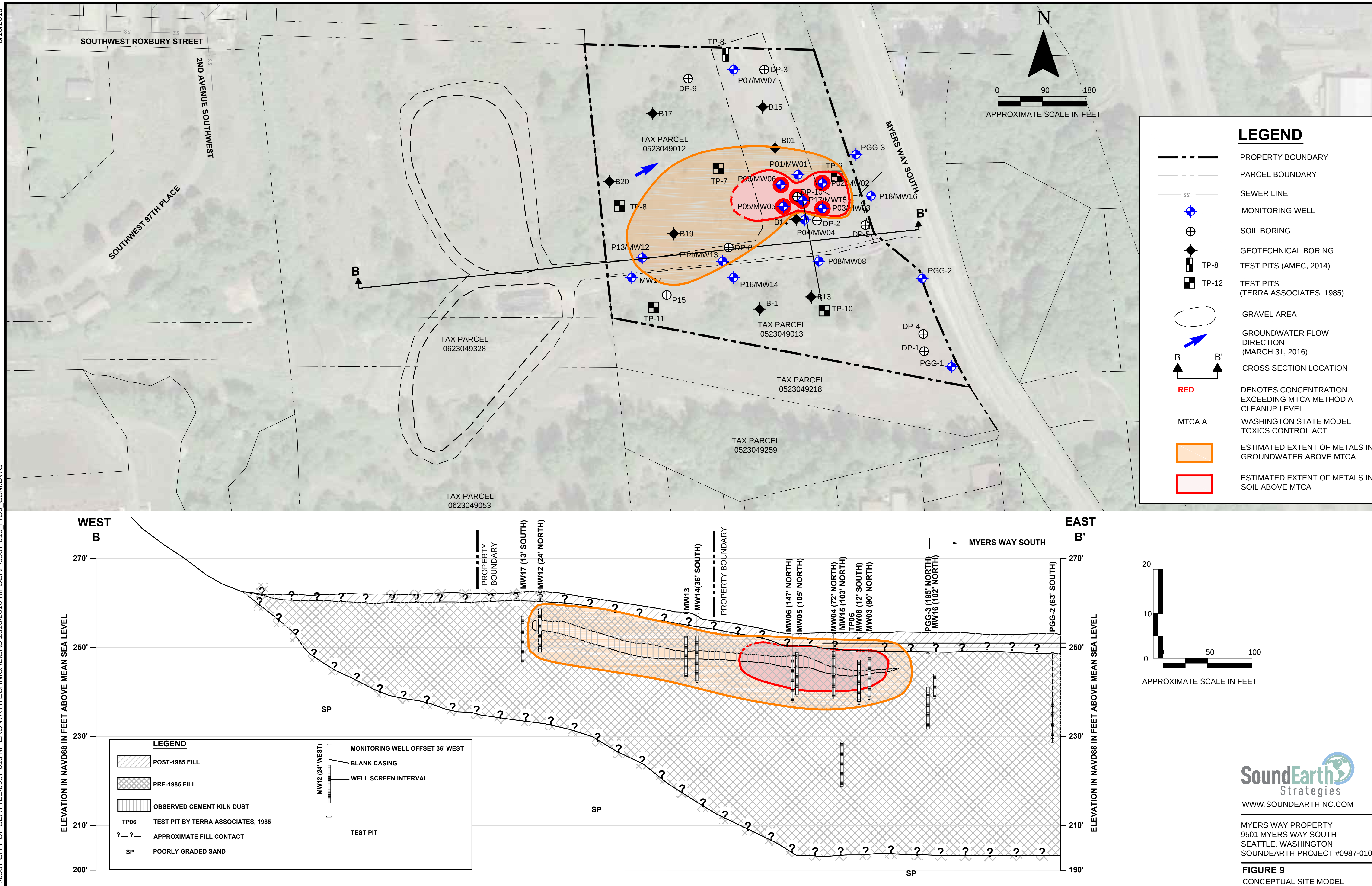

FIGURE 9
CONCEPTUAL SITE MODEL

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8/10/2016

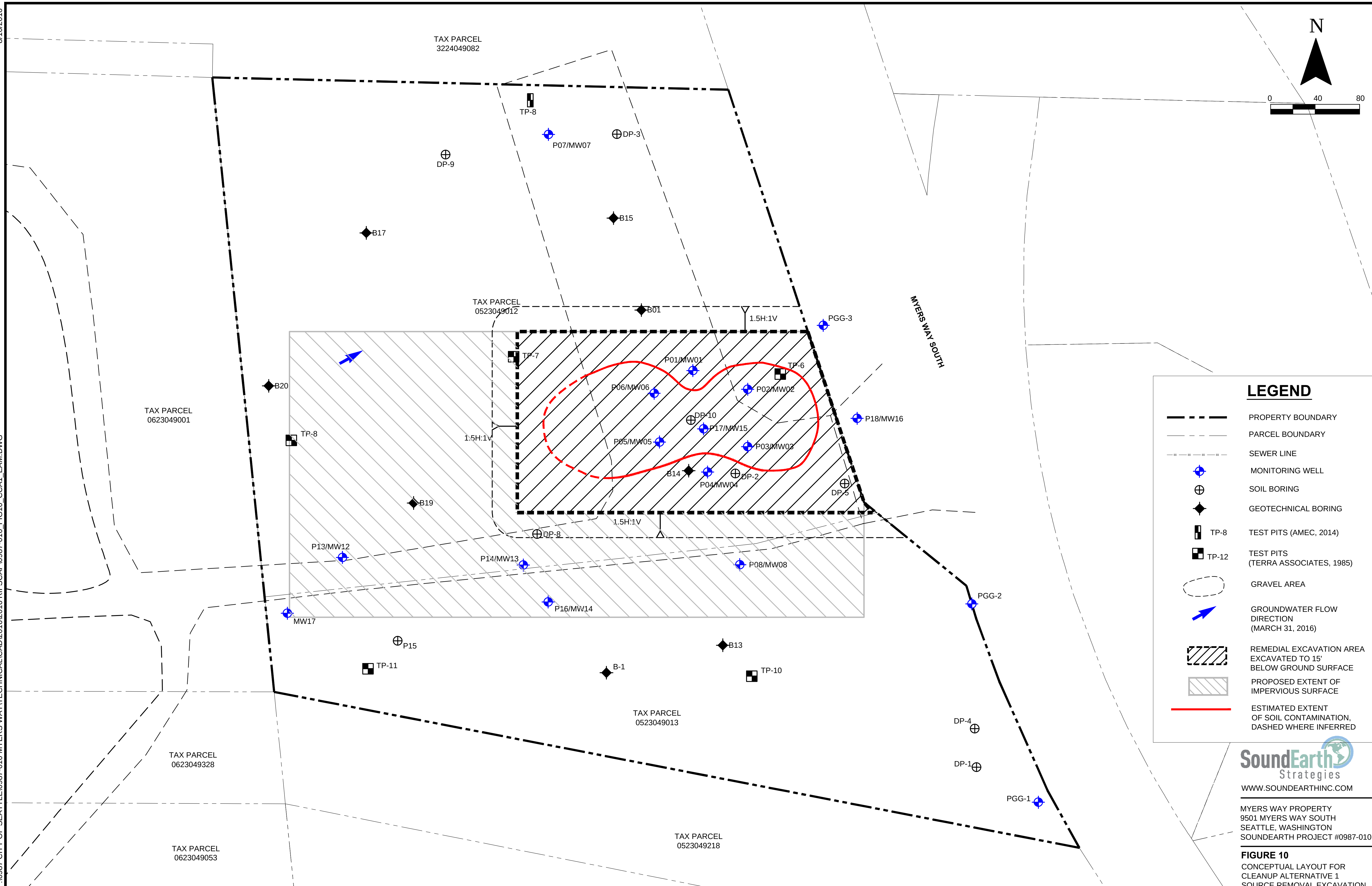

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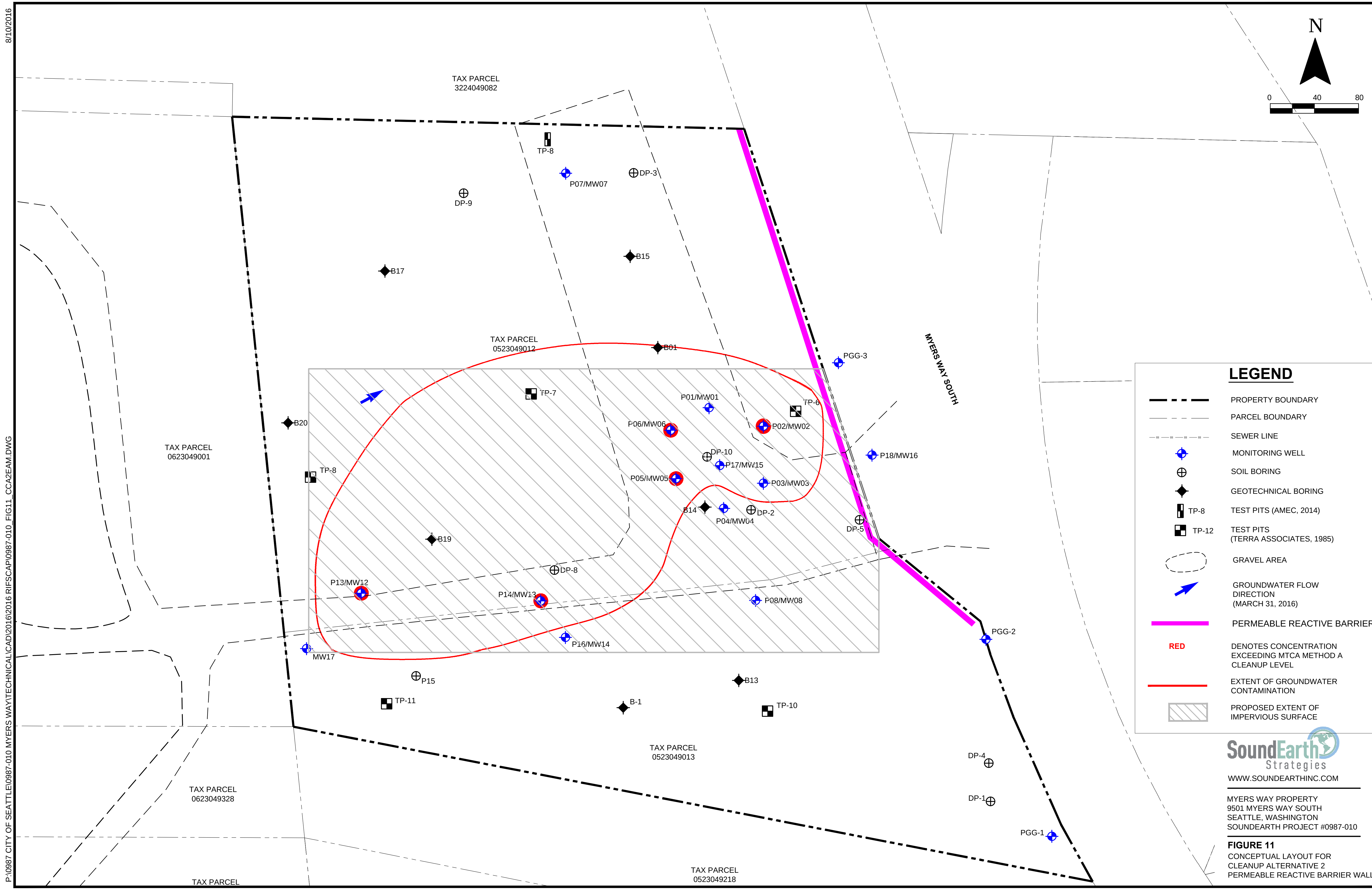
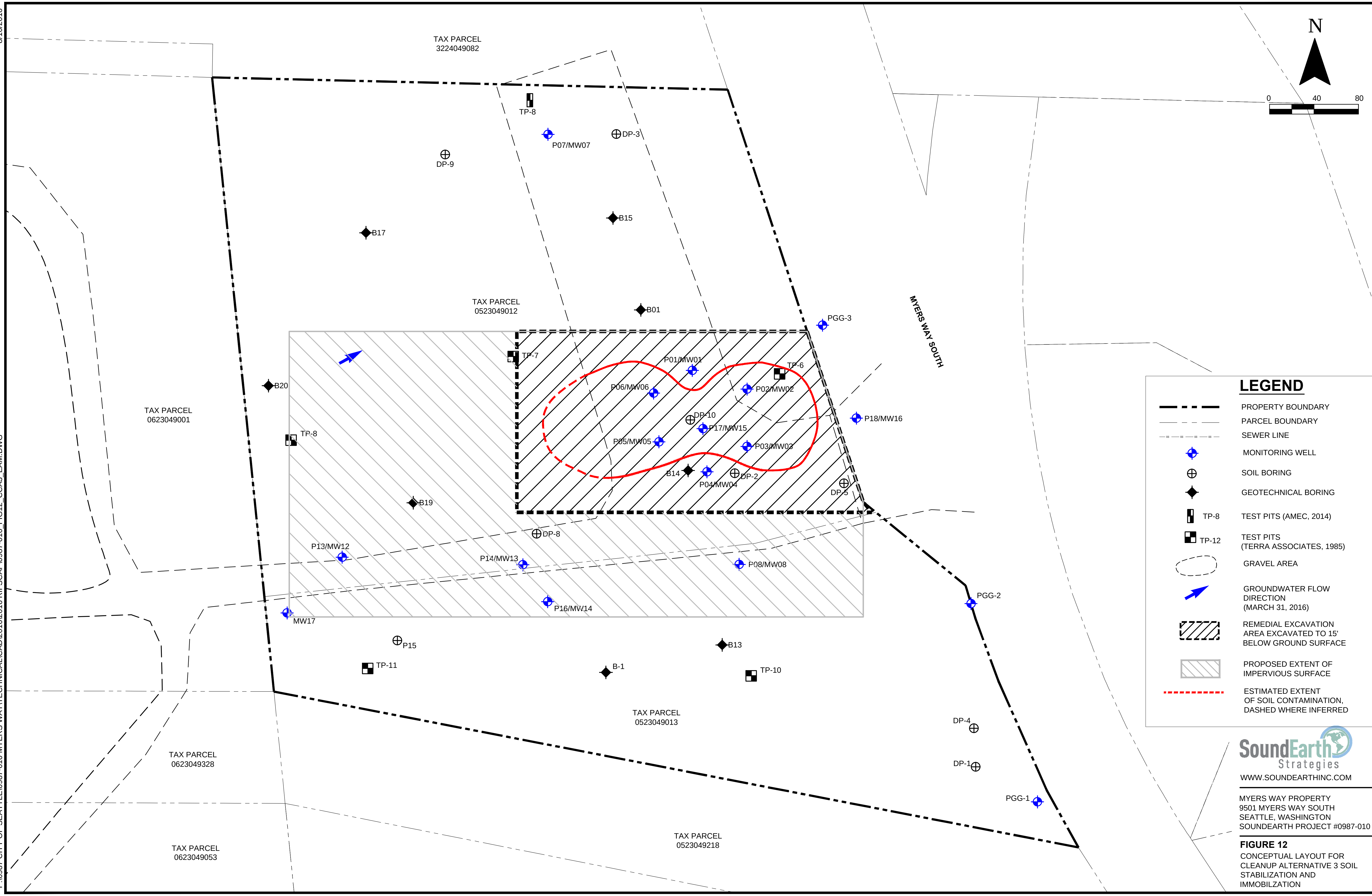
FIGURE 10
CONCEPTUAL LAYOUT FOR CLEANUP ALTERNATIVE 1 SOURCE REMOVAL EXCAVATION

P:\0987 CITY OF SEATTLE\0987-010 MYERS WAY\TECHNICAL\CAD\2016\2016 RIFS\CAP\0987-010_FIG10_CCA1_EAM.DWG



8/10/2016
N
0 40 80
TAX PARCEL
3224049082
TP-8
P07/MW07
DP-3
DP-9
B15
B17
TAX PARCEL
0523049012
B01
PGG-3
MYERS WAY SOUTH
TP-7
P01/MW01
TP-6
B20
P06/MW06
P02/MW02
TAX PARCEL
0623049001
DP-10
P18/MW16
P17/MW15
TP-8
P05/MW05
P03/MW03
B14
DP-2
P04/MW04
DP-5
B19
DP-8
P13/MW12
P14/MW13
P08/MW08
PGG-2
P16/MW14
MW17
P15
B13
TP-11
B-1
TP-10
TAX PARCEL
0523049013
DP-4
TAX PARCEL
0623049328
DP-1
PGG-1
TAX PARCEL
TAX PARCEL
0523049218
P:\0987 CITY OF SEATTLE\0987-010 MYERS WAY\TECHNICAL\CAD\2016\2016 RIFS\CAP\0987-010_FIG11_CCA2EAM.DWG
LEGEND
PROPERTY BOUNDARY
PARCEL BOUNDARY
SEWER LINE
MONITORING WELL
SOIL BORING
GEOTECHNICAL BORING
TP-8 TEST PITS (AMEC, 2014)
TP-12 TEST PITS (TERRA ASSOCIATES, 1985)
GRAVEL AREA
GROUNDWATER FLOW DIRECTION (MARCH 31, 2016)
PERMEABLE REACTIVE BARRIER
RED DENOTES CONCENTRATION EXCEEDING MTCA METHOD A CLEANUP LEVEL
EXTENT OF GROUNDWATER CONTAMINATION
PROPOSED EXTENT OF IMPERVIOUS SURFACE
SoundEarth Strategies
WWW.SOUNDEARTHINC.COM
MYERS WAY PROPERTY
9501 MYERS WAY SOUTH
SEATTLE, WASHINGTON
SOUNDEARTH PROJECT #0987-010
FIGURE 11
CONCEPTUAL LAYOUT FOR
CLEANUP ALTERNATIVE 2
PERMEABLE REACTIVE BARRIER WALL



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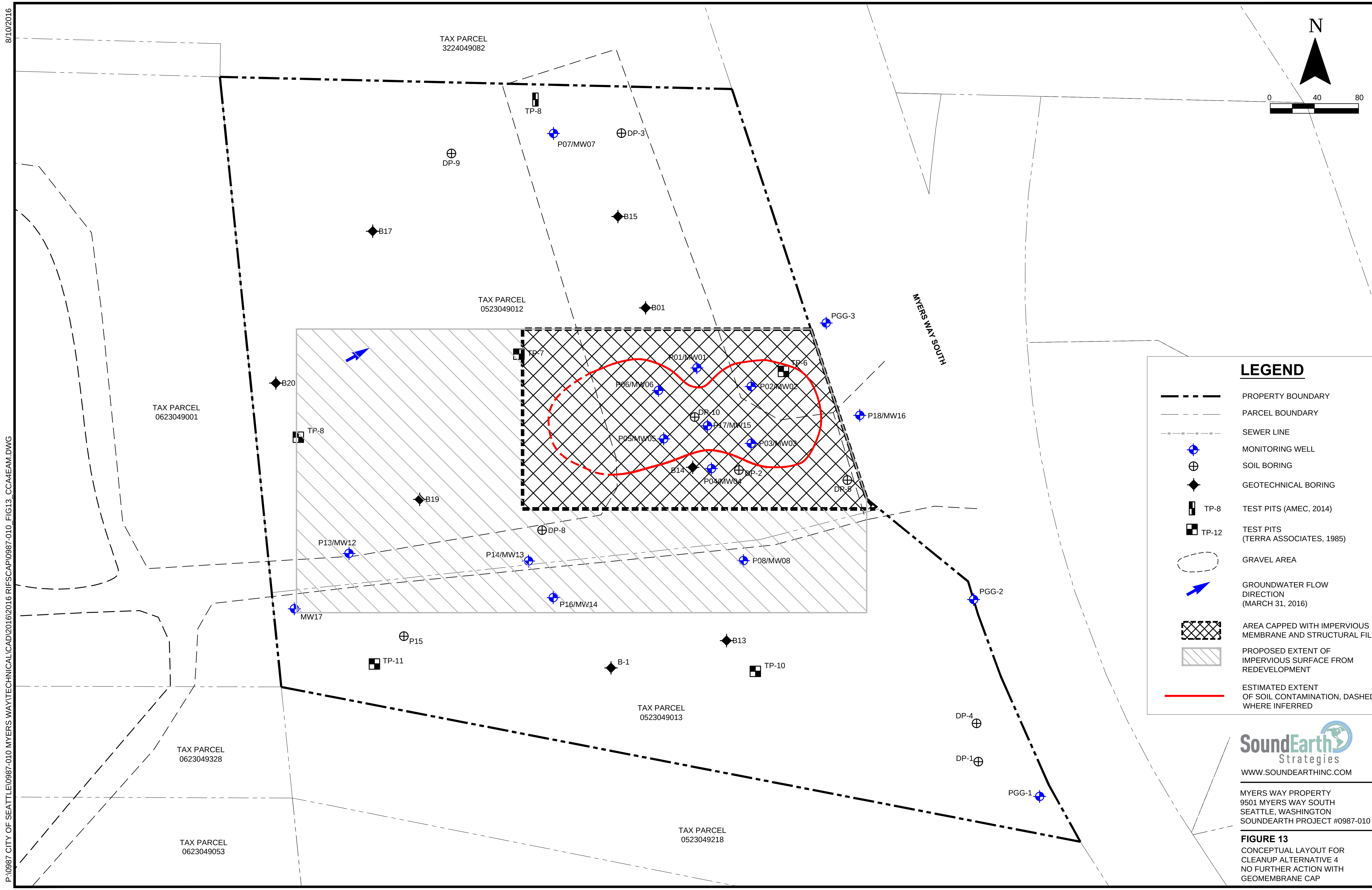

N
0 40 80
TAX PARCEL 3224049082
TAX PARCEL 0523049012
TAX PARCEL 0623049001
TAX PARCEL 0523049013
TAX PARCEL 0623049328
TAX PARCEL 0623049053
TAX PARCEL 0523049218
MYERS WAY SOUTH
TP-8
P07/MW07
DP-3
DP-9
B17
B15
B01
PGG-3
TP-7
P01/MW01
TP-6
P06/MW06
P02/MW02
B20
DP-10
P18/MW16
P17/MW15
TP-8
P05/MW05
P03/MW03
B14
DP-2
P04/MW04
DP-5
B19
DP-8
P13/MW12
P14/MW13
P08/MW08
PGG-2
P16/MW14
MW17
P15
B13
TP-11
B-1
TP-10
DP-4
DP-1
PGG-1
LEGEND
PROPERTY BOUNDARY
PARCEL BOUNDARY
SEWER LINE
MONITORING WELL
SOIL BORING
GEOTECHNICAL BORING
TP-8 TEST PITS (AMEC, 2014)
TP-12 TEST PITS (TERRA ASSOCIATES, 1985)
GRAVEL AREA
GROUNDWATER FLOW DIRECTION (MARCH 31, 2016)
AREA CAPPED WITH IMPERVIOUS MEMBRANE AND STRUCTURAL FILL
PROPOSED EXTENT OF IMPERVIOUS SURFACE FROM REDEVELOPMENT
ESTIMATED EXTENT OF SOIL CONTAMINATION, DASHED WHERE INFERRED
SoundEarth Strategies
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MYERS WAY PROPERTY
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SEATTLE, WASHINGTON
SOUNDEARTH PROJECT #0987-010
FIGURE 13
CONCEPTUAL LAYOUT FOR CLEANUP ALTERNATIVE 4 NO FURTHER ACTION WITH GEOMEMBRANE CAP
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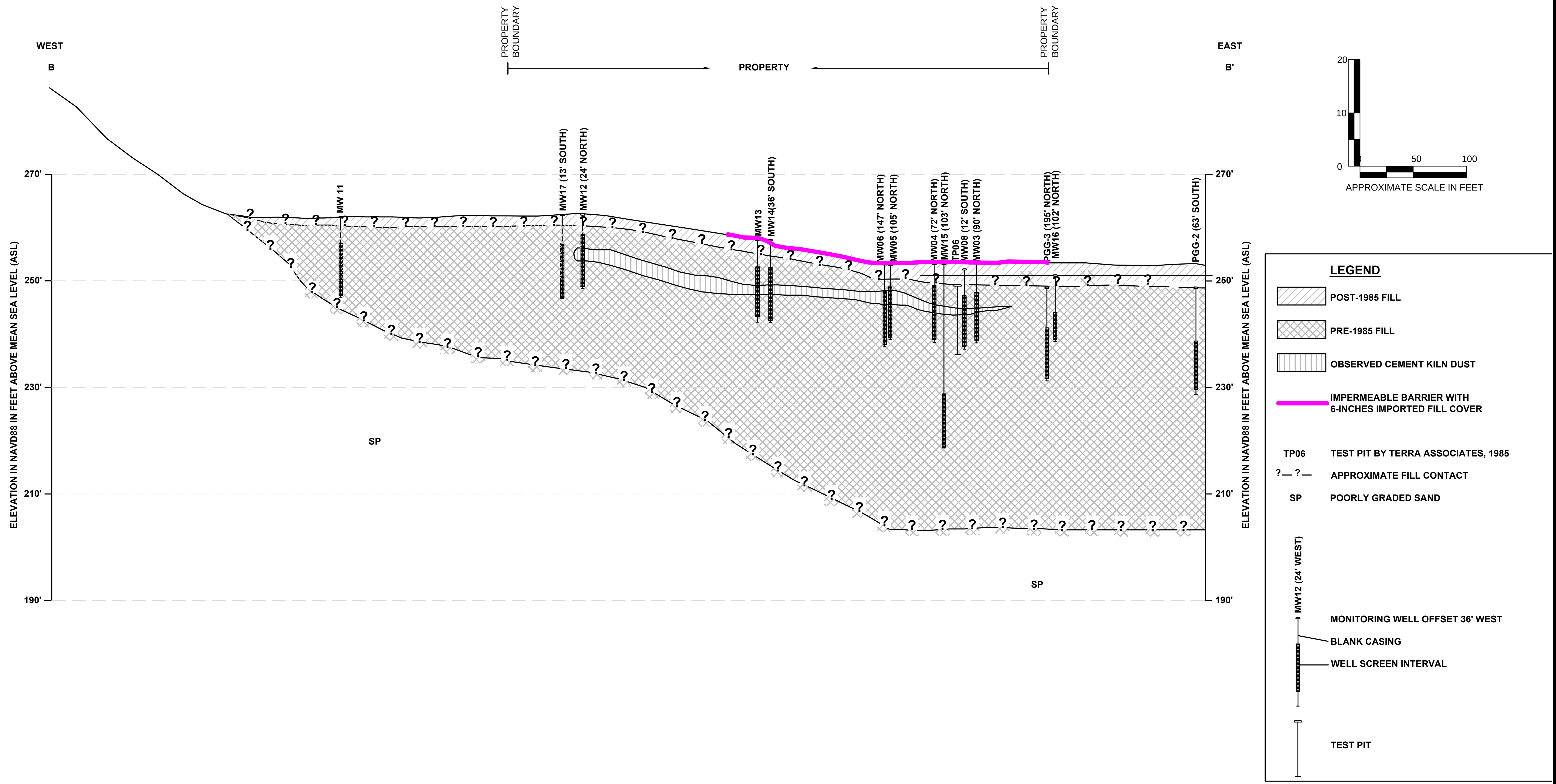
P:\0987 CITY OF SEATTLE\0987-010 MYERS WAY\TECHNICAL\CAD\2016\2016 RIFS\CAP\0987-010_FIG13_CCA4EAM.DWG



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P:\0987 CITY OF SEATTLE\0987-010 MYERS WAY\TECHNICAL\CAD\2016\2016 RIFSCAP\0987-010_FIG14_XBBNFAEAM.DWG

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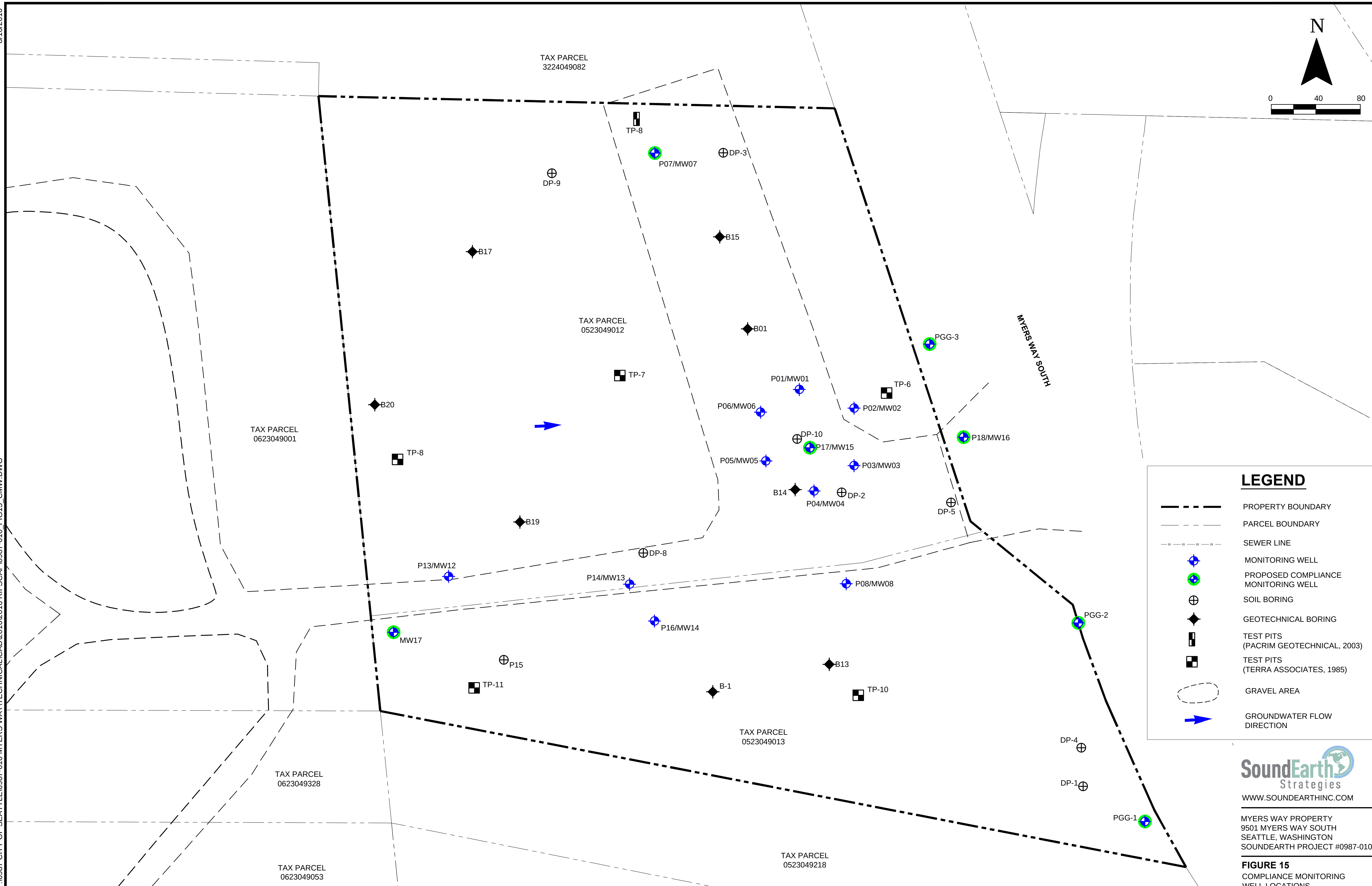
SEATTLE, WASHINGTON
SOUNDEARTH PROJECT #0987-010

FIGURE 14
CROSS SECTION B-B' PROPOSED IMPERMEABLE BARRIER LOCATION



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TABLES

SoundEarth Strategies

Table 1
Summary of Soil Analytical Results for Petroleum Hydrocarbons and Metals
Myers Way Property
9501 Myers Way South
Seattle, Washington

Boring ID/ Well	Sample ID	Sampled by	Date Sampled	Depth (feet bgs)	**Analytical Results** (mg/kg)											
					GRPH[(1)]	DRPH[(2)]	ORPH[(2)]	Benzene[(3)]	Toluene[(3)]	Ethylbenzene[(3)]	Total Xylenes[(3)]	Arsenic[(4)]	Cadmium[(4)]	Chromium[(4)]	Lead[(4)]	Mercury[(4)]
DP10	DP-10@5'	EEI	04/26/05	5	--	--	--	--	--	--	--	6	0.5	22	7	ND
	DP-10@10'			10	--	--	--	--	--	--	--	**23**	**3.2**	120	**450**	ND
P01/MW01	P01-05	SoundEarth	11/17/14	5	--	--	--	--	--	--	--	3.82	<1	12.7	27.4	<1
	P01-10	SoundEarth		10	--	--	--	--	--	--	--	6.76	<1	7.54	112	<1
P02/MW02	P02-05	SoundEarth	11/17/14	5	--	--	--	--	--	--	--	9.12	<1	26.2	14.0	<1
	P02-07	SoundEarth		7	--	--	--	--	--	--	--	**55.2**	1.23	18.4	245	<1
P03/MW03	P03-04.5	SoundEarth	11/17/14	4.5	--	--	--	--	--	--	--	1.74	<1	11.5	5.45	<1
	P03-09	SoundEarth		9	--	--	--	--	--	--	--	**58.7**	1.34	18.7	**351**	<1
P04/MW04	P04-08	SoundEarth	11/17/14	8	--	--	--	--	--	--	--	6.49	<1	16.9	29.9	<1
P05/MW05	P05-09	SoundEarth	11/17/14	9	--	--	--	--	--	--	--	**71.7**	1.33	15.9	**338**	<1
P06/MW06	P06-08.5	SoundEarth	11/17/14	8.5	--	--	--	--	--	--	--	**109**	1.63	15.2	**524**	<1
	P06-15	SoundEarth		15	--	--	--	--	--	--	--	3.97	<1	8.08	15.4	<1
P07/MW07	P07-08.5	SoundEarth	11/18/14	8.5	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	4.90	<1	24.8	32.1	<1
P08/MW08	P08-04	SoundEarth	11/19/14	4	--	--	--	--	--	--	--	3.35	<1	19.0	13.2	<1
	P08-15	SoundEarth		15	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	<1	<1	8.13	1.65	<1
P09/MW09	P09-04	SoundEarth	11/19/14	4	--	--	--	--	--	--	--	1.71	<1	12.8	3.76	<1
	P09-06	SoundEarth		6	--	--	--	--	--	--	--	1.58	<1	12.5	3.28	<1
P10/MW10	P10-05.5	SoundEarth	11/19/14	5.5	--	--	--	--	--	--	--	1.23	<1	8.49	2.18	<1
P11/MW11	P11-10	SoundEarth	11/19/14	10	--	--	--	--	--	--	--	2.03	<1	14.0	10.7	<1
P12	P12-05	SoundEarth	11/19/14	5	--	--	--	--	--	--	--	1.75	<1	11.1	3.71	<1
P13/MW12	P13-08	SoundEarth	11/19/14	8	--	--	--	--	--	--	--	16.7	<1	16.4	106	<1
	P13-15	SoundEarth		15	--	--	--	--	--	--	--	5.22	<1	23.9	59.0	<1
P14/MW13	P14-08.5	SoundEarth	11/19/14	8.5	--	--	--	--	--	--	--	4.63	<1	13.4	52.7	<1
P15	P15-05	SoundEarth	01/05/16	5	--	--	--	--	--	--	--	1.78	<1	11.0	4.52	<1
	P15-07.5	SoundEarth		7.5	--	--	--	--	--	--	--	1.55	<1	7.46	1.17	<1
	P15-15	SoundEarth		15	--	--	--	--	--	--	--	2.03	<1	8.10	2.15	<1
P16/MW14	P16-05	SoundEarth	01/05/16	5	--	--	--	--	--	--	--	1.99	<1	12.3	3.59	<1
	P16-10	SoundEarth		10	--	--	--	--	--	--	--	2.86	<1	9.67	1.88	<1
	P16-15	SoundEarth		15	--	--	--	--	--	--	--	1.78	<1	8.41	1.66	<1
P17/MW15	P17-07.5	SoundEarth	01/04/16	7.5	--	--	--	--	--	--	--	**73.0**	1.13	19.5	301	<1
	P17-10	SoundEarth		10	--	--	--	--	--	--	--	**70.6**	1.34	22.2	268	<1
	P17-20	SoundEarth		20	--	--	--	--	--	--	--	<1	<1	6.95	1.19	<1
MTCA Method A Cleanup Level[(5)]					**30/100[(6)]**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**	**20**	**2**	**2,000**	**250**	**2**

Table 1
Summary of Soil Analytical Results for Petroleum Hydrocarbons and Metals
Myers Way Property
9501 Myers Way South
Seattle, Washington

Boring ID/ Well	Sample ID	Sampled by	Date Sampled	Depth (feet bgs)	Analytical Results (mg/kg)											
					GRPH(1)	DRPH(2)	ORPH(2)	Benzene(3)	Toluene(3)	Ethylbenzene(3)	Total Xylenes(3)	Arsenic(4)	Cadmium(4)	Chromium(4)	Lead(4)	Mercury(4)
P18/MW16	P18-05	SoundEarth	01/04/16	5	--	--	--	--	--	--	--	2.37	<1	10.7	6.65	<1
	P18-07.5	SoundEarth		7.5	--	--	--	--	--	--	--	1.32	<1	9.23	1.14	<1
	P18-15	SoundEarth		15	--	--	--	--	--	--	--	<1	<1	6.71	1.02	<1
P19/MW17	MW17-09.5	SoundEarth	04/15/16	9.5	--	--	--	--	--	--	--	8.28	<1	24.9	30.2	<1
	MW17-11	SoundEarth		11	--	--	--	--	--	--	--	6.22	1.06	22.8	31.8	<1
	MW17-12.5	SoundEarth		12.5	--	--	--	--	--	--	--	4.24	<1	18.5	10.9	<1
MTCA Method A Cleanup Level(5)					**30/100(6)**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**	**20**	**2**	**2,000**	**250**	**2**

NOTES:
Red denotes concentration exceeds MTCA Method A Cleanup Level for Soil.
(1)Analyzed by Method NWTPH-Gx.
(2)Analyzed by Method NWTPH-Dx.
(3)Analyzed by EPA Method 8021B.
(4)Analyzed by EPA Method 200.8.
(5)MTCA Cleanup Regulation, Method A Cleanup Levels, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.
(6)30 mg/kg when benzene is present, 100 mg/kg when benzene is not present.

-- = not analyzed
< = not detected at a concentration exceeding the laboratory reporting limit
bgs = below ground surface
DRPH = diesel-range petroleum hydrocarbons
EEI = Environmental Equalizers, Inc.
EPA = U.S. Environmental Protection Agency
GRPH = gasoline-range petroleum hydrocarbons

mg/kg = milligrams per kilogram
MTCA = Washington State Model Toxics Control Act
ND = not detected above the laboratory reporting limit
NWTPH = northwest total petroleum hydrocarbon
ORPH = oil-range petroleum hydrocarbons
SoundEarth = SoundEarth Strategies, Inc.

SoundEarth Strategies

Table 2
Summary of Groundwater Analytical Results for Petroleum Hydrocarbons and Metals
Myers Way Property
9501 Myers Way South
Seattle, Washington

Boring ID/ Well	Sample ID	Sampled by	Date Sampled	TOC Elevation (Feet NAVD88)	Groundwater Depth (Feet BTOC)	Groundwater Elevation (Feet NAVD88)	Analytical Results (µg/L)																	
							GRPH[1]	DRPH[2]	ORPH[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]	pH[4]	Arsenic[5]		Cadmium[5]		Chromium[5]		Lead[5]		Mercury[6]	
															Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Reconnaissance Groundwater Samples																								
DP-1	DP-GW1	EEI	04/04/05	--	--	--	--	--	--	ND	ND	ND	ND	--	3.27	--	ND	--	6.27	--	1.12	--	ND	--
DP-2	DP-GW2	EEI	04/04/05	--	--	--	--	--	--	0.27	ND	0.35	ND	--	**523**	--	2.29	--	35.7	--	**620**	--	ND	--
DP-3	DP-GW3	EEI	04/04/05	--	--	--	--	--	--	ND	ND	ND	ND	--	**5.26**	--	ND	--	2.86	--	1.03	--	ND	--
DP-4	DP-4GW	EEI	04/26/05	--	--	--	--	--	--	ND	ND	ND	ND	--	**41**	--	ND	--	11	--	**30**	--	ND	--
DP-5	DP-5GW	EEI	04/26/05	--	--	--	--	--	--	ND	ND	ND	ND	--	**170**	--	**1,400**	--	24	--	**2,200**	--	ND	--
DP-6	DP-6GW	EEI	04/26/05	--	--	--	--	--	--	ND	ND	ND	ND	--	ND	--	ND	--	24	--	**37**	--	ND	--
DP-7	DP-7GW	EEI	04/26/05	--	--	--	--	--	--	ND	ND	ND	ND	--	**39**	--	ND	--	17	--	**55**	--	ND	--
DP-8	DP-8GW	EEI	04/26/05	--	--	--	--	--	--	0.4	0.06	ND	ND	--	**120**	--	ND	--	**81**	--	**69**	--	ND	--
DP-9	DP-9GW	EEI	04/26/05	--	--	--	--	--	--	ND	ND	ND	ND	--	**100**	--	ND	--	31	--	**46**	--	ND	--
Groundwater Samples																								
PGG-1	PGG-1	PGG	05/31/05	269.78	--	--	--	--	--	--	--	--	--	--	--	<3.0	--	<4.0	--	<10	--	<1.0	--	<0.50
	PGG1-20141119[f]	SoundEarth	11/19/14		25.80	243.98	--	--	--	--	--	--	--	6.63	--	<1	--	<1	--	2.14	--	<1	--	<0.1
	PGG-1-20150603	SoundEarth	06/03/15		25.68	244.10	--	--	--	--	--	--	--	6.26	--	<1	--	<1	--	2.49	--	<1	--	<1
	PGG-1-20160331	SoundEarth	03/31/16		24.91	244.87	-	--	--	--	--	--	--	6.68	--	<1	--	<1	--	2.35	--	<1	--	<1
PGG-2	PGG-2	PGG	05/31/05	260.07	--	--	--	--	--	--	--	--	--	--	--	<3.0	--	<4.0	--	<10	--	<1.0	--	<0.50
	PGG2-20141118[f]	SoundEarth	11/18/14		22.36	237.71	--	--	--	--	--	--	--	6.57	--	<1	--	<1	--	<1	--	<1	--	<0.1
	PGG-2-20150603	SoundEarth	06/03/15		22.45	237.62	--	--	--	--	--	--	--	6.32	--	<1	--	<1	--	<1	--	<1	--	<1
	PGG-2-30160331	SoundEarth	03/31/16		21.70	238.37	--	--	--	--	--	--	--	6.16	--	<1	--	<1	--	<1	--	<1	--	<1
PGG-3	PGG-3	PGG	05/31/05	249.69	--	--	--	--	--	--	--	--	--	--	--	<3.0	--	<4.0	--	<10	--	<1.0	--	<0.50
	PGG3-20141118[f]	SoundEarth	11/18/14		8.82	240.87	--	--	--	--	--	--	--	6.62	--	<1	--	<1	--	<1	--	<1	--	<0.1
	PGG-3-20150603	SoundEarth	06/03/15		9.09	240.60	--	--	--	--	--	--	--	6.58	--	<1	--	<1	--	<1	--	<1	--	<1
	PGG-3-30160331	SoundEarth	03/31/16		8.29	241.4	--	--	--	--	--	--	--	6.71	--	<1	--	<1	--	1.01	--	<1	--	<1
MW01	MW01-20141124	SoundEarth	11/24/14	253.36	4.66	248.70	--	--	--	--	--	--	--	6.74	3.03	--	<1	--	1.15	--	<1	--	<1	--
	MW01-20150603	SoundEarth	06/03/15		6.79	246.57	--	--	--	--	--	--	--	7.06	--	**14.4**	--	<1	--	<1	--	<1	--	<1
	MW01-20160331	SoundEarth	03/31/16		5.41	247.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW02	MW02-20141124	SoundEarth	11/24/14	252.81	7.62	245.19	--	--	--	--	--	--	--	6.31	**9.78**	--	<1	--	2.03[ca]	--	4.30	--	<1	--
	MW02-20150604	SoundEarth	06/04/15		8.02	244.79	--	--	--	--	--	--	--	7.26	--	**15.6**	--	<1	--	<1	--	<1	--	<1
	MW02-20160331	SoundEarth	03/31/16		7.17	245.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW03	MW03-20141124	SoundEarth	11/24/14	254.39	8.17	246.22	--	--	--	--	--	--	--	5.89	2.25	--	<1	--	1.61[ca]	--	<1	--	<1	--
	MW03-20150603	SoundEarth	06/03/15		8.56	245.83	--	--	--	--	--	--	--	6.72	--	**15.4**	--	<1	--	<1	--	<1	--	<1
	MW03-20160331	SoundEarth	03/31/16		7.18	247.21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW04	MW04-20141124	SoundEarth	11/24/14	255.05	0.51	254.54	--	--	--	--	--	--	--	6.80	<1	--	<1	--	<1[ca]	--	<1	--	<1	--
	MW04-20150603	SoundEarth	06/03/15		4.21	250.84	--	--	--	--	--	--	--	6.54	--	1.00	--	<1	--	1.37	--	<1	--	<1
	MW04-20160331	SoundEarth	03/31/16		1.62	253.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW05	MW05-20141124	SoundEarth	11/24/14	255.53	5.98	249.55	--	--	--	--	--	--	--	6.45	**6.36**[J]	--	<1[J]	--	2.15[J,ca]	--	<1	--	<1	--
	MW05-20150604	SoundEarth	06/04/15		9.15	246.38	--	--	--	--	--	--	--	7.16	--	**19.5**	--	<1	--	1.87	--	<1	--	<1
	MW05-20160331	SoundEarth	03/31/16		7.88	247.65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW06	MW06-20141124	SoundEarth	11/24/14	254.65	8.17	246.48	--	--	--	--	--	--	--	6.95	**34.0**	--	<1[J]	--	2.54[J,ca]	--	1.25	--	<1	--
	MW06-20150604	SoundEarth	06/04/15		8.63	246.02	--	--	--	--	--	--	--	8.56	--	**79.6**	--	<1	--	4.92	--	<1	--	<1
	MW06-20160331	SoundEarth	03/31/16		7.65	247.00	--	--	--	--	--	--	--	6.84	--	**119**	--	<1	--	2.18	--	<1	--	<1
	MW99-20160331(Dup)	SoundEarth					--	--	--	--	--	--	--		--	**120**	--	<1	--	2.38	--	<1	--	<1
MW07	MW07-20141125	SoundEarth	11/25/14	248.64	7.12	241.52	<100[hs]	**520**[x]	<300	<1[hs]	<1[hs]	<1[hs]	<3[hs]	7.27	4.11	4.69[pc, f]	<1	<1[pc, f]	1.23	1.06[pc, f]	<1	<1[pc, f]	<0.1	<0.1[f]
	MW07-20150604	SoundEarth	06/04/15		5.53	243.11	--	--	--	--	--	--	--	7.68	--	4.51	--	<1	--	<1	--	<1	--	<1
	MW07-30160331	SoundEarth	03/31/16		3.58	245.06	--	--	--	--	--	--	--	6.66	--	**10.9**	--	<1	--	<1	--	<1	--	<1
MW08	MW08-20141124	SoundEarth	11/24/14	253.19	7.42	245.77	<100	<50	<250	<1	<1	<1	<3	7.02	1.53	--	<1	--	2.00	--	<1	--	<1	--
	MW08-20150603	SoundEarth	06/03/15		7.78	245.41	--	--	--	--	--	--	--	7.33	--	1.70	--	<1	--	1.42	--	<1	--	<1
	MW08-20160331	SoundEarth	03/31/16		6.94	246.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Level[7]							**800/1,000[8]**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**NA**	**5**		**5**		**50**		**15**		**2**	

SoundEarth Strategies

Table 2
Summary of Groundwater Analytical Results for Petroleum Hydrocarbons and Metals
Myers Way Property
9501 Myers Way South
Seattle, Washington

Boring ID/ Well	Sample ID	Sampled by	Date Sampled	TOC Elevation (Feet NAVD88)	Groundwater Depth (Feet BTOC)	Groundwater Elevation (Feet NAVD88)	Analytical Results (µg/L)																	
							GRPH[(1)]	DRPH[(2)]	ORPH[(2)]	Benzene[(3)]	Toluene[(3)]	Ethylbenzene[(3)]	Total Xylenes[(3)]	pH[(4)]	Arsenic[(5)]		Cadmium[(5)]		Chromium[(5)]		Lead[(5)]		Mercury[(6)]	
															Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MW09	MW09-20141125	SoundEarth	11/25/14	256.76	6.88	249.88	<100[hs]	<60	<300	<1[hs]	<1[hs]	<1[hs]	<3[hs]	6.16	1.45	1.39[pc, f]	<1	<1[pc, f]	<1	<1[pc, f]	<1	<1[pc, f]	<0.1	<0.1[f]
	MW09-20150604	SoundEarth	06/04/15		7.07	249.69	--	--	--	--	--	--	--	6.34	--	4.35	--	<1	--	<1	--	<1	--	<1
	MW09-20160331	SoundEarth	03/31/16		6.52	250.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW10	MW10-20141125	SoundEarth	11/25/14	257.74	5.16	252.58	<100	<60	<300	<1	<1	<1	<3	5.80	1.30	1.09[pc, f]	<1	<1[pc, f]	<1	<1[pc, f]	<1	<1[pc, f]	<0.1	<0.1[f]
	MW10-20150604	SoundEarth	06/04/15		5.27	252.47	--	--	--	--	--	--	--	5.9	--	<1	--	<1	--	<1	--	<1	--	<1
	MW10-20160331	SoundEarth	03/31/16		4.61	253.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW11	MW11-20141125	SoundEarth	11/25/14	262.05	9.21	252.84	<100[cf]	380[x]	400[x]	<1[cf]	<1[cf]	<1[cf]	<3[cf]	7.82	**20.3**	**21.0**[pc, f]	1.27	<5[pc, f]	33.3	16.3[pc, f]	**71.6**	12.9[pc, f]	0.51	<0.1[f]
	MW11-20150604	SoundEarth	06/04/15		9.29	252.76	--	--	--	--	--	--	--	6.71	--	3.27	--	<1	--	1.06	--	<1	--	<1
	MW99-20150604 (Dup)	SoundEarth					--	--	--	--	--	--	--		--	3.59	--	<1	--	<1	--	<1	--	<1
	MW11-20160331	SoundEarth	03/31/16		8.53	253.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW12	MW12-20141125	SoundEarth	11/25/14	263.75	2.66	261.09	<100[hs]	310[x]	320[x]	<1[hs]	<1[hs]	<1[hs]	<3[hs]	6.44	4.98	**5.12**[pc, f]	<1	<1[pc, f]	<1	<1[pc, f]	<1	<1[pc, f]	<0.1	<0.1[f]
	MW12-20150604	SoundEarth	06/04/15		4.84	258.91	--	--	--	--	--	--	--	6.41	--	**8.20**	--	<1	--	<1	--	<1	--	<1
	MW12-20160331	SoundEarth	03/31/16		2.22	261.53	--	--	--	--	--	--	--	6.47	--	4.14	--	<1	--	5.71	--	<1	--	<1
MW13	MW13-20141125	SoundEarth	11/25/14	258.47	6.82	251.65	<100	370[x]	290[x]	<1	<1	<1	<3	6.61	**32.7**	**29.7**[pc, f]	<1	<1[pc, f]	1.94	<1[pc, f]	<1	<1[pc, f]	<0.1	<0.1[f]
	MW13-20150604	SoundEarth	06/04/15		9.61	248.86	--	--	--	--	--	--	--	6.83	--	**19.5**	--	<1	--	2.04	--	<1	--	<1
	MW13-20160331	SoundEarth	03/31/16		8.58	249.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW14	MW14-20160112[f]	SoundEarth	01/12/16	257.59	8.18	249.41	--	--	--	--	--	--	--	6.72	--	2.20	--	<1	--	<1	--	<1	--	<1
	MW14-20160331	SoundEarth	03/31/16		7.81	249.78	--	--	--	--	--	--	--	6.21	--	**5.27**	--	<1	--	<1	--	<1	--	<1
MW15	MW15-20160112[f]	SoundEarth	01/12/16	254.64	7.89	246.75	--	--	--	--	--	--	--	6.96	--	<1	--	<1	--	<1	--	<1	--	<1
	MW15-20160331	SoundEarth	03/31/16		7.61	247.03	--	--	--	--	--	--	--	7.03	--	1.60	--	<1	--	<1	--	<1	--	<1
MW16	MW16-20160112[f]	SoundEarth	01/12/16	250.99	8.5	242.49	--	--	--	--	--	--	--	6.88	--	1.55	--	<1	--	1.71	--	<1	--	<1
	MW16-20160331	SoundEarth	03/31/16		8.29	242.70	--	--	--	--	--	--	--	6.13	--	1.55	--	<1	--	1.33	--	<1	--	<1
MW17	MW17-20161421	SoundEarth	04/21/16	--	--	--	--	--	--	--	--	--	--	7.74	--	**6.23**	--	<1	--	<1	--	<1	--	<1
MTCA Method A Cleanup Level[(7)]							**800/1,000[(8)]**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**NA**	**5**		**5**		**50**		**15**		**2**	

NOTES:

Red denotes concentration exceeds MTCA Method A cleanup level for groundwater.

(1)Analyzed by Method NWTPH-Gx.

(2)Analyzed by Method NWTPH-Dx.

(3)Analyzed by EPA Method 8021B.

(4)Analyzed in the field using a YSI or similar water quality meter equipped with a flow-through cell.

(5)Analyzed by EPA Method 200.8.

(6)Analyzed by EPA Method 1631E.

(7)MTCA Cleanup Regulation, Method A Cleanup Levels, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

(8)800 µg/L when benzene is present, 1,000 µg/L when benzene is not present.

Laboratory Notes:

[ca]The calibration results for the analyte were outside of acceptance criteria. The value reported is anestimate.

[cf]The sample was centrifuged prior to analysis.

[f]The sample was laboratory filtered prior to analysis.

[hs]Headspace was present in the container used for analysis.

[J]The internal standard associated with the analyte is out of control limits. The reported concentrationis an estimate.

[pc]The sample was received with incorrect preservation or in a container not approved by the method.The value reported should be considered an estimate.

[x]The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

-- = not measured or analyzed

< = not detected at a concentration exceeding the laboratory reporting limit

µg/L = micrograms per liter

BTOC = below top of casing

DRPH = diesel-range petroleum hydrocarbons

EEI = Environmental Equalizers, Inc.

EPA = U.S. Environmental Protection Agency

GRPH = gasoline-range petroleum hydrocarbons

MTCA = Washington State Model Toxics Control Act

NA = not applicable

NAVD88 = North American Vertical Datum of 1988

ND = not detected above the laboratory reporting limit

NWTPH = northwest total petroleum hydrocarbon

ORPH = oil-range petroleum hydrocarbons

PGG = Pacific Groundwater Group

SoundEarth = SoundEarth Strategies, Inc.

SoundEarth Strategies

Table 3
Summary of Soil Analytical Results for Polycyclic Aromatic Hydrocarbons
Myers Way Property
9501 Myers Way South
Seattle, Washington

					Analytical Results[1] (mg/kg)																
													cPAHs								
Boring ID/ Well	Sample ID	Sampled by	Date Sampled	Depth (feet bgs)	Naphthalene	Acenaphthene	Acenaph-thylene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i)-perylene	Benzo(a) anthracene TEF: 0.1	Chrysene TEF: 0.01	Benzo(a) pyrene TEF: 1	Benzo(b) fluoranthene TEF: 0.1	Benzo(k) fluoranthene TEF: 0.1	Indeno-(1,2,3-cd)pyrene TEF: 0.1	Dibenz(a,h) anthracene TEF: 0.1	cPAHs TTEC[2]
DP10	DP-10@5'	EEI	04/26/05	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	DP-10@10'			10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P01/MW01	P01-05	SoundEarth	11/18/14	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	P01-10	SoundEarth		10	<0.01	<0.01	<0.01	<0.01	0.010	<0.01	0.017	0.021	0.013	0.011	0.017	0.015	0.016	< 0.01	0.010	< 0.01	0.020
P02/MW02	P02-05	SoundEarth	11/18/14	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	P02-07	SoundEarth		7	0.017	<0.01	<0.01	<0.01	0.031	<0.01	0.036	0.043	<0.01	0.013	0.019	< 0.01	0.016	< 0.01	< 0.01	< 0.01	0.010
P03/MW03	P03-04.5	SoundEarth	11/18/14	4.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	P03-09	SoundEarth		9	0.017	<0.01	<0.01	<0.01	0.038	<0.01	0.054	0.056	0.011	0.021	0.023	0.015	0.027	< 0.01	0.010	< 0.01	0.022
P04/MW04	P04-15	SoundEarth	11/18/14	8	0.016	<0.01	<0.01	<0.01	0.035	<0.01	0.068	0.087	0.052	0.046	0.053	0.057	0.068	0.019	0.044	0.011	0.076
P05/MW05	P05-09	SoundEarth	11/18/14	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P06/MW06	P06-08.5	SoundEarth	11/18/14	8.5	0.015	<0.01	<0.01	<0.01	0.027	<0.01	0.061	0.068	0.023	0.028	0.042	0.025	0.039	0.016	0.018	< 0.01	0.036
	P06-15	SoundEarth		15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P07/MW07	P07-08.5	SoundEarth	11/18/14	8.5	<0.01	<0.01	<0.01	<0.01	0.019	<0.01	0.012	0.014	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01
P08/MW08	P08-04	SoundEarth	11/19/14	4	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	0.014	0.015	<0.01	< 0.01	< 0.01	< 0.01	0.010	< 0.01	< 0.01	< 0.01	0.008
	P08-15	SoundEarth		15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01
P09/MW09	P09-04	SoundEarth	11/19/14	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	P09-06	SoundEarth		6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P10/MW10	P10-05.5	SoundEarth	11/19/14	5.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P11/MW11	P11-10	SoundEarth	11/19/14	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P12	P12-05	SoundEarth	11/19/14	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P13/MW12	P13-08	SoundEarth	11/19/14	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	P13-15	SoundEarth		15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P14/MW13	P14-08.5	SoundEarth	11/19/14	8.5	0.012	<0.01	<0.01	<0.01	0.028	<0.01	0.042	0.049	0.020	0.023	0.028	0.024	0.029	0.010	0.017	< 0.01	0.033
MTCA Method A Cleanup Level					**5[3]**	**4,800[4]**	**NE**	**3,200[4]**	**NE**	**24,000[4]**	**3,200[4]**	**2,400[4]**	**NE**	**NE**	**NE**	**0.1[3]**	**NE**	**NE**	**NE**	**NE**	**0.1[3]**

NOTES:

[1]Analyzed by EPA Method 8270D SIM.

[2]Calculated using TEF values in accordance with MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 708-2 TEFs for Minimum Required cPAHs under WAC 173-340-708(8)(e). One-half the LRL was used for those concentrations that did not exceed said limit. If all concentrations of cPAHs were below LRLs, the highest LRL was reported as the TTEC.

[3]MTCA Cleanup Regulation, Method A Cleanup Levels, Table 740-1 of Section 900 of Chapter 173-340 of WAC, revised November 2007.

[4]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Non-Carcinogen, Standard Formula Value, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

-- = not analyzed
< = not detected at a concentration exceeding the laboratory reporting limit
bgs = below ground surface
CLARC = Cleanup Levels and Risk Calculation
cPAH = carcinogenic polycyclic aromatic hydrocarbon
EEI = Environmental Equalizers, Inc.
EPA = U.S. Environmental Protection Agency
LRL = laboratory reporting limit
mg/kg = milligrams per kilogram
MTCA = Washington State Model Toxics Control Act
NE = not established
SoundEarth = SoundEarth Strategies, Inc.
TEF = toxicity equivalency factor
TTEC = Total Toxicity Equivalency Concentration
WAC = Washington Administrative Code

Table 4
Summary of Groundwater Analytical Results for Polycyclic Aromatic Hydrocarbons
Myers Way Property
9501 Myers Way South
Seattle, Washington

Boring ID/Well	Sample ID	Sampled by	Date Sampled	Analytical Results (µg/L)[1] Naphthalene	Acenaphthene	Acenaph-thylene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i) perylene	cPAHs Benzo(a) anthracene TEF: 0.1	Chrysene TEF: 0.01	Benzo(a) pyrene TEF: 1	Benzo(b) fluoranthene TEF: 0.1	Benzo(k) fluoranthene TEF: 0.1	Indeno (1,2,3-cd) pyrene TEF: 0.1	Dibenz (a,h) anthracene TEF: 0.1	cPAHs TTEC[2]
Reconnaissance Groundwater Samples																				
DP-1	DP-GW1	EEI	04/04/05	ND	ND	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND
DP-2	DP-GW2	EEI	04/04/05	0.52	0.144	NR	NR	NR	NR	NR	NR	NR	0.031	0.017	0.031	0.012	0.017	0.012	< 0.1	0.043
DP-3	DP-GW3	EEI	04/04/05	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DP-4	DP-4GW	EEI	04/26/05	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DP-5	DP-5GW	EEI	04/26/05	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DP-6	DP-6GW	EEI	04/26/05	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DP-7	DP-7GW	EEI	04/26/05	ND	--	--	--	--	--	--	--	--	--	--	--	--		--	--	--
DP-8	DP-8GW	EEI	04/26/05	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DP-9	DP-9GW	EEI	04/26/05	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Groundwater Samples																				
PGG-1	PGG-1	PGG	05/31/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	PGG1-20141119	SoundEarth	11/19/14	<0.1	<0.1	<0.1	<0.1	0.17	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
PGG-2	PGG-2	PGG	05/31/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	PGG2-20141118	SoundEarth	11/18/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
PGG-3	PGG-3	PGG	05/31/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	PGG2-20141118	SoundEarth	11/18/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW01	MW01-20141124	SoundEarth	11/24/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW02	MW02-20141124	SoundEarth	11/24/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW03	MW03-20141124	SoundEarth	11/24/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW04	MW04-20141124	SoundEarth	11/24/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW05	MW05-20141124	SoundEarth	11/24/14	<0.1	0.15	<0.1	0.18	0.38	<0.1	0.21	0.14	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW06	MW06-20141124	SoundEarth	11/24/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW07	MW07-20141125	SoundEarth	11/25/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW08	MW08-20141124	SoundEarth	11/24/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW09	MW09-20141125	SoundEarth	11/25/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW10	MW10-20141125	SoundEarth	11/25/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW11	MW11-20141125	SoundEarth	11/25/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW12	MW12-20141125	SoundEarth	11/25/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MW13	MW13-20141125	SoundEarth	11/25/14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
MTCA Method A Cleanup Level				**160[3]**	**960[4]**	**NE**	**640[4]**	**NE**	**4,800[4]**	**640[4]**	**480[4]**	**NE**	**NE**	**NE**	**0.1[3]**	**NE**	**NE**	**NE**	**NE**	**0.1[3]**

NOTES:

[1]Analyzed by EPA Method 8270D SIM.

[2]Calculated using TEF values in accordance with MTCA Cleanup Regulation, Chapter 173-340-900 of the WAC, Table 708-2 TEFs for Minimum Required cPAHs under WAC 173-340-708(8)(e). One-half the LRL was used for those concentrations that did not exceeding said limit. If all concentrations of cPAHs were below LRLs, the highest LRL was reported as the TTEC.

[3]MTCA Cleanup Regulation, Method A Cleanup Levels, Table 720-1 of Section 900 of Chapter 173-340 of the WAC, revised November 2007.

[4]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Groundwater, Method B, Non-Carcinogen, Standard Formula Value, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

-- = not analyzed
< = not detected at a concentration exceeding the laboratory reporting limit
µg/L = micrograms per liter
CLARC = Cleanup Levels and Risk Calculation
cPAH = carcinogenic polycyclic aromatic hydrocarbon
EEI = Environmental Equalizers, Inc.
EPA = U.S. Environmental Protection Agency
LRL = laboratory reporting limit
MTCA = Washington State Model Toxics Control Act
ND = not detected above the laboratory reporting limit
NE = not established
NR = not reported
PGG = Pacific Groundwater Group
SoundEarth = SoundEarth Strategies, Inc.
TEF = toxicity equivalency factor
TTEC = Total Toxicity Equivalency Concentration
WAC = Washington Administrative Code

Table 5
Remedial Component Screening Matrix
Myers Way Property
9501 Myers Way South
Seattle, Washington

Component Group	Component Options	Retained for Inclusion in Cleanup Action Alternatives?	Rationale for Inclusion or Exclusion
Passive Remediation			
	No Further Action	Yes	Retained as an alternative due to all contaminants remaining on Property.
	Monitored Natural Attenuation	No	Metals will not naturally attenuate.
	Impermeable Membrane	Yes	Limits direct contact and meteoric water contact with impacted soils.
	Containment Cap	Yes	Retained as a cleanup alternative, likely to be a component of future property redevelopment.
	Environmental Covenant	Yes	Retained as a component of all cleanup alternatives. Not retained for use as the sole administrative or engineering control.
	Permeable Reactive Barrier	Yes	Retained because this is a proven technology to reduce the mobility and toxicity of hazardous substance, and will prevent the contamination from moving off property.
In Situ Physical Treatment			
	SVE	No	Not retained due to the chemical properties of the COCs. Metals are not readily volatilized.
	Air Sparging	No	
	Biosparging	No	Not retained due to the chemical properties of the COCs. Metals are not readily biodegradable.
	Surfactant Washing	No	Not retained because this technology has the potential to mobilize contaminants from the saturated zone beyond the Property boundary.
	Cosolvent Washing	No	
	Pump and Treat	No	Not retained due to the limited presence of COCs in groundwater, low mobility of COCs in the subsurface, and no off-Property migration.
	DPE	No	Not retained due to the chemical properties of the COCs. Metals are not readily volatilized.
In Situ Thermal			
	Resistive Thermal with SVE	No	Not retained due to the chemical properties of the COCs. Metals are not readily volatilized.
	Conductive Thermal with SVE	No	
	Radio Frequency/Electromagnetic Thermal with SVE	No	
	Steam Injection with SVE and Groundwater Extraction	No	
	Hot Air Injection with SVE	No	
	Hot Water Injection with SVE and Groundwater Extraction	No	
Source Removal			
	Excavation Dewatering	Yes	Retained as a component of a cleanup action to treat impacted groundwater encountered during excavation activities associated with source removal.
	Excavation on-Property with Shoring	Yes	Retained as a component of a cleanup action to treat impacted groundwater encountered during excavation activities associated with source removal.
	Secant Pile Wall - Impervious Wall	No	Not retained as the preferred shoring option.
	Sheet Pile Wall - Impervious Wall	No	
	Soil Nail Wall - Non-Impervious Wall	No	
	Soldier Pile Wall - Non-Impervious Wall	Yes	Retained as the preferred shoring option.
	Excavation off-Property with Shoring		Not retained because no off-Property shoring is planned for the Property. This type of shoring technique is typically not compatible with utilities and significant impacts to the ROW.
	Secant Pile Wall - Impervious Wall	No	
	Sheet Pile Wall - Impervious Wall	No	
	Soil Nail Wall - Non-Impervious Wall	No	
	Soldier Pile Wall - Non-Impervious Wall	No	
Ex Situ Source Treatment			
	Surfactant Washing	No	Not retained because these components are not cost-competitive with other technologies at this scale and would result in another waste stream requiring disposal.
	Cosolvent Washing	No	
	Chemical Oxidation	No	Not retained due to the chemical properties of the COCs.
	Thermal Desorption	No	Not retained because this technology does not address metals contamination in soil.
	Landfill Disposal	Yes	This technology was retained because the excavated soil will be sent to a Subtitle C or D landfill.

Table 5
Remedial Component Screening Matrix
Myers Way Property
9501 Myers Way South
Seattle, Washington

Component Group	Component Options	Retained for Inclusion in Cleanup Action Alternatives?	Rationale for Inclusion or Exclusion
In Situ Chemical Oxidation			
	Activated Sodium Persulfate	No	Not retained because this technology does not address metals contamination in soil.
	Hydrogen Peroxide	No	
	Fenton's Reagent	No	
	RegenOx (Catalyzed Sodium Percarbonate)	No	
	Permanganate	No	
Containment/Immobilization			
	Bituminization	No	Not retained because these technologies reduce the mobility of hazardous substances but not their toxicity or volume. The technologies are typically implemented ex situ.
	Emulsified Asphalt	No	
	Modified Sulfur Cement	No	
	Polyethylene Extrusion	No	Not retained because this technology is not well developed.
	Pozzolan/Portland Cement	Yes	Retained because this is a proven technology to reduce the mobility and toxicity of hazardous substance, but not their volume. The technology is typically implemented ex situ.
	Vitrification/Molten Glass	No	Not retained because it is not cost-competitive with our technologies in this group and is difficult to implement. This technology also presents an increased short-term risk of injury during installation and operation.
	Slurry Wall Containment	No	Not retained because these technologies reduce the mobility of hazardous substances but not their toxicity or volume.
	Sheet Pile Wall Containment	No	Not retained as the preferred shoring option.
	Pump and Treat for Hydraulic Containment	No	Not retained as this component will not address soil contamination.
Phytoremediation			
	Hydraulic Control	No	Not retained because implementation of these technologies are not compatible with the future land use at the Property; nor do these components result in a reasonable restoration time frame.
	Phyto-Degradation	No	
	Phyto-Volatilization	No	
	Phyto-Accumulation	No	
	Phyto-Stabilization	No	
	Enhanced Rhizosphere Biodegradation	No	
In Situ Bioremediation			
	Aerobic Bioremediation	No	Not retained due to chemical properties of the COCs.
	Anaerobic Bioremediation	No	

NOTES:

COC = chemical of concern

DPE = dual-phase extraction

ROW = right-of-way

SVE = soil vapor extraction

Table 6
Feasibility Level Cost Estimate
Cleanup Action Alternative 1
Excavation of Soil
Myers Way Property
9501 Myers Way South
Seattle, Washington

CAPITAL COST ITEM	QTY	UNIT	UNIT PRICE	COST	TOTALS
Direct Capital					
Permitting					
Right-of-way permit fees	1	per permit	$ 5,000	$ 5,000	
Grading/SEPA Permit	1	per permit	$ 9,000	$ 9,000	
Sidewalk and lane closure fees (Dewatering System/Truck Staging)	1	per permit	$ 15,000	$ 15,000	
Side Sewer Permit Fee (Dewatering System)	1	per permit	$ 1,000	$ 1,000	
King County Wastewater Discharge Authorization	1	per plan	$ 500	$ 500	
Subtotal Permitting					$ 30,500
Remedial Excavation					
Monitoring Well Decommissioning	7	each	$ 500	$ 3,500	
Site security	1	lump sum	$ 15,000	$ 15,000	
Excavation, Handling, Segregation to 15 feet bgs	51,590	ton	$ 30	$ 1,547,700	
Transportation and Disposal of Metals Contaminated Soil (Class 3)	51,590	ton	$ 70	$ 3,611,300	
Transportation and Disposal of Metals Contaminated Soil (Class 2)	9,845	ton	$ 70	$ 689,150	
Excavation, Handling, Segregation of Slope Back Area	9,845	ton	$ 30	$ 295,350	
Shoring Costs For Excavation to 15 feet bgs	3,300	facing sf	$ 75	$ 247,500	
Geotechnical and structural design	1	lump sum	$ 15,000	$ 15,000	
Geotechnical oversight	1	lump sum	$ 20,000	$ 20,000	
Excavation Dewatering System (2 months of operation)	1	lump sum	$ 70,000	$ 70,000	
Shoring Installation Cuttings (Class 3)	194	ton	$ 70	$ 13,580	
Import, Place and Compaction of Clean Backfill	61,435	ton	$ 32	$ 1,965,920	
Subtotal Remedial Excavation					$ 8,494,000
Compliance Monitoring					
Well Installation for Compliance Groundwater Monitoring	3	each	$ 2,000	$ 6,000	
Subtotal Compliance Monitoring					$ 6,000
Subtotal Direct Capital					$ 8,530,500
Indirect Capital					
Design, Permitting, and Work Plans	1.0%			$ 85,305	
Mobilization/Demobilization	0.3%			$ 25,592	
Professional Labor for Construction Oversight (4.5 months)	2.1%			$ 179,141	
Field Equipment and Laboratory Testing	0.8%			$ 68,244	
Regulatory Reporting	0.4%			$ 34,122	
Subtotal Indirect Capital					$ 392,400
TOTAL CAPITAL COST					**$ 8,923,000**

FUTURE O&M AND OTHER DIRECT COST ITEMS[1]	ANNUAL COST[2]	PRESENT WORTH OF ANNUAL AND FUTURE CAPITAL COST	
	Discount Rate = 0.1%	n = 1 year	
Quarterly Groundwater Monitoring and Semiannual Reporting (1 year)	$ 45,000	$ 44,955	
TOTAL PRESENT WORTH MONITORING COST			**$ 45,000**
TOTAL PRESENT WORTH COST OF CLEANUP ACTION ALTERNATIVE 1			**$ 8,968,000**

NOTES:

Shoring is assuming 3-foot-diameter piles spaced at 12-foot intervals, piles are installed to a depth of 22.5 feet bgs.

Unit rates for excavation and disposal are inclusive of costs associated with trucking and disposal fees.

This feasibility level cost should not be considered a guaranteed cost.

Unit rates for excavation and disposal assume that the Property owner pays these costs directly. If not a mark-up will apply. Please note that disposal rates are subject to annual inflation.

This estimate assumes all soils pass TCLP requirements for disposal as Class 3 soil. If the requirements are not met; soil will be disposed of at a Subtitle C facility.

Cost rounded up to nearest $1,000.

[1]Additional direct costs such as project management, regulatory communications and reporting, and other technical support services not specifically listed are not included in any future annual costs.

[2]Annual cost is Year 2016 cost.

% = percentage
bgs = below ground surface
n = number of years of compliance monitoring and O&M
O&M = operation and maintenance
QTY = quantity
SEPA = State Environmental Policy Act
sf = square feet
TCLP = Toxicity Characteristic Leaching Procedure
ton = number of bank cubic yards x 1.8 ton/bank cubic yard

Table 7
Feasibility Level Cost Estimate
Cleanup Action Alternative 2
Permeable Reactive Barrier with an Environmental Covenant
Myers Way Property
9501 Myers Way South
Seattle, Washington

CAPITAL COST ITEM	QTY	UNIT	UNIT PRICE	COST	TOTALS
Direct Capital					
Permitting					
Right-of-way permit fees	1	per permit	$ 5,000	$ 5,000	
Grading/Excavation/SEPA Permit	1	per permit	$ 9,000	$ 9,000	
Sidewalk and lane closure fees (Dewatering System Equipment)	1	per permit	$ 15,000	$ 15,000	
Side Sewer Permit Fee (Dewatering System)	1	per permit	$ 1,000	$ 1,000	
King County Wastewater Discharge Authorization	1	per plan	$ 500	$ 500	
Subtotal Permitting					$ 30,500
Remedial Excavation					
Geotechnical and structural design	1	lump sum	$ 15,000	$ 15,000	
Geotechnical oversight	1	lump sum	$ 20,000	$ 20,000	
Contractor Mobilization and site security	1	lump sum	$ 75,000	$ 75,000	
Excavation, Handling, Segregation to 15 feet bgs Costs Associated with Metals Contaminated Soil, and construction of the PRB (Sand included)	3,366	ton	$ 175	$ 589,050	
Transportation and Disposal of Metals Contaminated Soil (Class 3)	3,366	ton	$ 70	$ 235,620	
Zero-valent Iron for Permeable Reactive Barrier	306	ton	$ 1,020	$ 312,120	
GAC (including Shipping)	70	ton	$ 2,000	$ 140,000	
Excavation Dewatering System (2 months of operation)	1	lump sum	$ 60,000	$ 60,000	
Subtotal Remedial Excavation					$ 1,446,790
Compliance Monitoring					
Monitoring Well Installation for Groundwater Monitoring	3	each	$ 2,000	$ 6,000	
Subtotal Compliance Monitoring					$ 6,000
Subtotal Direct Capital					$ 1,483,300
Indirect Capital					
Design, Permitting, and Work Plans	5.0%			$ 74,165	
Mobilization/Demobilization	1.5%			$ 22,250	
Professional Labor for Construction Oversight (1 month)	3.0%			$ 44,499	
Field Equipment and Laboratory Testing	1.0%			$ 14,833	
Environmental Covenant	1	each	$ 7,500	$ 7,500	
Regulatory Reporting	2.0%			$ 29,666	
Subtotal Indirect Capital					$ 192,900
TOTAL CAPITAL COST					**$ 1,676,000**

FUTURE O&M AND OTHER DIRECT COST ITEMS[1]	ANNUAL COST[2]	PRESENT WORTH OF ANNUAL AND FUTURE CAPITAL COST	
	Discount Rate = 0.6%	n = 5 years	
Quarterly Groundwater Monitoring and Semiannual Reporting (1 year)	$ 45,000	$ 221,006	
Annual Groundwater Monitoring and Annual Reporting (4 years)	$ 15,000	$ 73,669	
TOTAL PRESENT WORTH MONITORING COST			**$ 294,700**
TOTAL PRESENT WORTH COST OF CLEANUP ACTION ALTERNATIVE 2			**$ 1,971,000**

NOTES:

Unit rates for excavation and disposal include trucking, and disposal fees.

This feasibility level cost should not be considered a guaranteed cost.

This estimate assumes all soils pass TCLP requirements for disposal as Class 3 soil.
If the requirements are not met; soil will be disposed of at a Subtitle C facility

Unit rates for excavation and disposal assume that the Property owner pays these costs directly. If not, a mark up will apply. Please note that disposal rates are subject to annual inflation.

Cost rounded up to nearest $1,000.

[1]Additional direct costs such as project management, regulatory communications and reporting, and other technical support services not specifically listed are not included in any future annual costs.

[2]Annual cost is Year 2016 cost.

% = percentage
bgs = below ground surface
GAC = granular activated carbon
n = number of years of compliance monitoring and O&M
O&M = operation and maintenance
PRB = permeable reactive barrier
QTY = quantity
SEPA = State Environmental Policy Act
TCLP = Toxicity Characteristic Leaching Procedure
ton = number of bank cubic yards x 1.8 ton/bank cubic yard

Table 8
Feasibility Level Cost Estimate
Cleanup Action Alternative 3
Soil Immobilization with an Environmental Covenant
Myers Way Property
9501 Myers Way South
Seattle, Washington

CAPITAL COST ITEM	QTY	UNIT	UNIT PRICE	COST	TOTALS
Direct Capital					
Permitting					
Right-of-way permit fees	1	per permit	$ 5,000	$ 5,000	
Grading/Excavation/SEPA Permit	1	per permit	$ 9,000	$ 9,000	
Subtotal Permitting					$ 14,000
Soil Immobilization					
Monitoring Well Decommissioning	7	each	$ 500	$ 3,500	
Mobilization and site security for mixing	1	lump sum	$ 100,000	$ 100,000	
Auger soil, stabilization, mix and compact soil	51,590	ton	$ 100	$ 5,159,000	
Excavation, Handling, Segregation of the Increase of volume produced Metals Contaminated Soil (20%)	10,318	ton	$ 30	$ 309,540	
Transportation and Disposal of Metals Contaminated Soil (Class 3 Costs)	10,318	ton	$ 70	$ 722,260	
Subtotal Remedial Excavation					$ 6,294,300
Compliance Monitoring					
Well Installation for Compliance Groundwater Monitoring	3	each	$ 2,000	$ 6,000	
Subtotal Compliance Monitoring					$ 6,000
Subtotal Direct Capital					$ 6,314,300
Indirect Capital					
Design, Permitting, and Work Plans	1.5%			$ 94,715	
Mobilization/Demobilization	0.5%			$ 31,572	
Professional Labor for Construction Oversight (5 months)	3.2%			$ 202,058	
Field Equipment and Laboratory Testing	1.0%			$ 63,143	
Environmental Covenant	1	lump sum	$ 7,500	$ 7,500	
Regulatory Reporting	0.5%			$ 31,572	
Subtotal Indirect Capital					$ 430,600
TOTAL CAPITAL COST					**$ 6,745,000**

FUTURE O&M AND OTHER DIRECT COST ITEMS[1]	ANNUAL COST[2]	PRESENT WORTH OF ANNUAL AND FUTURE CAPITAL COST	
	Discount Rate = 0.1%	n = 2 years	
Quarterly Groundwater Monitoring and Semiannual Reporting (2 years)	$ 45,000	$ 89,865	
TOTAL PRESENT WORTH MONITORING COST			**$ 89,900**
TOTAL PRESENT WORTH COST OF CLEANUP ACTION ALTERNATIVE 3			**$ 6,835,000**

NOTES:

Unit rates for excavation and disposal include trucking, and disposal fees.

This feasibility level cost should not be considered a guaranteed cost.

This estimate assumes all soils pass TCLP requirements for disposal as Class 3 soil.
If the requirements are not met; soil will be disposed of at a Subtitle C facility.

Unit rates for excavation and disposal assume that the Property owner pays these costs directly.
If not, a mark up will apply. Please note that disposal rates are subject to annual inflation.

Cost rounded up to nearest $1,000.

[1]Additional direct costs such as project management, regulatory communications and reporting, and other technical support services not specifically listed are not included in any future annual costs.

[2]Annual cost is Year 2016 cost.

% = percentage
n = number of years of compliance monitoring and O&M
O&M = operation and maintenance
QTY = quantity
SEPA = State Environmental Policy Act
TCLP = Toxicity Characteristic Leaching Procedure
ton = number of bank cubic yards x 1.8 ton/bank cubic yard

Table 9
Feasibility Level Cost Estimate
Cleanup Action Alternative 4
No Further Action with an Environmental Covenant
Myers Way Property
9501 Myers Way South
Seattle, Washington

CAPITAL COST ITEM	QTY	UNIT	UNIT PRICE	COST	TOTALS
Direct Capital					
Permitting					
Grading/SEPA Permit	1	per permit	$ 9,000	$ 9,000	
Subtotal Permitting					$ 9,000
Soil Cap					
Monitoring Well modification	7	each	$ 300	$ 2,100	
Geotechnical liner	60,000	sf	$ 0.50	$ 30,000	
Import, Place and Compaction of Clean Backfill	1,200	cubic yard	$ 30	$ 36,000	
Subtotal Remedial Excavation					$ 68,100
Compliance Monitoring					
Well Installation for Compliance Groundwater Monitoring	3	each	$ 2,000	$ 6,000	
Subtotal Compliance Monitoring					$ 6,000
Subtotal Direct Capital					$ 83,100
Indirect Capital					
Environmental Covenant	1	lump sum	$ 7,500	$ 7,500	
Regulatory Reporting	1	lump sum	$ 25,000	$ 25,000	
Subtotal Indirect Capital					$ 32,500
TOTAL CAPITAL COST					**$ 116,000**

FUTURE O&M AND OTHER DIRECT COST ITEMS[1]	ANNUAL COST[2]	PRESENT WORTH OF ANNUAL AND FUTURE CAPITAL COST	TOTALS
	Discount Rate = 0.6%	n = 5 years	
Quarterly Groundwater Monitoring and Semiannual Reporting (5 years)	$ 45,000	$ 221,006	
Annual Groundwater Monitoring and Annual Reporting (5 years)	$ 15,000	$ 73,669	
TOTAL PRESENT WORTH MONITORING COST			**$ 294,700**
TOTAL PRESENT WORTH COST OF CLEANUP ACTION ALTERNATIVE 4			**$ 411,000**

NOTES:

This feasibility level cost should not be considered a guaranteed cost.

Cost rounded up to nearest $1,000.

[1]Additional direct costs such as project management, regulatory communications and reporting, and other technical support services not specifically listed are not included in any future annual costs.

[2]Annual cost is Year 2016 cost.

% = percentage
n = number of years of compliance monitoring and O&M
O&M = operation and maintenance
QTY = quantity
SEPA = State Environmental Policy Act
sf = square feet

Table 10
Cleanup Action Alternatives Screening Summary
Myers Way Property
9501 Myers Way South
Seattle, Washington

Cleanup Action Alternatives	Remedial Details	Washington State Department of Ecology Evaluation Criteria/Relative Ranking (1 = Low 10 = High)						Ranking Score(1)
		Weighting Factors for Evaluation Criteria						
		15%	20%	15%	20%	20%	10%	
		Protectiveness	Permanence	Effectiveness over the Long Term	Management of Short-Term Risks	Technical and Administrative Implementability	Consideration of Public Concerns	
1. Remedial Excavation	Excavation of impacted soil within redevelopment excavation. Remedial excavation of soil.	9	9	9	4	6	7	**7.2**
2. Permeable Reactive Barrier with Environmental Covenant	A trench filled with a mixture of zero-valent iron, granular activated carbon, and sand. The PRB passively adsorbs the COCs metals dissolved in groundwater.	7	8	8	8	8	8	**7.9**
3. Soil Immobilization with Environmental Covenant	Using an auger to disturb and mix the soil with a binding/stabilizing agent and sequestering the contaminants, thereby preventing contamination from leaching and impacting groundwater.	7	8	7	4	6	7	**6.4**
4. No Further Action with Environmental Covenant	Areas with impacted soil will be capped with an impermeable liner and gravel. Groundwater conditions will be monitored for environmental quality and movement.	6	8	8	9	8	8	**7.9**

NOTES:

Monitored natural attenuation of COCs is retained for all cleanup action alternatives.

(1)The ranking score for each alternative is the average of the weighted score for five of the six evaluation criteria.

% = percentage

COC = chemical of concern

PRB = permeable reactive barrier

CHARTS

Chart 1
Cost and Relative Ranking of Cleanup Action Alternatives
Myers Way Property
9501 Myers Way South
Seattle, Washington

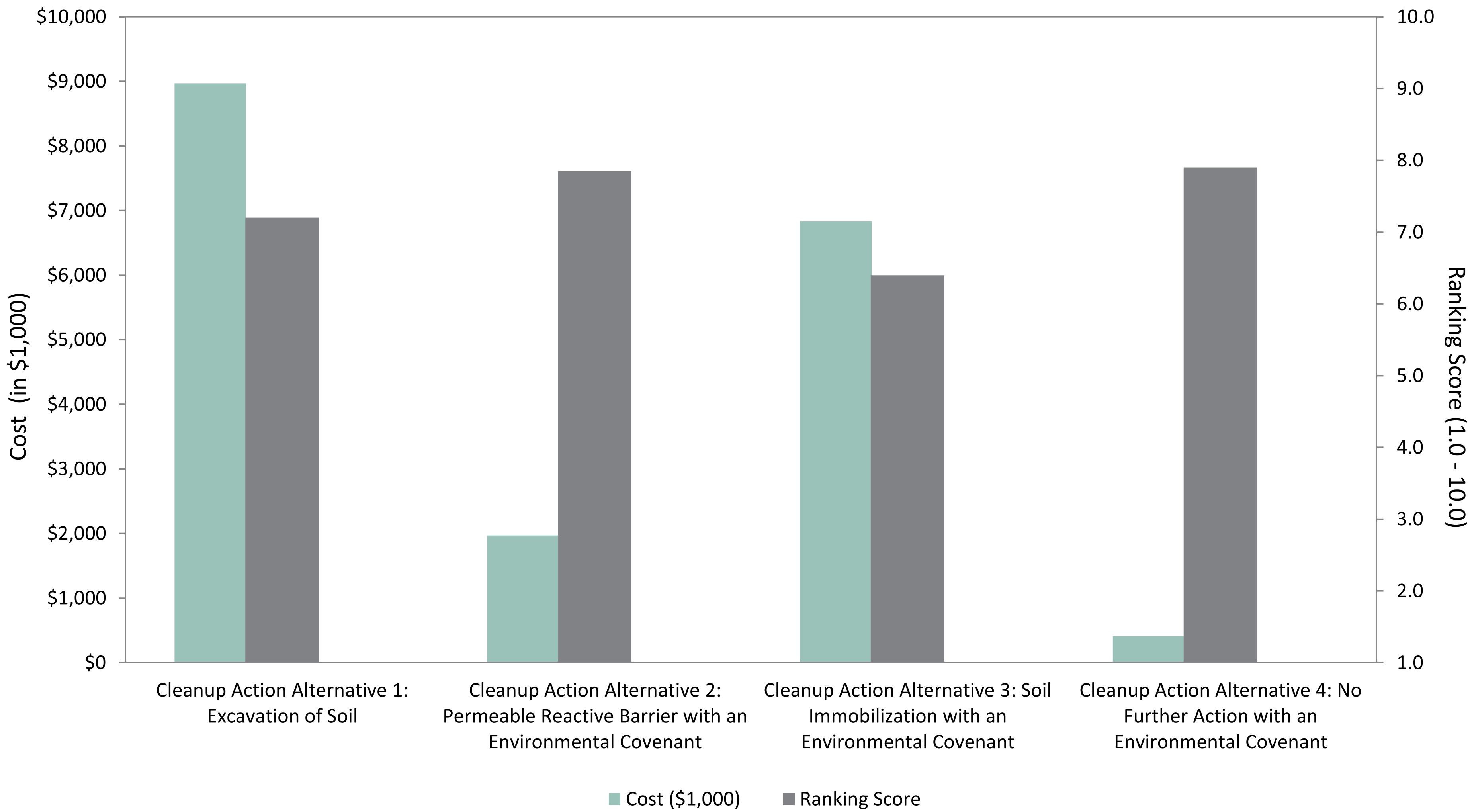
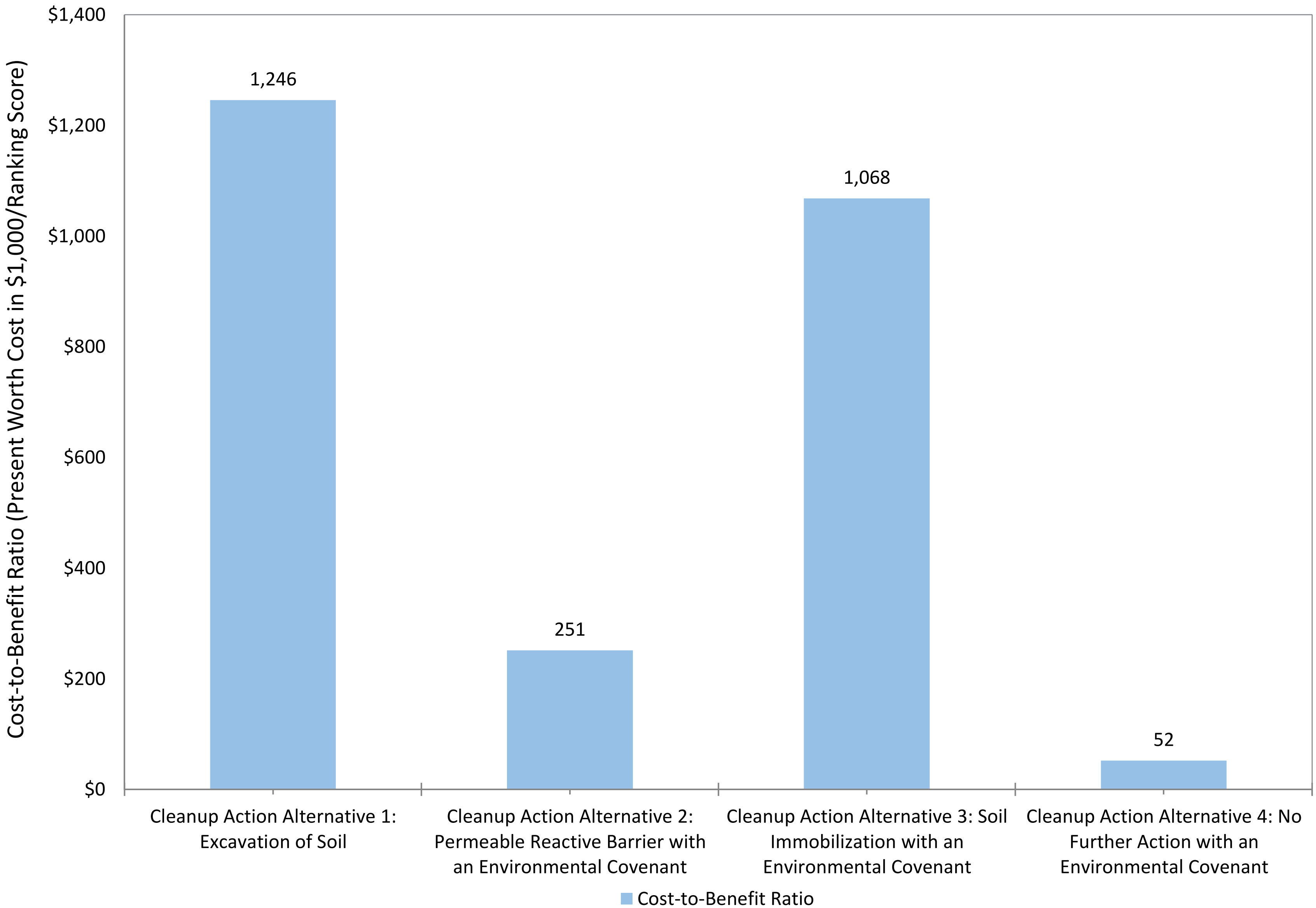


Chart 2
Cost-to-Benefit Ratio for Cleanup Action Alternatives
Myers Way Property
9501 Myers Way South
Seattle, Washington



APPENDIX A
SAMPLING AND ANALYSIS PLAN

SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102

SAMPLING AND ANALYSIS PLAN

Appendix A of the Remedial Investigation, Feasibility Study, and Cleanup Action Plan

Property:

Myers Way Property
9501 Myers Way South
Seattle, Washington

Report Date:

October 12, 2016

Prepared for:

City of Seattle
Department of Finance and Administrative Services
700 Fifth Avenue
Seattle, Washington

Sampling and Analysis Plan

Prepared for:

City of Seattle
Department of Finance and Administrative Service
700 Fifth Avenue
Seattle, Washington 98124

Myers Way Property
9501 Myers Way South
Seattle, Washington 98108

Project No.: 0987-010

Prepared by:

Logan Schumacher
Staff Geologist

Reviewed by:

Ryan Bixby, LG
President/CEO

Suzy Stumpf, PE
Associate Engineer

October 12, 2016

SoundEarth Strategies

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ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
CAP	Cleanup Action Plan
COCs	chemical of concerns
DQO	data quality objective
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
F&BI	Friedman & Bruya Inc.
FC	Field Coordinator
HASP	Health and Safety Plan
MTCA	Washington State Model Toxics Control Act
NFA	No Further Action
PQL	practical quantitation limit
the Property	9501 Myers Way South in Seattle Washington
QA/QC	quality assurance/quality control
RI/FS/CAP Report	Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report
RPD	relative percent difference
SAP	Sampling and Analysis Plan
the Site	soil and groundwater contaminated with arsenic, cadmium, and lead beneath the eastern-central portion of the Myers Way Property
SoundEarth	SoundEarth Strategies, Inc.
TESC	temporary erosion and sediment control
WAC	Washington Administrative Code

1.0 INTRODUCTION

SoundEarth Strategies, Inc. (SoundEarth) has prepared this Sampling and Analysis Plan (SAP) for the Myers Way Property located at 9501 Myers Way South, in Seattle, Washington (the Property). The Property is comprised of two irregularly shaped tax parcels (King County Parcel Nos. 0523049012 and 0523049013) that cover a total of approximately 339,768 square feet (7.8 acres) of land. The Property location is shown on Figure A-1. In accordance with the Washington State Model Toxics Control Act (MTCA) Cleanup Regulations, as established in Section 200 of Chapter 173-340 of the Washington Administrative Code (WAC 173-340-200), the Site is defined by the full lateral and vertical extent of contamination exceeding applicable cleanup levels resulting from releases at or near the Property.

Based on the information gathered to date, the Site is defined as the full lateral and vertical extent of the contamination exceeding applicable cleanup levels, attributable to uncontrolled fill and CKD historically deposited on the Property (the Site). The source of contamination on the Site appears to be the presence of imported fill material, including cement kiln dust (CKD), deposited on and around the Property prior to 1985, while it was in use as a sand and gravel mine.

This SAP was developed to supplement the requirements of the Cleanup Action Plan (CAP) and to meet the requirements of a SAP, as defined by MTCA (WAC 173-340-820).

1.1 PURPOSE AND OBJECTIVES

The purpose of the SAP is to describe the sample collection, handling, and analysis procedures to be implemented during the cleanup action in accordance with WAC 173-340-380 of MTCA. This SAP identifies specific sampling and analysis protocols, project schedule, and organization and responsibilities. It also provides detailed information regarding the sampling and data quality objectives (DQOs), sample location and frequency, equipment, and procedures to be used during the cleanup action; sample handling and analysis; procedures for management of waste; quality assurance protocols for field activities and laboratory analysis; and reporting requirements.

1.2 SAMPLING AND ANALYSIS PLAN ORGANIZATION

The SAP is organized into the following sections:

- **Section 1.0, Introduction.** This section describes the purpose of the SAP and provides a description of the Property features and location, briefly summarizes the current and historical Property usage, and lists the CAP tasks.
- **Section 2.0, Project Organization and Management.** This section presents the project team, including field personnel and management.
- **Section 3.0, Cleanup Action Plan Field Program.** This section presents the cleanup action objectives and construction activity summary.
- **Section 4.0, Sample Handling and Quality Control Procedures.** This section describes the sample handling techniques and quality assurance procedures that will be followed during the cleanup action.
- **Section 5.0, Analytical Testing.** This section describes the type and number of sample analyses that will be conducted on soil and groundwater samples during the cleanup action.

- **Section 6.0, Management of Investigation-Derived Waste.** This section provides details on handling and disposal procedures that will be implemented during the cleanup action.
- **Section 7.0, Data Quality Objectives.** This section summarizes the DQOs that will need to be met to ensure the validity of the analytical results.
- **Section 8.0, Data Collection.** This section describes the type, transfer, inventory management, and validation procedures of the data that will be gathered during the cleanup action.
- **Section 9.0, Quality Control Procedures.** This section provides details regarding the quality control procedures for both field activities and laboratory analysis.
- **Section 10.0, Corrective Actions.** This section identifies the approaches that will be used to correct any protocols that may compromise the quality of the data.
- **Section 11.0, Documentation and Records.** This section outlines the documentation that will be prepared during the cleanup action, including field documentation and analytical records.
- **Section 12.0, Health and Safety Procedures.** This section summarizes the health and safety procedures outlined in the project-specific Health and Safety Plan (HASP; Appendix B of the Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report [RI/FS/CAP Report]).
- **Section 13.0, Limitations**. This section discusses document limitations.
- **Section 14.0, References**. This section provides a list of references cited in this document.

1.3 BACKGROUND

This section provides a description of the Property features and location, a summary of Property use, and lists the CAP tasks. A detailed description of the Property, land use history, and previous investigations is included in the RI/FS/CAP Report.

1.3.1 Property Description and Land Use History

The Property consists of two irregularly shaped tax parcels (King County Parcel Nos. 0523049012 and 0523049013) that cover a total of approximately 339,768 square feet (7.8 acres) of land in Township 23/Range 4/Section 5.

The Property is currently unoccupied, with no buildings constructed on the Property and no identified on-site utilities. The Property includes a gravel parking area comprising the eastern portion, with partially vegetated fields to the west and south, and a gravel road running east–west along the Property boundary, bisecting the two parcels. A chain link fence with padlocked gate runs along the eastern Property boundary, adjacent to Myers Way South. Vertical relief across the Property ranges from approximately 245 feet above mean sea level (North American Vertical Datum of 1988) along the eastern Property Boundary, up to approximately 255 feet along the western Property boundary. The Property lies approximately 1.2 miles west of the Duwamish River, upon a north–south-trending hillside above the Duwamish River Valley.

Historical records indicate that sand pit mining activities occurred on and around the Property, under multiple owners, since at least 1936. In the early 1980s, garbage was reportedly fly-dumped on or in the vicinity of the Property. Reclamation activities began on the site in 1984. Approximately 1.3 million cubic yards of sand were removed from the western portion of the Property between 1986 and 1988. In the mid-1980s, approximately 36,000 cubic yards of additional fill material were added to the southern portion of the Property to fill a 50-foot deep ravine during restoration activities.

1.3.2 Previous Investigations

Geotechnical and environmental investigations began on the Property in 1985. During consideration of for commercial or industrial redevelopment, subsurface investigations identified a whitish ash was located on the eastern portion of the Property. This ash was likely CKD, a byproduct material of cement manufacturing. A 2005 limited site assessment laboratory analysis confirmed that soil and groundwater contained concentrations of arsenic, cadmium, and lead that exceeded their respective MTCA Method A cleanup levels. Soil samples additionally contained detectable concentrations of polycyclic aromatic hydrocarbons, chromium, lead, arsenic, cadmium, naphthalene, benzene, toluene, ethylbenzene, and xylenes, but most of these contaminants were present at concentrations below their current MTCA Method A cleanup levels.

In 2014, SoundEarth conducted a Phase I Environmental Site Assessment (ESA) on eight irregularly shaped tax parcels, including the Property, identifying the confirmed presence of soil and groundwater impacts from fill material beneath the Property as a recognized environmental condition. In November 2014, SoundEarth conducted a Phase II ESA on and upgradient of the Property to further assess the environmental quality of soil and groundwater. Work completed by SoundEarth included advancing 19 borings and installing 17 groundwater monitoring wells between 2014 and 2016. SoundEarth conducted groundwater sampling events in November 2014 and June 2015, with limited groundwater sampling conducted following the installation and development of additional groundwater monitoring wells MW14 through MW17.

1.4 CLEANUP ACTION PLAN TASKS

The tasks proposed as part of the CAP include the following:

- Preparation and mobilization
- Cap installation
- Environmental covenant
- Groundwater monitoring
- Inspection and maintenance of containment cap
- Well decommissioning

Proposed CAP tasks are detailed in Section 3.1 of this report and in Table A-1.

2.0 PROJECT ORGANIZATION AND MANAGEMENT

This section describes the overall project management strategy for implementing the cleanup and monitoring action. The action is being conducted by SoundEarth on behalf of the City of Seattle.

To ensure efficient decision making for field sampling and laboratory analysis, key data collection decisions, decision criteria, process for decision making, quality assurance/quality control (QA/QC) procedures, and responsibilities are described below.

These decision and communication plans will be followed by field personal under direction of the field coordinator and task manager. Site quality control to ensure proper communication and adherence to this SAP is discussed in Section 9.0.

The following key personnel have been identified for the project. A summary of key personnel roles and responsibilities is provided in Table A-2.

Regulatory Agency. The Washington State Department of Ecology (Ecology) is the lead regulatory agency for the Site, as promulgated in MTCA. The cleanup action for the Site is being conducted as an independent remedial action in accordance with WAC 173-340-515 of MTCA. Ecology's site manager for the project is:

Case Manager to be determined
Washington State Department of Ecology
3190 160th Avenue Southeast
Bellevue, Washington 98008

Project Contact. SoundEarth has been contracted by the City of Seattle to plan and implement the cleanup action at the Site. The project contact for City of Seattle is:

Daniel Bretzke
City of Seattle Finance and Administrative Services
Seattle Municipal Tower
700 Fifth Avenue, Suite 5200
Seattle, Washington 98104
206-684-2489
Daniel.Bretzke@seattle.gov

Project Principal. The Project Principal provides oversight of all project activities and reviews all data and deliverables before their submittal to the project contact or regulatory agency. The Project Principal for SoundEarth is:

Ryan Bixby, LG, President/CEO
SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
206-306-1900
Fax: 206-306-1907
rbixby@soundearthinc.com

Project Manager. The Project Manager has overall responsibility for developing the SAP, monitoring the quality of the technical and managerial aspects of the cleanup action, implementing the SAP, and corresponding corrective measures, where necessary. The Project Manager for SoundEarth is:

Beau Johnson, LG, Associate Geologist
SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
206-306-1900
Fax: 206-306-1907
bjohnson@soundearthinc.com

Laboratory Project Manager. The Laboratory Project Manager will provide analytical support and will be responsible for providing certified, pre-cleaned sample containers and sample preservatives (as appropriate) and for ensuring that all chemical analyses meet the project quality specifications detailed in this SAP. Friedman & Bruya Inc. (F&BI), of Seattle, Washington, has been contracted by SoundEarth to perform the chemical and physical analysis for compliance samples collected during the cleanup action. The Laboratory Project Manager is:

Mike Erdahl
Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, Washington 98119
206-285-8282
merdahl@friedmanandbruya.com

Project QA/QC Officer. The Project QA/QC Officer has the responsibility to monitor and verify that the work is performed in accordance with the SAP and other applicable procedures. The Project QA/QC Officer has the responsibility to assess the effectiveness of the QA/QC program and to recommend modifications to the program when applicable. The Project QA/QC Officer is responsible for assuring that the personnel assigned to the project are trained relative to the requirements of the QA/QC program and for reviewing and verifying the disposition of nonconformance and corrective action reports. The Project QA/QC Officer for SoundEarth is:

Tom Cammarata
SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
206-306-1900
Fax: 206-306-1907
tcammarata@soundearthinc.com

Field Coordinator. The Field Coordinator (FC) will supervise field collection of all samples. The FC will ensure proper recording of sample locations, depths, and identification; sampling and handling requirements, including field decontamination procedures; physical evaluation and logging of samples; and completing of chain-of-custody forms. The FC will ensure that all field staff follows the SAP, that the physical evaluation and logging of soil is based on the visual-manual classification method American

Society for Testing and Materials D2488, and that standardized methods for sample acceptability and physical description of samples be followed. The FC will ensure that field staff maintains records of field sampling events using the forms included as Attachment A of this SAP. The FC will be responsible for proper completion and storage of field forms. The FC for SoundEarth is:

Logan Schumacher
SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
206-306-1900
Fax: 206-306-1907
Lschumacher@soundearthinc.com

Field Staff. Members of the field staff must understand and implement the QA/QC program, coordinate and participate in the field sampling activities, coordinate sample deliveries to laboratory, and report any deviations from project plans as they relate to the cleanup action objectives, as presented in the SAP. Major deviations from the SAP, such as the inability to collect a sample from a specific sampling location, obtaining an insufficient sample volume for the required analyses, or a change in sampling method, must be reported to the Project Manager.

Subcontractors. All subcontractors will follow the protocols outlined in this SAP and will be overseen and directed by SoundEarth. The subcontractors will be identified once they are selected.

3.0 CLEANUP ACTION PLAN FIELD PROGRAM

The objectives of the cleanup action for the Site have been established in consideration of future Property use and include the following:

- Provide engineering controls to prevent metals in groundwater from migrating off the Property.
- Install, inspect, and maintain a containment cap to eliminate the direct contact exposure route to remaining on-site contamination in soil and groundwater.
- Obtain an environmental covenant and Property-specific No Further Action (NFA) determination from Ecology.

A discussion of the field program is provided in the following sections.

3.1 FIELD ACTIVITY SUMMARY AND SCOPE OF WORK

3.1.1 Site Preparation and Mobilization

Prior to initiating grading activities, temporary erosion and sediment control (TESC) measures will be established and implemented. Once all TESC measures are implemented in accordance with the construction project plan, construction equipment and supplies will be mobilized to the Property. Controls, such as fencing, will be placed around the perimeter of the work area for pedestrian and personnel safety.

3.1.2 Cap Installation

It is assumed that future redevelopment of the Property for commercial or light industrial use will include building(s) foundation and an asphalt parking lot. The final new pavement sections will be underlain by a compacted crushed rock base, and the asphalt cap will be placed, compacted, and seal-coated. The final design and installation will also have appropriately sized and installed stormwater collection and treatment equipment. Final grading and pavement section design criteria will be determined by the Project Civil Engineer.

3.1.3 Environmental Covenant

An environmental covenant will be recorded against the Property in accordance with provisions in WAC 173-340-440. The covenant will require inspection and maintenance of the containment cap and periodic groundwater monitoring in accordance with an approved Property Management Plan.

3.1.4 Groundwater Monitoring

A quarterly groundwater monitoring program will monitor groundwater quality beneath the site and determine if concentrations of chemical of concerns (COCs) are stable or decreasing. Monitoring will include measuring depth to water and sampling of selected compliance wells.

3.1.5 Inspection and Maintenance of Containment Cap

The asphalt cap will be inspected in its entirety (within the Property boundary) for evidence of cracking, erosion, animal burrows, settlement, ponded water, sloughing, seepage, or any other potentially damaging conditions that may compromise the integrity of the asphalt cap.

3.1.6 Well Decommissioning

If COCs in groundwater are stable or decreasing after 5 years of groundwater monitoring and once Ecology issues an NFA determination, then the monitoring well network will be decommissioned by a licensed well driller or under the supervision of a professional engineer in accordance with the Ecology Water Well Construction Act (1971), Revised Code of Washington Chapter 18.104 (WAC 173-160-460). The wells will be decommissioned in place using bentonite clay.

3.2 GROUNDWATER MONITORING

Groundwater samples will be collected from each of the compliance monitoring wells to continue to assess the groundwater condition beneath the Property. Groundwater samples will be collected quarterly and handled in accordance with the 1996 U.S. Environmental Protection Agency (EPA) guidance document, *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures* at least 24 hours following well development. SoundEarth field staff will follow the procedures described below when collecting groundwater samples:

- The locking well cap from the monitoring well will be removed, and the groundwater level in the well will be allowed to equilibrate to atmospheric pressure for a minimum of 20 minutes.
- The depth to groundwater in the monitoring well will be measured relative to the top of well casing to the nearest 0.01 foot using an electronic water-level meter. The depth to the monitoring well bottom will also be measured to evaluate siltation of the monitoring well and to calculate the estimated purge water volume. All non-disposable equipment will be decontaminated between uses.

- Each monitoring well will be purged at a low-flow rate (100 to 300 milliliters per minute) using a peristaltic pump and dedicated polyethylene tubing. The pump intake will be placed at the approximate center of the screened interval. Temperature, pH, specific conductivity, dissolved oxygen, turbidity, and oxidation-reduction potential will be monitored during purging using a water quality meter equipped with a flow-through cell while purging to determine when stabilization of these parameters occurs.
- Groundwater samples will be collected directly from the pump outlet following stabilization of temperature, pH, specific conductance, turbidity, dissolved oxygen, and oxygen-reduction potential. If the monitoring well is completely dewatered during purging, samples will be collected when the groundwater in the well has recovered to at least 80 percent of the pre-purge casing volume.
- If low-flow sampling methods are not practical, the monitoring well will be allowed to recharge for no longer than 2 hours following cessation of purging and will be sampled using a dedicated, disposable, polyethylene double-check valve bailer and sampling cord.
- The sample containers, as described in Table A-3, will be filled directly if collected from a pump, or the water samples will be transferred immediately from the bailer into laboratory-supplied sample containers, taking care to minimize turbulence. Care will be taken not to handle the seal or lid of the container when decanting the sample into the containers. The containers will be filled completely to eliminate any headspace, and the seals/lids will be secured.
- Each sample container will be labeled and handled following the protocols described in Section 4.0, Sample Handling and Quality Control Procedures.
- The chain-of-custody protocols will be maintained during sample transport and submittal to the laboratory.
- The well cap and monument will be secured following sampling. Any damaged or defective well caps or monuments will be noted and scheduled for replacement, if necessary.

Field personnel will be required to prepare Groundwater Purge and Sample Forms during groundwater monitoring and sampling activities. The forms will include depth-to-groundwater and total depth measurements, as well as water quality measurements, including pH, temperature, dissolved oxygen, specific conductance, oxidation-reduction potential, and/or turbidity. In addition, the sample identifier (ID), date of sample collection, and analyses will be recorded on the form. An example of the Groundwater Purge and Sample Form is included in Attachment A.

Groundwater will be monitored for the COCs quarterly for 1 year and annually for an additional 4 years.

4.0 SAMPLING HANDLING AND QUALITY CONTROL PROCEDURES

Sections 4.1 through 4.5 summarize sample labeling, containers, and handling; chain-of-custody procedures; and field quality control procedures to be applied during the cleanup action.

4.1 SAMPLE IDENTIFICATION

Each sample collected during the cleanup action will be assigned a unique sample ID and number. Sample ID labels will be filled out and affixed to appropriate containers immediately before sample collection. The label is filled out in indelible ink and will include the following information: media, date, time sampled, sample identification and number, project name, project number, sampler's initials, and analyte preservative(s) if any. An example of the Sample ID Label is included in Attachment A of this SAP.

4.1.1 Soil

Soil sample IDs will include boring number or grid identification, sample type (bottom or sidewall) as appropriate, and sample depth in feet below ground surface (bgs). For an example of boring samples, sample B01-10 would indicate boring BO1, collected at 10 feet bgs. For an example of excavation samples, sample A1-NSW01-10 would indicate grid A1, north sidewall sample 1, collected at 10 feet bgs. If multiple samples from the same grid are collected, the samples would be referred to as NSW01, NSW02, etc. The sample ID will be recorded on the Sample Chain-of-Custody form and on the Boring Log or Soil Sample Summary form.

4.1.2 Groundwater

Groundwater sample IDs will include a prefix of the well identification and the date. For example, the groundwater sample collected from monitoring well MW01 on April 22, 2016, would be numbered MW01-20160422. The sample ID will be recorded on the Groundwater Purge and Sample form and the Sample Chain-of-Custody form.

4.2 DECONTAMINATION PROCEDURES

Decontamination of all non-disposable tools and equipment will be conducted before each sampling event and between each sampling location, including stainless steel bowls/containers, stainless steel spoons/spatulas, stainless steel core catcher, hack saw blades, drill bits, depth-to-water meters, and water quality meters. A sufficient supply of pre-decontaminated small equipment will be mobilized to the sampling locations to minimize the need for performing field decontamination. Field personnel will change disposable nitrile gloves before collecting each sample and before decontamination procedures and will take precautions to prevent contaminating themselves with water used in the decontamination process. The following steps will be followed to decontaminate reusable soil and groundwater sampling equipment:

- The equipment will be washed with a solution of Alconox (or an equivalent detergent) and water.
- The equipment will be rinsed with tap water.
- A final rinse will be conducted with distilled or deionized water.

Residual sample media from the equipment, used decontamination solutions and associated materials, and disposable contaminated media will be disposed of according to the procedures described in Section 6.0, Management of Investigation-Derived Waste.

4.3 SAMPLE CONTAINER AND HANDLING PROCEDURES

Soil samples collected for analysis of metals will be collected in accordance with EPA Method 200.8. Groundwater samples will be collected in accordance with the EPA's 1996 guidance *Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures*. Required containers, preservation, and holding times for each anticipated analysis are listed in Table A-3.

SoundEarth personnel will be responsible for following the container handling procedures below:

- Each sample container will be labeled with the date and time sampled, well ID or soil sample ID, project number, and preservative(s), if any.
- All sample collection information will be documented on a Sample Chain-of-Custody form; the sample will be placed in a cooler chilled to near 4 degrees Celsius and transported to the laboratory.

The FC, or qualified SoundEarth field personnel designated by the FC, will check all container labels, chain-of-custody form for entries, and field notes for completeness and accuracy at the end of each day.

4.4 SAMPLE CHAIN-OF-CUSTODY PROCEDURES

The written procedures that will be followed whenever samples are collected, transferred, stored, analyzed, or destroyed are designed to create an accurate written record that can be used to trace the possession and handling of the sample from the moment of collection through analysis and reporting of analytical values. This written record, the Sample Chain-of-Custody form, will be filled out by the field sampling team at the time the sample is obtained. An example of the Sample Chain-of-Custody form is included in Attachment A.

All samples submitted to the laboratory are accompanied by the Sample Chain-of-Custody form. This form is checked for accuracy and completeness and then signed and dated by the laboratory sample custodian accepting the sample. At the laboratory, each sample is assigned a unique, sequential laboratory identification number that is stamped or written on the Sample Chain-of-Custody form.

All samples are held under internal chain-of-custody in the sample control room using the appropriate storage technique (i.e., ambient, refrigeration, frozen). The Laboratory Project Manager assigned to a particular client will be responsible for tracking the status of the samples throughout the laboratory. Samples will be signed out of the sample control room in a sample control logbook by the analyst who will prepare the samples for analysis.

The Sample Chain-of-Custody form will include the following information: client, project name and number, date and time sampled, sample media, sample identification, sampler's initials, analysis, and analyte preservative(s), if any.

4.5 FIELD QUALITY ASSURANCE SAMPLING

Field and laboratory activities will be conducted in such a manner that the results will be valid and meet the DQOs for this project. QA/QC groundwater samples will be collected during the course of groundwater monitoring to provide for data validation, as detailed in Section 7.0. QA/QC samples will consist of field duplicates of groundwater samples. QA/QC samples will be collected and sent to the laboratory along with the primary field samples. Based on the sampling frequency and number of groundwater samples anticipated, it is estimated that one groundwater field duplicate sample will be submitted per sampling event. The QA/QC samples will be assigned a unique sample identifier and number. The number will include a prefix of MW99 for field duplicates. For example, a field duplicate collected on June 30, 2016, would be labeled MW99-20160630. SoundEarth will note the locations of the field duplicates in the field notes.

5.0 ANALYTICAL TESTING

All compliance samples will be submitted to F&BI, an Ecology-accredited analytical laboratory, on a standard 7- to 10-day turnaround time. All chemical and physical testing will adhere to EPA's Southwest-846 (EPA 2007) QA/QC procedures and analyses protocols or follow the appropriate Ecology methods. In completing chemical analyses for this project, the laboratory will meet the following minimum requirements:

- Adhere to the methods outlined in this SAP, including methods referenced for each analytical procedure.
- Provide a detailed discussion of any modifications made to previously-approved analytical methods.
- Deliver PDF and electronic data as specified.
- Meet reporting requirements for deliverables.
- Meet turnaround times for deliverables.
- Implement QA/QC procedures discussed in Section 7.0, including DQOs, laboratory quality control requirements, and performance evaluation testing requirements.
- Notify the project QA/QC manager of any QA/QC problems when they are identified to allow for quick resolution.
- Allow laboratory and data audits to be performed, if deemed necessary.

Copies of the *Laboratory Quality Assurance Manual* from F&BI are on file at SoundEarth's offices for review and reference and will be followed throughout the cleanup action. Access to laboratory personnel, equipment, and records pertaining to samples, collection, transportation, and analysis can be provided. Container requirements, holding times, and preservation methods for soil and water are summarized in Table A-3.

Sample laboratory analytical results for each analyte will be compared to regulatory limits applicable to the cleanup action. A description of the analytical methods, laboratory practical quantitation limits (PQLs), and applicable regulatory limits for each analyte is provided in Table A-4 and summarized below for each medium to be sampled during the cleanup action.

5.1 SOIL

Select soil samples will be submitted for laboratory analysis of metals by EPA Method 200.8.

5.2 GROUNDWATER

Groundwater samples will be submitted for laboratory analysis of metals by EPA Method 200.8.

6.0 MANAGEMENT OF INVESTIGATION-DERIVED WASTE

Contaminated soil, groundwater, and disposable equipment generated during the cleanup action will be handled in accordance with state and federal regulations. The procedures for managing investigation-derived waste for the expected waste streams are discussed below.

6.1 SOIL

Soil containing metals excavated during drilling operations or cleanup action at the Site will be segregated from clean overburden soil based on existing laboratory analytical data for that grid cell and field observations, when feasible. If soil is stockpiled for transport, samples of stockpiled excavated soil will be collected from locations where field instrumentation (i.e., photoionization detector) or field observations indicate that contamination is likely to be present, and will be collected from a depth of 6 to 12 inches beneath the surface of the stockpile. The number of samples to be collected from the stockpile will be determined by Table 6.9 from Ecology's *Guidance for Remediation of Petroleum Contaminated Sites,* dated September 2011. The treatment, storage, and disposal facility will classify the soil being delivered based on the laboratory analytical data provided by the generator.

6.2 WASTEWATER

Wastewater will be generated in the course of equipment decontamination activities, while purging water from the wells during compliance groundwater sampling events, and if necessary dewatering activities. Purge water generated from compliance monitoring activities will be drummed on site, labeled, and disposed of at an appropriate waste disposal facility. If necessary, groundwater from excavation areas will be pumped to an aboveground storage tank and removed using a vacuum truck.

6.3 DISPOSABLES

Disposable personal protective clothing (e.g., Tyvek suits, rubber gloves, and boot covers) and disposable sampling devices (e.g., plastic tubing, plastic scoops, and bailers) will be placed in plastic garbage bags and disposed of as nonhazardous waste.

7.0 DATA QUALITY OBJECTIVES

Field and laboratory activities will be conducted in such a manner that the results will be valid and meet the DQOs for this project. Guidance for QA/QC will be derived from the protocols developed for the cited methods within EPA documents *Test Methods for the Evaluation of Solid Wastes Laboratory Manual Physical/Chemical Methods Southwest-846* (EPA 2007) and the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Data Review* (EPA 2008). The DQOs are designed to achieve the following:

- Assist the Project Manager and project team to focus on the factors affecting data quality during the planning stage of the project.
- Facilitate communication among field, laboratory, and project staff as the project progresses.
- Document the planning, implementation, and assessment procedures for QA/QC activities for the cleanup action.
- Verify that the DQOs are achieved.
- Provide a record of the project to facilitate final report preparation.

The DQOs for the project include both qualitative and quantitative objectives, which define the appropriate type of data and specify the tolerable levels of potential decision errors that will be used as a basis for establishing the quality and quantity of data needed to support the cleanup action. To verify that the DQOs are achieved, this SAP details aspects of sample collection and analysis, including analytical methods, QA/QC procedures, and data quality reviews. This SAP describes both qualitative and quantitative measures of data quality to verify that the DQOs are achieved.

Detailed QA/QC procedures in the field and laboratory are provided in the following sections. The DQOs for the cleanup action will be used to develop and implement procedures to verify that data collected is of sufficient quality to adequately address the objectives of the cleanup action as defined in the CAP. All observations and measurements will be made and recorded in such a manner as to yield results representative of the media and conditions observed and/or measured. Goals for representativeness will be met by verifying that sampling locations are selected properly, that a sufficient number of samples are collected, and that field screening and laboratory analyses are conducted properly.

The quality of the laboratory data will be assessed by precision, accuracy, representativeness, completeness, comparability, and sensitivity. Definitions of these parameters and the applicable QC procedures are described in Sections 7.1 through 7.6. Quantitative DQOs are provided following each definition. Laboratory DQOs have been established by the analytical laboratory. Applicable quantitative goals for these DQOs are listed in Table A-5.

7.1 PRECISION

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of two or more measurements compared to their average values. Precision is calculated from results of duplicate sample analyses. Precision is quantitatively expressed as the relative percent difference (RPD) and is calculated as follows:

$$RPD = \frac{(C_1 - C_2)}{(C_1 + C_2)/2} \, x \, 100$$

Where:
RPD = relative percent difference
C_1 = larger of the two duplicate results (i.e., the highest detected concentration)
C_2 = smaller of the two duplicate results (i.e., the lowest detected concentration)

There are no specific RPD criteria for organic chemical analyses. If organic analyses become necessary, quantitative RPD criteria for will be based on laboratory-derived control limits.

7.2 ACCURACY

Accuracy is a measure of the closeness (bias) of the measured value to the true value. The accuracy of chemical analytical results is assessed by "spiking" samples in the laboratory with known standards (a surrogate or matrix spike of known concentration) and determining the percent recovery. The accuracy is measured as the percent recovery (%R) and is calculated as follows:

$$\%R = \frac{(M_{sa} - M_{ua})}{C_{sa}} \times 100$$

<u>Where:</u>

%R = percent recovery

M_{sa} = measured concentration in spiked aliquot

M_{ua} = measured concentration in unspiked aliquot

C_{sa} = actual concentration of spike added

Laboratory matrix spikes and surrogates will be carried out at the analytical laboratory in accordance with EPA Southwest-846 (EPA 2007) and Ecology methods and procedures for inorganic and organic chemical analyses. The frequency of matrix spikes and matrix spike duplicates will each be one per batch of 20 samples or less for soil samples. Quantitative percent recovery criteria for organic analyses will be based on laboratory-derived control limits for surrogate recovery and matrix spike results.

The accuracy of sample results can also be affected by the introduction of contaminants to the sample during collection, handling, or analysis. Contamination of the sample can occur because of improperly cleaned sampling equipment, exposing samples to chemical concentrations in the field or during transport to the laboratory, or because of chemical concentrations in the laboratory. To demonstrate that the samples collected are not contaminated, laboratory method blank samples will be analyzed. The laboratory will run method blanks at a minimum frequency of 5 percent, or one per batch, to assess potential contamination of the sample within the laboratory.

7.3 REPRESENTATIVENESS

Representativeness is a qualitative assessment of how closely the measured results reflect the actual concentration or distribution of the constituent concentrations in the matrix sampled. The sampling plan design, sample collection techniques, sample handling protocols, sample analysis methods, and data review procedures have been developed to verify that the results obtained are representative of the site conditions. These issues are addressed in detail in Section 5.0, Analytical Testing, and Section 9.0, Quality Control Procedures, in this SAP.

7.4 COMPLETENESS

Completeness is defined as the percentage of measurements judged to be valid. Results will be considered valid if they are not rejected during data validation (Section 9.0, Quality Control Procedures). Completeness is calculated as follows:

$$C = \frac{(Number\ of\ Valid\ Measurements)}{(Total\ Number\ of\ Measurements)}\ x\ 100$$

Objectives for completeness are based, in part, on the subsequent uses of the data (i.e., the more critical the use, the greater the completeness objective). The objectives for completeness of samples are expressed as percentages, which refer to the minimum acceptable percentages of samples received at the laboratory in good condition and acceptable for analysis. The objectives of completeness for other samples are 95 percent for soil and water samples. These objectives will be met through the use of proper sample containers, proper sample packaging procedures to prevent breakage during shipment, proper sample preservation, and proper labeling and chain-of-custody procedures. A loss of 5 to 10 percent of intended samples is common, and the goals set are sufficient for intended data uses.

The objectives for completeness of chemical analyses are also expressed as percentages and refer to the percentages of analytical requests for which usable analytical data are produced. The initial objective for completeness of chemical analyses in the laboratory is 95 percent.

7.5 COMPARABILITY

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. The use of standard Ecology and EPA methods and procedures for both sample collection and laboratory analysis will make the data collected comparable to both internal and other data generated.

7.6 SENSITIVITY

Analytical sensitivities are measured by PQLs, which are defined as the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. PQLs are determined by the laboratory. The specific analytes and their corresponding PQLs that will be required for the cleanup action are presented in Table A-4. The detection or reporting limits for actual samples may be higher depending on the sample matrix and laboratory dilution factors.

8.0 DATA COLLECTION

This section outlines the procedures to be followed for the inventory, control, storage, and retrieval of data collected during performance of the cleanup action. The procedures contained in this SAP are designed to verify that the integrity of the collected data is maintained for subsequent use. Moreover, project-tracking data (e.g., schedules and progress reports) will be maintained to monitor, manage, and document the progress of the cleanup action.

8.1 DATA COLLECTION APPROACH

Procedures that will be used to collect, preserve, transport, and store samples are described in Section 4.0, Sample Handling and Quality Control Procedures, of this SAP. All sampling protocols will be performed in accordance with generally accepted environmental practices and will meet or exceed current regulatory standards and guidelines. Sampling procedures may be modified, if necessary, to satisfy amendments to current regulations, methods, or guidelines. The data collection approach for key elements of the cleanup action field program will verify the project DQOs are met or exceeded. The key elements include soil samples collected and analytical results used to demonstrate that the concentrations of COCs at the limits of the remedial excavation are below applicable cleanup levels as defined in the SAP. The total number of samples collected and specific analyses to be performed will be based on field screening results, field observations, and analytical results for performance and confirmational monitoring.

8.2 DATA TYPES

A variety of data will be generated during the cleanup action, including sampling and analytical data. The laboratory analytical data will be transmitted to SoundEarth as an electronic file, in addition to a hard copy laboratory data report. This method will facilitate the subsequent validation and analysis of these data while avoiding transcription errors that may occur with computer data entry. Examples of data types include manually recorded field data, such as boring logs, and electronically reported laboratory data.

8.3 DATA TRANSFER

Procedures controlling the receipt and distribution of incoming data packages to SoundEarth and outgoing data reports from SoundEarth include the following:

- Incoming documents will be date-stamped and filed. Correspondence and transmittal letters for all reports, maps, and data will be filed chronologically. Data packages, such as those from field personnel, laboratories (such as soil data) and surveyors (elevation data), will be filed by project task, subject heading, and date. If distribution is required, the appropriate number of copies will be made and distributed to the appropriate persons or agencies.
- A transmittal sheet will be attached to all project data and reports sent out. A copy of each transmittal sheet will be kept in the administrative file and the project file. The Project Manager and Project QA/QC Officer will review all outgoing reports and maps.

8.4 DATA INVENTORY

Procedures for filing, storage, and retrieval of project data and reports are discussed below.

8.4.1 Document Filing and Storage

As previously discussed, project files and raw data files will be maintained at SoundEarth's office. Electronic copies of files will be maintained in a project directory and backed up daily, weekly, and monthly.

8.4.2 Access to Project Files

Access to project files will be controlled and limited to authorized representatives of the City of Seattle, Ecology, and SoundEarth personnel. When a hard copy file is removed for use, a sign-out procedure will be used to track custody. If a document is to be used for a long period, a copy will be used, and the original will be returned to the project file. Electronic access to final reports, figures, and tables will be write-protected in the project directory.

8.5 DATA VALIDATION

Data quality review will be performed, where applicable, in accordance with the current EPA guidance as set forth in *Guidance on Environmental Data Verification and Data Validation* (EPA 2002). The following types of QC information will be reviewed, as appropriate:

- Method deviations
- Sample extraction and holding times
- Method reporting limits
- Blank samples (equipment rinsate and laboratory method)
- Duplicate samples
- Matrix spike/matrix spike duplicate samples (accuracy)
- Surrogate recoveries
- Percent completeness and RPD (precision)
- A QA review of the final analytical data packages for samples collected during the cleanup action

8.6 DATA REDUCTION AND ANALYSIS

The Project Manager and Project QA/QC Officer are responsible for data review and validation. Data validation parameters are outlined as quantitative DQOs in Section 7.0, Data Quality Objectives, of this SAP. The particular type of analyses and presentation method selected for any given data set will depend on the type, quantity, quality, and prospective use of the data in question. The analysis of the project data will require data reduction for the preparation of tables, charts, and maps. To verify that data are accurately transferred during the reduction process, two data reviews will be performed, one by the Project QA/QC Officer or Project Manager and another by the Project Principal, before issuing the documents. Any incorrect transfers of data will be highlighted and changed.

9.0 QUALITY CONTROL PROCEDURES

This section provides a description of the QC procedures for both field activities and laboratory analysis. The field QC procedures include standard operating procedures for sample collection and handling, equipment calibration, and field QC samples.

9.1 FIELD QUALITY CONTROL

Field QC samples (e.g., duplicate samples) will be collected during this project and will follow the standard operating procedures during field screening activities. The procedural basis for these field data collection activities will be documented on the field report forms, as described in Section 11.1, Field Documentation. Any deviations from the established protocols will be documented on the field report forms.

QA/QC groundwater samples will be collected during the cleanup action to provide for data validation, as described in Section 7.0, Data Quality Objectives. QA/QC samples will consist of field duplicates. QA/QC samples will be collected and shipped to the laboratory along with the primary field samples. Based on the sampling frequency and number of groundwater samples anticipated, it is estimated that one field duplicate sample will be submitted per sampling event. The QA/QC samples will be assigned a unique sample identifier and number. The number will include a prefix of MW99, as discussed in Section 4.5, Field Quality Assurance Sampling. SoundEarth will note the locations of the field duplicates in the field notes.

9.2 LABORATORY QUALITY CONTROL

Analytical laboratory QA/QC procedures are provided in the *Laboratory Quality Assurance Manual* that is on file at SoundEarth's office for F&BI and are summarized below:

- **Laboratory Quality Control Criteria.** Results of the QC samples from each sample group will be reviewed by the analyst immediately after a sample group has been analyzed. The QC sample results will then be evaluated to determine whether control limits were exceeded. If control limits are exceeded in the sample group, corrective action (e.g., method modifications followed by reprocessing the affected samples) will be initiated before processing a subsequent group of samples. All primary chemical standards and standard solutions used in this project will be traceable to documented and reliable commercial sources. Standards will be validated to determine their accuracy by comparison with an independent standard. Any impurities identified in the standard will be documented.

The following paragraphs summarize the procedures that will be used to assess data quality throughout sample analysis:

- **Laboratory Duplicates.** Analytical duplicates provide information on the precision of the analysis and are useful in assessing potential sample heterogeneity and matrix effects. Analytical duplicates are subsamples of the original sample that are prepared and analyzed as a separate sample. A minimum of 1 duplicate will be analyzed per sample group or for every 20 samples, whichever is more frequent.

- **Matrix Spikes and Matrix Spike Duplicates.** Analysis of matrix spike samples provides information on the extraction efficiency of the method on the sample matrix. By performing matrix spike duplicate analyses, information on the precision of the method is also provided for organic analyses. A minimum of 1 matrix spike/matrix spike duplicate will be analyzed for every sample group or for every 20 samples, whichever is more frequent.

- **Laboratory Control Samples.** A laboratory control sample is a method blank sample carried throughout the same process as the samples to be analyzed, with a known amount of standard added. The blank spike compound recovery assesses analytical accuracy in the absence of any sample heterogeneity or matrix effects.

- **Surrogate Spikes.** All project samples analyzed for organic compounds will be spiked with appropriate surrogate compounds, as defined in the analytical methods. Surrogate recoveries will be reported by the laboratories; however, no sample result will be corrected for recovery using these values.

- **Method Blanks.** Method blanks are analyzed to assess possible laboratory contamination at all stages of sample preparation and analysis. A minimum of one method blank will be analyzed for every extraction batch or for every 20 samples, whichever is more frequent.

9.3 DATA QUALITY CONTROL

All data generated by F&BI will undergo two levels of QA/QC evaluation: one by the laboratory and one by SoundEarth. As specified in F&BI's *Laboratory Quality Assurance Manual*, the laboratory will perform initial data reduction, evaluation, and reporting. The analytical data will then be validated at SoundEarth under the supervision of the Project QA/QC Officer. The following types of QC information will be reviewed, as appropriate:

- Method deviations
- Sample transport conditions (temperature and integrity)
- Sample extraction and holding times
- Method reporting limits
- Blank samples
- Duplicate samples
- Surrogate recoveries
- Percent completeness
- RPD (precision)

SoundEarth will review field records and results of field observations and measurements to verify procedures were properly performed and documented. The review of field procedures will include the following:

- Completeness and legibility of field logs
- Preparation and frequency of field QC samples
- Equipment calibration and maintenance
- Sample Chain-of-Custody forms

Corrective actions are described in Section 10.0, Corrective Actions.

9.4 DATA ASSESSMENT PROCEDURES

The Project Manager and Project QA/QC Officer are responsible for data review and validation. Upon receipt of each data package from the laboratory, calculations using the equations presented for precision, accuracy, and completeness will be performed. Results will be compared to quantitative DQOs, where established, or qualitative DQOs. Data validation parameters are outlined in Section 7.0, Data Quality Objectives.

9.5 PERFORMANCE AUDITS

Performance audits will be completed for both sampling and analysis work. Field performance will be monitored through regular review of Sample Chain-of-Custody forms, field forms, and field measurements. The Project Manager and/or the Project QA/QC Officer may also perform periodic review of work in progress at the Site.

Accreditations received from Ecology for each analysis by F&BI demonstrate the laboratory's ability to properly perform the requested methods. Therefore, a system audit of the analytical laboratory during the course of this project will not be conducted.

The Project Manager and/or Project QA/QC Officer will oversee communication with the analytical laboratory on a frequent basis while samples are being processed and analyzed at the laboratory. This will allow SoundEarth to assess progress toward meeting the DQOs and to take corrective measures if problems arise.

The analytical laboratory will be responsible for identifying and correcting, as appropriate, any deviations from performance standards as discussed in F&BI's *Laboratory Quality Assurance Manual.* The laboratory will communicate to the Project Manager or the Project QA/QC Officer all deviations to the performance standards and the appropriate corrective measures made during sample analysis. Corrective actions are discussed in the following section.

10.0 CORRECTIVE ACTIONS

Corrective actions will be the joint responsibility of the Project Manager and the Project QA/QC Officer. Corrective procedures can include the following:

- Identifying the source of the violation.
- Reanalyzing samples, if holding time criteria permit.
- Resampling and analyzing.
- Re-measuring parameter.
- Evaluating and amending sampling and analytical procedures.
- Qualifying data to indicate the level of uncertainty.

During field sampling operations, the Project Manager and field staff will be responsible for identifying and correcting protocols that may compromise the quality of the data. All corrective actions taken will be documented in the field notes.

11.0 DOCUMENTATION AND RECORDS

Project files and raw data files will be maintained at SoundEarth's office. Project records will be stored and maintained in a secure manner. Each project team member is responsible for filing all necessary project information or providing the information to the person responsible for the filing system. Individual team members may maintain files for individual tasks, but team members must provide such files to the central project files upon completion of each task. A project-specific index of file contents will be kept with the project files. Hard copy documents will be scanned and converted to electronic data, and will be maintained in the database at SoundEarth throughout the duration of the project. All sampling data will be submitted to Ecology in both printed and electronic formats pursuant to WAC 173-340-840(5) and Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements).

11.1 FIELD DOCUMENTATION

Documentation of field activities will be included on Field Report forms, Boring Log forms, Groundwater Purge and Sample Forms, Sample ID Labels, Waste Material Labels, Drum Inventory forms, and Sample Chain-of-Custody forms, examples of which are provided in Attachment A. Field forms will be scanned and saved to an electronic project folder. Original and copied forms will be filed in a binder that will be maintained by the Project Manager.

Field personnel will be required to keep a daily field log on a Field Report form. Field notes will be as descriptive and as inclusive as possible, allowing independent parties to reconstruct the sampling situation from the recorded information. Language will be objective, factual, and free of inappropriate terminology. A summary of each day's events will be completed on a Field Report form. At a minimum, field documentation will include the date, job number, project identification and location, weather conditions, sample collection data, personnel present and responsibilities, field equipment used, and activities performed in a manner other than specified in the SAP. In addition, if other forms are completed or used (e.g., Sample Chain-of-Custody form), they will be referred to in and attached to the Field Report form. Field personnel will sign the Field Report form. An example of the Field Report form is included in Attachment A.

11.2 ANALYTICAL RECORDS

Analytical data records will be retained by the laboratory and stored electronically in the SoundEarth project file and project database. For all analyses, the data reporting requirements will include those items necessary to complete data validation, including copies of all raw data. The analytical laboratory will be required to report the following, as applicable: project narrative, chain-of-custody records, sample results, QA/QC summaries, calibration data summary, method blank analysis, surrogate spike recovery, matrix spike recovery, matrix duplicate, and laboratory control sample(s).

12.0 HEALTH AND SAFETY PROCEDURES

Field personnel will adhere to health and safety procedures that will be detailed under a separate cover as the Property-specific HASP. The health and safety and emergency response protocols outlined in the HASP are designed to ensure compliance with state and federal regulations governing worker safety on hazardous waste sites. The U.S. Department of Labor has published final rules (Part 1910.120 of Title 29 of the Code of Federal Regulations, March 6, 1990) that amend the existing Occupational Safety and Health Administration standards for hazardous waste operations and emergency response. Within Washington State, these requirements are addressed in WAC 296-843, Hazardous Waste Operations. These regulations apply to the activities to be performed at this Site as a site remediation, or cleanup, under Resource Conservation and Recovery Act 1976 and/or MTCA.

Subcontractors to SoundEarth are required to prepare and effectively implement their own HASP based on their unique scope of work and professional expertise. Each subcontractor’s HASP must comply with all applicable federal, state, and local regulations. The subcontractor’s HASP should employ appropriate best practices to protect all personnel working on the Site, as well as the public, and to prevent negative impacts to the project or Site.

The responsibilities of SoundEarth for safety on this Site are limited to the following:

- Implementation of the provisions of this HASP for the protection of its employees and visitors on the Site to the extent that the Site and its hazards are under the control of SoundEarth.
- Protection of the Site, other personnel, and the public from damage, injury, or illness as a result of the activities of SoundEarth and its employees while on the Site.
- Provision of additional safety-related advice and/or management as contractually determined between the parties.

It is anticipated that all field work will be performed during cleanup and/or monitoring action in Level D personal protective equipment. Potential hazards that may be encountered during the field activities include exposure to contaminants; traffic/mobile equipment; process hazards; unstable ground; noise exposure; overhead and underground utilities; slips, trips, and falls; powered tools and equipment; working around heavy equipment; rolling and/or pinching objects; and exposure to weather conditions. The Property-specific HASP is included in Appendix B of the RI/FS/CAP Report.

13.0 LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report are derived, in part, from data gathered by others, and from conditions evaluated when services were performed, and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We do not warrant and are not responsible for the accuracy or validity of work performed by others, nor from the impacts of changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the use of segregated portions of this report.

14.0 REFERENCES

U.S. Environmental Protection Agency (EPA). 1996. *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures.* Office of Solid Waste and Emergency Response. EPA/540/S-95/504. April.

________. 1998. *Guidance Document for Quality Assurance Project Plans*. Publication EPA QA/G-5, EPA/600/R-98/018.

________. 2002. *Guidance on Environmental Data Verification and Data Validation*. EPA QA/G-8.

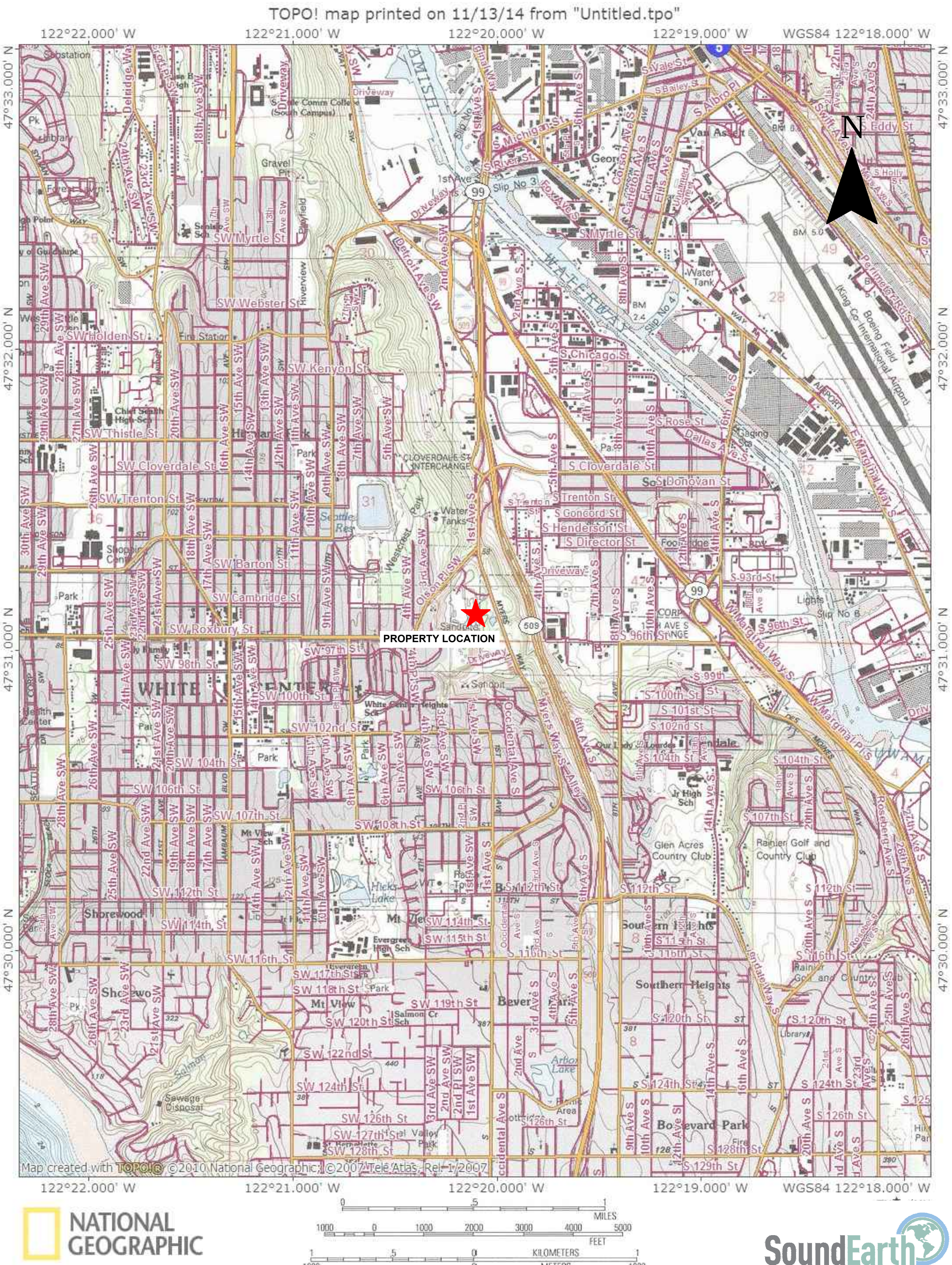
________. 2004. *National Contract Laboratory Review Program, National Functional Guidelines for Inorganic Data Review*. EPA 540/R-04/004.

________. 2007. *Test Methods for Evaluating Solid Wastes, Laboratory Manual Physical/Chemical Methods. Final Update IV*. EPA Southwest-846.

________. 2008. *National Contract Laboratory Review Program, National Functional Guidelines for Organic Data Review*. EPA 540/R-99/008.

Washington State Department of Ecology (Ecology). 2011. *Guidance for Remediation of Petroleum Contaminated Sites*. Toxics Cleanup Program. Publication No. 10-09-057. September.

FIGURES



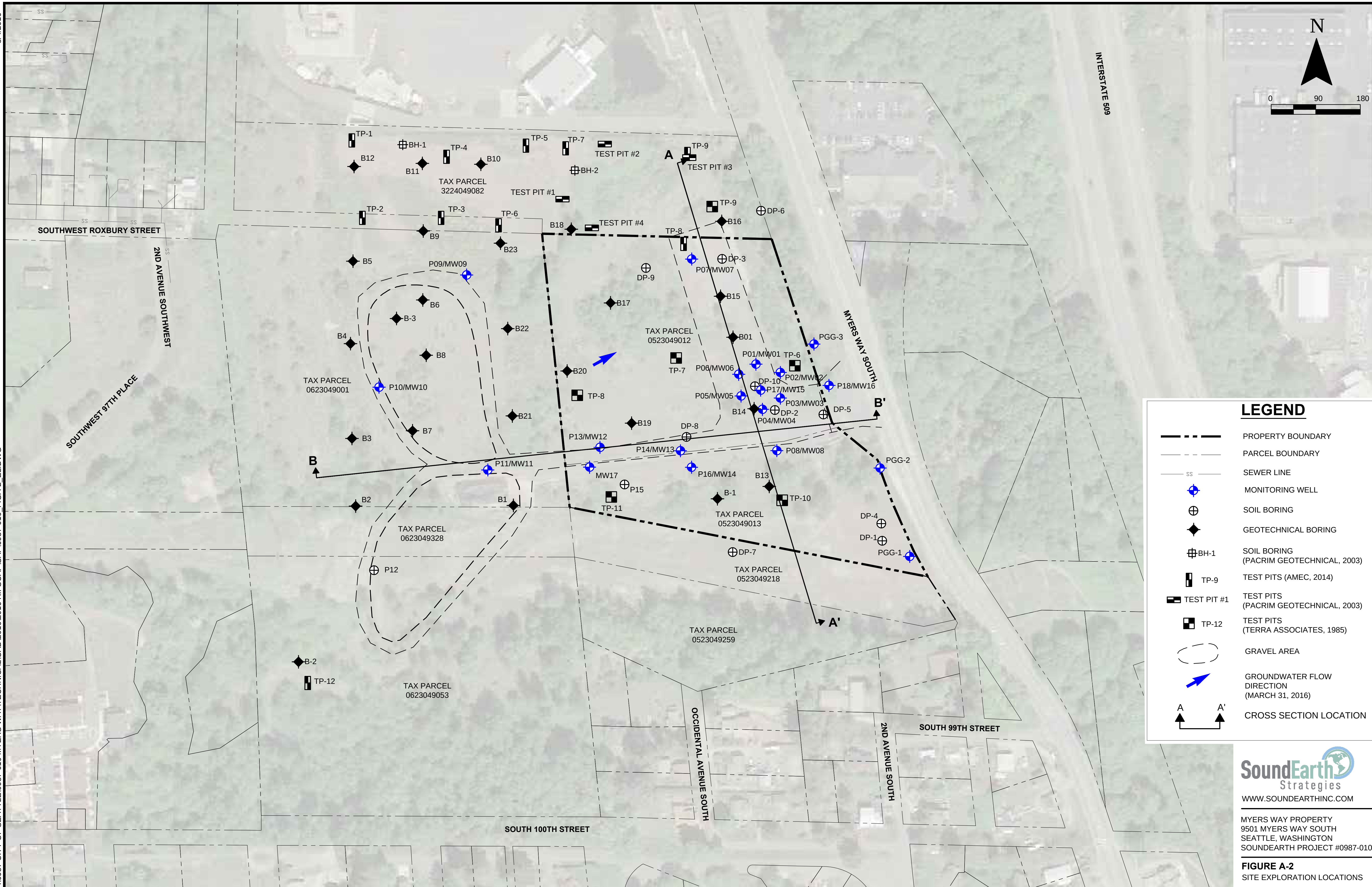
SoundEarth Strategies

WWW.SOUNDEARTHINC.COM

MYERS WAY PROPERTY
9501 MYERS WAY SOUTH
SEATTLE, WASHINGTON
SOUNDEARTH PROJECT #0987-010

FIGURE A-1
PROPERTY LOCATION MAP

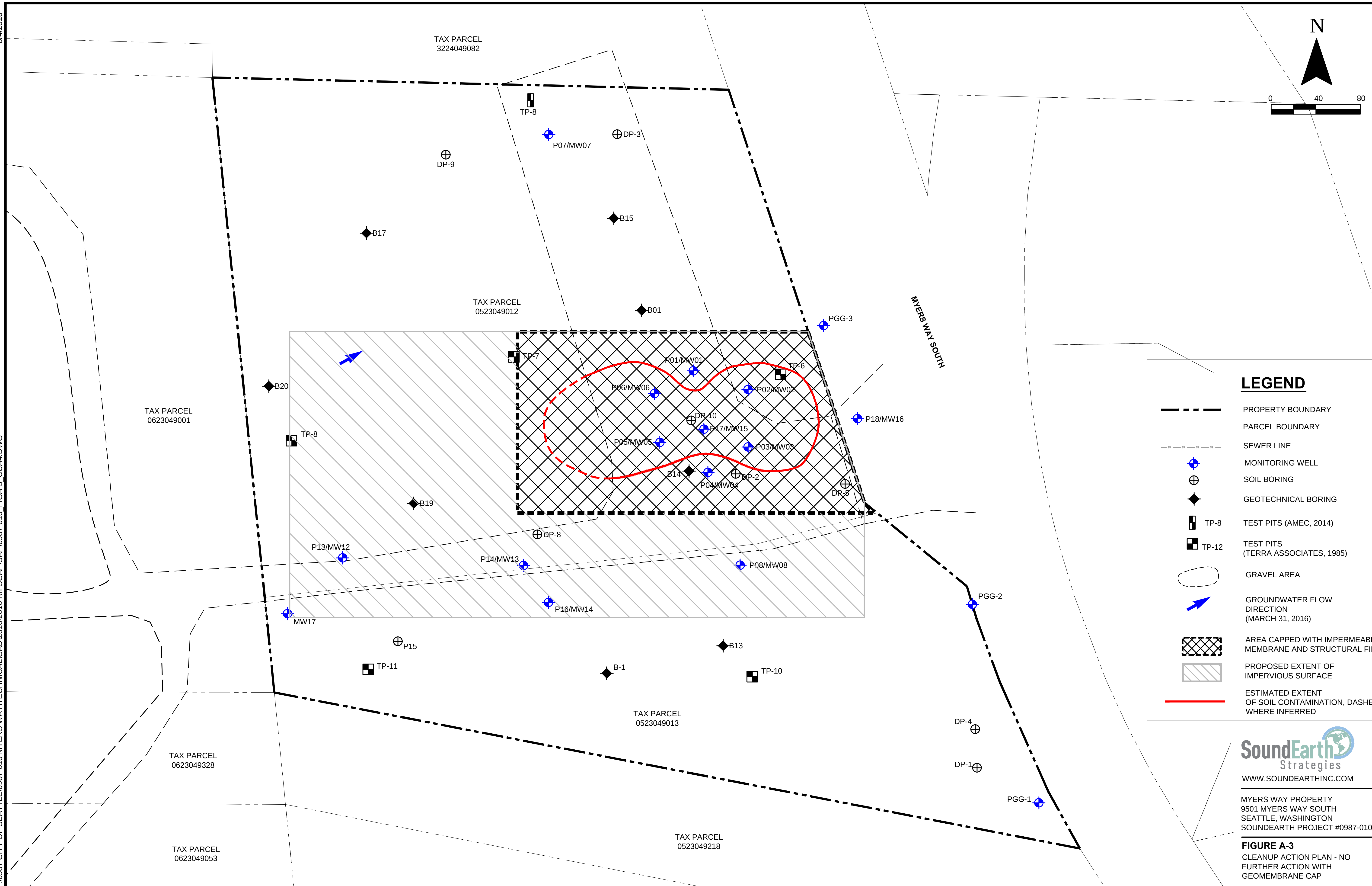
8/4/2016



MYERS WAY PROPERTY
9501 MYERS WAY SOUTH
SEATTLE, WASHINGTON
SOUNDEARTH PROJECT #0987-010

FIGURE A-2
SITE EXPLORATION LOCATIONS

P:\0987 CITY OF SEATTLE\0987-010 MYERS WAY\TECHNICAL\CAD\2016\2016 RIFS\CAP\SAP\0987-010_FIGA-2_EL.DWG



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TABLES

Table A-1
Preliminary Project Schedule
Myers Way Property
9501 Myers Way South
Seattle, Washington

Task/Cleanup Action Component		Estimated Completion Schedule
Task 1	Site Preparation and Mobilization	2nd Quarter 2017
Task 2	Cap Installation	2rd Quarter 2017
Task 3	Cleanup Action Status Letter	3rd Quarter 2017
Task 4	Inspection Maintenance of Containment Cap	Annually following Cap Installation
Task 5	Quarterly Groundwater Compliance Monitoring	3th Quarter 2017–3rd Quarter 2018
Task 6	Cleanup Action Report and Environmental Covenant	4th Quarter 2018
Task 7	Annual Groundwater Compliance Monitoring	2018–2021
Task 8	Well Decommissioning	See Section 7.1.8 of the RI/FS/CAP Report
Task 9	Ecology Covenant 10-Year Review	2028

NOTES:

Timing and conducting of the tasks will be determined by the City of Seattle Entitlements process/issuance of the building permit, as well as any preleasing or financial requirements or limitations. Site closure and well decommissioning will be determined based on the results of compliance monitoring events.

Ecology = Washington State Department of Ecology

RI/FS/CAP Report = Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report

Table A-2
Key Personnel and Responsibilities
Myers Way Property
9501 Myers Way South
Seattle, Washington

Project Title	Name	Project Role	Organization	Mailing Address	Email Address	Phone
Regulatory Agency	To be assigned	Regulatory project management. Reviews and approves all submittals to Washington State Department of Ecology.	Washington State Department of Ecology	3190 160th Avenue Southeast Bellevue, Washington 98008	To be determined	To be determined
Project Contact	Daniel Bretzke	Project contact for City of Seattle.	City of Seattle Department of Finance and Administrative Services	Department of Finance and Administrative Services 700 Fifth Avenue, Suite 5200 Seattle, Washington 98104	daniel.Bretzke@seattle.gov	206-684-2489
Project Principal	Ryan Bixby	Reviews and oversees all project activities. Reviews all data and deliverables prior to submittal to project contact or Washington State Department of Ecology.	SoundEarth Strategies, Inc.	2811 Fairview Avenue South Suite 2000 Seattle, Washington 98102	rbixby@soundearthinc.com	206-306-1900
Project Manager	Beau Johnson	Overall project management, including SAP development, field oversight, document preparation and submittal, and project coordination.	SoundEarth Strategies, Inc.	2811 Fairview Avenue South Suite 2000 Seattle, Washington 98102	bjohnson@soundearthinc.com	206-306-1900
Field Coordinator	Logan Schumacher	Reports to the project manager. Ensures all project health and safety requirements are followed; coordinates and participates in the field sampling activities; coordinates sample deliveries to laboratory; coordinates sampling activities with site owner subcontractors; reports any deviations from project plans.	SoundEarth Strategies, Inc.	2811 Fairview Avenue South Suite 2000 Seattle, Washington 98102	lschumacher@soundearthinc.com	206-306-1900
Field Staff	Various licensed geologists and environmental professionals	Reports to field coordinator. Conducts sampling activities.	SoundEarth Strategies, Inc.	2811 Fairview Avenue South Suite 2000 Seattle, Washington 98102		206-306-1900
Data Manager	Tom Cammarata	Ensures that analytical data is incorporated into the site database with appropriate qualifiers following validation.	SoundEarth Strategies, Inc.	2811 Fairview Avenue South Suite 2000 Seattle, Washington 98102	tcammarata@soundearthinc.com	206-306-1900
Data Validation	Tom Cammarata	Coordinates with the laboratory to ensure that the SAP requirements and laboratory quality assurance/quality control objectives are met.	SoundEarth Strategies, Inc.	2811 Fairview Avenue South Suite 2000 Seattle, Washington 98102	tcammarata@soundearthinc.com	206-306-1900
Laboratory Project Manager	Michael Erdahl	Provides analytical support. Responsible for providing certified, precleaned sample containers and sample preservatives (as appropriate) and for ensuring that all chemical analyses meet the project quality specifications detailed in the SAP.	Friedman & Bruya, Inc.	3012 16th Avenue West Seattle, Washington 98119	merdahl@friedmanandbruya.com	206-285-8282

NOTE:
SAP = Sampling Analysis Plan

Table A-3
Analytical Methods, Container, Preservation, and Holding Time Requirements
Myers Way Property
9501 Myers Way South
Seattle, Washington

Analyte and Analytical Method	Size and Type of Container	Number of Containers	Preservation Requirements	Holding Time
Soil Samples				
RCRA 8 Metals by EPA Method 200.8 and 1631E	4-oz jar	1	4°C	6 months
Groundwater Samples				
Total Metals by EPA Method 200.8	500-mL poly bottle	1	HNO_3/4°C	6 months
Dissolved Metals by EPA Method 200.8	500-mL poly bottle	1	Field Filtered/HNO_3/4°C	6 months

NOTES:

°C = degrees Celsius

EPA = U.S. Environmental Protection Agency

HNO_3 = nitric acid

mL = milliliter

oz = ounce

RCRA = Resource Conservation and Recovery Act

Table A-4
Analytes, Analytical Methods, Laboratory
Practical Quantitation Limits, and
Applicable Regulatory Limits
Myers Way Property
9501 Myers Way South
Seattle, Washington

Analyte	Analytical Method	Unit	Laboratory PQL[1]	Applicable Regulatory Limit[2]
Soil				
Arsenic	EPA Method 200.8	mg/kg	<1	20
Cadmium	EPA Method 200.8	mg/kg	<1	2
Lead	EPA Method 200.8	mg/kg	<1	250
Groundwater				
Arsenic	EPA Method 200.8	µg/L	<1	5
Cadmium	EPA Method 200.8	µg/L	<1	5
Lead	EPA Method 200.8	µg/L	<1	15

NOTES:
(1) Standard laboratory PQLs for Friedman & Bruya, Inc.
(2) MTCA Method A or B Cleanup Levels, Table 720-1 and Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

< = less than
µg/L = micrograms per liter
EPA = U.S. Environmental Protection Agency
mg/kg = milligrams per kilogram
MTCA = Washington State Model Toxics Control Act
PQL = practical quantitation limit

Table A-5
Quantitative Goals of Data Quality Objectives
Myers Way Property
9501 Myers Way South
Seattle, Washington

Analyte	Analytical Method	Precision(1)	Accuracy(2)			Completeness(3)	Sensitivity(4)
		RPD (%)	Surrogate (% Recovery)	MS (% Recovery)	LCS (% Recovery)	(%)	PQL(5)
Soil							
Arsenic	EPA Method 200.8	20	60–125	70–130	85–115	95	<1
Cadmium	EPA Method 200.8	20	60–125	70–130	85–115	95	<1
Lead	EPA Method 200.8	20	60–125	70–130	85–115	95	<1
Water							
Arsenic	EPA Method 200.8	20	60–125	70–130	85–115	95	<1
Cadmium	EPA Method 200.8	20	60–125	70–130	85–115	95	<1
Lead	EPA Method 200.8	20	60–125	70–130	85–115	95	<1

NOTES:

(1)Precision measured in RPD between sample and lab duplicate, LCS and LCS duplicate, and/or MS and MS duplicate.

(2)Laboratory to follow in accordance with the EPA SW-846 and Ecology methods and procedures for inorganic and organic chemical analyses. Method Blanks will be analyzed for each analyte in addition to the quantitative data quality objectives listed in this table.

(3)Refers to the minimum acceptable percentages of samples received at the laboratory in good condition that are acceptable for analysis.

(4)Sensitivity is measured by the laboratory PQL for each analyte.

(5)Standard PQLs for Friedman & Bruya, Inc.

< = less than
% = percentage
Ecology = Washington State Department of Ecology
EPA = U.S. Environmental Protection Agency
LCS = laboratory control sample
MS = matrix spike
PQL = practical quantitation limit
RPD = relative percent difference

ATTACHMENT A

FIELD FORMS

FIELD REPORT

Client & Site Name/Number:		SoundEarth Project Number:	Date:
Site Address:		Purpose of Visit/Task #:	Field Report Prepared by:
Temp/Weather:	Permit Required to Work:	Time of Arrival/Departure (2400): ___ onsite to ___ offsite	Personnel Onsite:

Attachments:

Client: _____________
Site Name/Number: _____________

Project No.:_____________
Date:_____________

SoundEarth Strategies

Project:
Project Number:
Logged by:
Date Started:
Surface Conditions:
Well Location N/S:
Well Location E/W:
Reviewed by:
Date Completed:

BORING LOG

Site Address:

Water Depth At Time of Drilling: feet bgs
Water Depth After Completion: feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppm)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
0									
5									
10									
15									

Drilling Co./Driller:
Drilling Equipment:
Sampler Type:
Hammer Type/Weight: lbs
Total Boring Depth: feet bgs
Total Well Depth: feet bgs
State Well ID No.:

Well/Auger Diameter: inches
Well Screened Interval: feet bgs
Screen Slot Size: inches
Filter Pack Used:
Surface Seal:
Annular Seal:
Monument Type:

Notes/Comments:

Page:

SoundEarth Strategies

GROUNDWATER PURGE AND SAMPLE FORM
LOW FLOW PUMP

Sample Date:___________

General Info

Client: ____________ Project #: ____________

Site Name/ #: ____________ Field/Sampling Personnel: ____________ **Well ID Number:** ____________

Well Details

Total Depth (TD)	Depth to Water (DTW) (Immediately Prior to Purging)	Water Column (WC) (=TD-DTW)	Casing Diameter / Volume Conversion Factor (VC)					Casing Volume (=WC x VC)
			0.75”	1”	2”	4”	6”	
Feet BTOC	Feet BTOC	Feet BTOC	0.023	0.041	0.16	0.65	1.44	gallons

Screened Interval: ________ to ________ Feet bgs

Screen Submerged? ☐ **NO** ⟹ Place tubing intake 2 to 3 feet below depth to water.
☐ **YES** ⟹ Place tubing intake at approximate center of screen.

Equipment

Pump Method: ☐ Peristaltic ☐ Other: ________ Owner/ID #:________ **Water Quality Meter** Brand/Model:________ Owner/ID #:________

Water Level Instrument: ☐ WL Meter ☐ Bubbler ☐ Interface ☐ Other: ________ Owner/ID #: ________

Sampling

Depth of Tubing Intake: ______ Feet BTOC Time Start Purge: ________

Time (3-5 min intervals)	Water Level (feet) drawdown <0.33 feet	**Purge Rate** (L/min) 0.1 – 0.5	**pH**[1] *± 0.1*	**Specific Conductivity**[1] **UNITS:** ______ *± 3%*	**Turbidity**[1] (NTU) *If ≥10, ±10%* *if <10, stabilized*	**Dissolved Oxygen**[1] (mg/L) *If ≥1.00, ± 10%* *if ≤1.00, ± 0.2*	Temperature (ºC)	ORP (mV)
Minimum # of Readings								

Sample Time: ________ **Field Duplicate Sample Time:** ________ **Time Sampling Ended:** ________

Sampling Comments: ____________

Analytical

Sample Number/ID	Number of Containers and Type	Preservative	Field Filtered?	Analysis Request
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Purge Water

Sheen? ☐ NO ☐ YES **Odor?** ☐ NO ☐ YES ⟹ Describe: ____________ Color (describe): ____________

Total Discharged (1gal = 3.88 liter): ________ gallons Disposal Method: ☐ Drummed ☐ Remediation System ☐ Other: ________

Well Condition

Well/Security Devices in good condition (i.e.: Monument, Bolts, Seals, J-cap, Lock)? ☐ YES ☐ NO ⟹ Describe: ____________

Water in Monument? ☐ NO ☐YES ⟹ Describe: ____________

Additional Well Condition Comments or Explanation of any Access Issues: ____________

[1]At minimum, pH, specific conductivity, and turbidity or dissolved oxygen must stabilize within the limits (indicated in *italics*) for three successive readings prior to sampling.

Client: ____________________

Sample ID: ____________________

Project: ____________________

Sample Date: __________ Sample Time: ________

Analysis: ____________________

Preservative: ____________________

Client: ____________________

Sample ID: ____________________

Project: ____________________

Sample Date: __________ Sample Time: ________

Analysis: ____________________

Preservative: ____________________

Client: ____________________

Sample ID: ____________________

Project: ____________________

Sample Date: __________ Sample Time: ________

Analysis: ____________________

Preservative: ____________________

Client: ____________________

Sample ID: ____________________

Project: ____________________

Sample Date: __________ Sample Time: ________

Analysis: ____________________

Preservative: ____________________

Client: ____________________

Sample ID: ____________________

Project: ____________________

Sample Date: __________ Sample Time: ________

Analysis: ____________________

Preservative: ____________________

Client: ____________________

Sample ID: ____________________

Project: ____________________

Sample Date: __________ Sample Time: ________

Analysis: ____________________

Preservative: ____________________

Client: ____________________

Sample ID: ____________________

Project: ____________________

Sample Date: __________ Sample Time: ________

Analysis: ____________________

Preservative: ____________________

Client: ____________________

Sample ID: ____________________

Project: ____________________

Sample Date: __________ Sample Time: ________

Analysis: ____________________

Preservative: ____________________

SAMPLE CHAIN OF COUNTY

Send Report to ____________________

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS *(signature)*	
PROJECT NAME/NO.	PO #
REMARKS	

Page # ________ of ________

TURNAROUND TIME
☐ Standard (2 Weeks) ☐ RUSH__________ Rush charges authorized by: __________
SAMPLE DISPOSAL
☐ Dispose after 30 days ☐ Return samples ☐ Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED								Notes
								NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

DRUM INVENTORY SHEET

Site Name/Project #:	
Site Address:	
Reason for Visit:	
Date of Inventory:	
Field Personnel:	

Drum #[(1)] (e.g., 001)	**Content Information** (e.g., Soil, B05, 5′–15′)	**Drum Size** (gal)	**Date(s) Accumulated**	**Fullness** (%)	**Sample Analysis Performed?** (e.g., EPA 200.8)	**Composite Soil Sample**[(2)] **(RCRA 8 metals) Y/N**	**Saturated Soil**[(3)] **Y/N**	**Drum Labeled Y/N**	**Drum Location Photo Y/N**	**Drum Access**[(4)] (e.g., Lock Comb. #XXX)

NOTES:

(1) Drum #—Write the Drum # on the drum lid, as well as on the non-hazardous or hazardous waste label.

(2) Composite Soil Sample—For all sites, collect a composite soil sample from each drum on site. Place sample on hold at the laboratory, for future RCRA 8 metals analysis. Collect sample in a 4-ounce jar.

(3) Saturated soil—Add bentonite chips or kitty litter to the water that has accumulated or may accumulate inside the drum. Bentonite chips available in the garage.

(4) Drum access for pickup—(e.g., fenced, owner notification, lock combination?).

NON-HAZARDOUS

WASTE

OPTIONAL INFORMATION

SHIPPER ______________________________

ADDRESS ______________________________

CITY, STATE, ZIP ______________________________

CONTENTS ______________________________

____

NON-HAZARDOUS WASTE

SoundEarth Strategies

Soil Sample Summary Form

Project Name: ______________________________ **Contractor:** ______________________ **Date:** ______________

Project Address: ______________________________ **SoundEarth Personnel:** ______________

SoundEarth PN: ______________________________

Sample Name	Date Collected	Time Collected	Location	Depth (feet bgs)	PID (ppm)	Odors?	Observations	Analytical Result (mg/kg)

SoundEarth Strategies

Material Import and Export Summary

Truck Company	Truck Number	Date	Time	Volume (note: tons or yards)	Type of Material	Destination of Material

APPENDIX B

PROPERTY-SPECIFIC HEALTH AND SAFETY PLAN

SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102

PROPERTY-SPECIFIC HEALTH AND SAFETY PLAN

Appendix B of the Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report

Property:
Myers Way Property
9501 Myers Way South
Seattle, Washington

Initiation Date: October 12, 2016
Expiration Date: October 12, 2017

Prepared for:
City of Seattle
Department of Finance and Administrative Services
700 Fifth Avenue
Seattle, Washington

PROPERTY-SPECIFIC HEALTH AND SAFETY PLAN

Prepared for:

City of Seattle
Department of Finance and Administrative Services
700 Fifth Avenue
Seattle, Washington 98124

Myers Way Property
9501 Myers Way South
Seattle, Washington 98108

Project No.: 0987-010

Prepared by:

____
Chris G. Cass, LG
Project Geologist

Reviewed by:

____
Beau Johnson, LG
Project Manager

Initiation Date: October 12, 2016
Expiration Date: October 12, 2017

SoundEarth Strategies

HAZARD SUMMARY

SoundEarth Strategies, Inc. (SoundEarth) has prepared this Property-Specific Health and Safety Plan (HASP) for Myers Way Property, located at 9501 Myers Way South in Seattle, Washington (the Property). The Property-Specific HASP was written in general accordance with the Washington State Model Toxics Control Act (MTCA), as promulgated in Chapter 173-340-350 of the Washington Administrative Code.

PROPERTY DESCRIPTION

The Property consists of two irregularly shaped tax parcels (King County Parcel Nos. 0523049012 and 0523049013) that cover a total of approximately 339,768 square feet (7.8 acres) of land in Township 23/Range 4/Section 5. The Property is currently unoccupied, with no buildings constructed on the Property and no identified on-site utilities. The Property includes a gravel parking area comprising the eastern portion, with partially vegetated fields to the west and south, and a gravel road running east–west along the Property boundary bisecting the two parcels.

The primary chemicals of concern at the Property are arsenic, cadmium, and lead in soil and groundwater. Historical records indicate that sand pit mining activities occurred on and around the Property, under multiple owners, since at least 1936. In the early 1980s garbage was reportedly fly-dumped on or in the vicinity of the Property. Reclamation activities began on and around the Property in 1984. Approximately 1.3 million cubic yards of sand was removed from the western portion of and around the Property between 1986 and 1988. In the mid-1980s, approximately 36,000 cubic yards of additional fill material was added to the southern portion of and around the Property to fill a 50-foot-deep ravine during restoration activities.

FIELD ACTIVITIES

The following field activities are covered under this Property-Specific HASP:

- Excavation for installation of the cap
- Soil and groundwater sampling
- Monitoring well decommissioning

SITE HAZARDS

Hazards present at the site include the following:

Chemical

- Arsenic
- Cadmium
- Lead

HAZARD SUMMARY (CONTINUED)

Physical

- Ergonomic hazards
- Hazardous processes
- Heavy equipment/moving machinery
- Mechanical failures
- Noise Exposure
- Overhead utilities and features
- Potentially flammable or explosive environment
- Slips, trips, and falls
- Struck by
- Struck against
- Temperature extremes
- Traffic and moving equipment
- Underground utilities and features
- Unsecure/uncontrolled site
- Unstable ground
- Visibility

HAZARD CONTROLS

The following additional hazard controls, based on the tasks identified in the Field Activities, above, are required for employees of SoundEarth while performing work on the Property:

- Level D Personal Protective Equipment, which includes hard hats, steel-toed boots, safety glasses, a reflective safety vest, and ear plugs (when noise hazards are present).

This hazard summary is presented solely for introductory purposes, and the information contained in this section should be used only in conjunction with the full text of this report. A complete description of the project, site conditions, investigation methods, and investigation results can be found in previous reports referenced in Section 4.1.4, Reports that Provide Chemical Analytical Results.

TABLE OF CONTENTS

FIGURES

ATTACHMENTS

1.0 INTRODUCTION

This Property-Specific Health and Safety Plan (HASP) was written for the use of SoundEarth Strategies, Inc. (SoundEarth) and its employees. The health and safety and emergency response protocols outlined in this plan are designed to ensure compliance with state and federal regulations governing worker safety on hazardous waste sites. The Department of Labor has published final rules (Part 1910.120 of Title 29 of the Code of Federal Regulations, March 6, 1990) that amend the existing Occupational Safety and Health Administration standards for hazardous waste operations and emergency response. Within Washington State, these requirements are addressed in Chapter 296-843 of the Washington Administrative Code, Hazardous Waste Operations. These regulations apply to the activities to be performed at this site as a site environmental investigation, remediation, or cleanup, under the Federal Resource Conservation and Recovery Act of 1976; the Comprehensive Environmental Response, Compensation, and Liability Act of 1980; and/or the Washington State Model Toxics Control Act.

Subcontractors to SoundEarth are required to prepare and effectively implement their own HASP based on their unique scope of work and professional expertise. Each subcontractor's HASP must comply with all applicable federal, state, and local regulations. The subcontractor's HASP should employ appropriate best practices to protect all personnel working on the site, as well as the public, and to prevent negative impacts to the project or site.

The responsibilities of SoundEarth for safety on this site are limited to the following:

- **Implementation** of the provisions of this HASP for the protection of its employees and visitors on the site to the extent that the site and its hazards are under the control of SoundEarth.
- **Protection** of the site, other personnel, and the public from damage, injury, or illness as a result of the activities of SoundEarth and its employees while on the site.
- **Provision** of additional safety-related advice and/or management as contractually determined between the parties.

This plan is active for this site until 1 year from the date of the HASP or until SoundEarth implements a scope of work change not covered by this HASP, whichever comes first, after which time it must be reviewed and extended.

NOTE: Reference identifications (01, Project Safety Responsibilities, through 25, Demolition) incorporated into this Property-Specific HASP refer to the *HASP Reference Manual*, prepared by SoundEarth and dated December 2013, which is a stand-alone document that compiles detailed information and instructions for protecting SoundEarth employees from chemical and physical hazards applicable to this Property-Specific HASP. The *HASP Reference Manual* and this Property-Specific HASP **MUST** be present at the site during field activities.

2.0 SITE INFORMATION

Site Name: Myers Way Property
Site Address: 9501 Myers Way South, Seattle, Washington (King County Parcel Nos. 0523049012 and 0523049013)
Site Owner: City of Seattle Department of Finance and Administrative Services (FAS)
Site Tenant: vacant
Nature of Activities at this Site: Current: vacant Past: sand and gravel quarry
Figures B- 1 and B-2 show the site location and features.

3.0 PROJECT ROLES AND EMERGENCY INFORMATION

On-site personnel shall acknowledge that they have reviewed a copy of the HASP for this project, that they understand it, and that they agree to comply with all of its provisions by signing and dating the Acknowledgment and Agreement Form in Attachment A.

A daily health and safety tailgate meeting shall take place at the start of every day in the field. All on-site personnel are to attend this meeting and print and sign their name on the attached Daily Health and Safety Briefing Log in Attachment B. Reference 01, Project Safety Responsibilities, provides more information.

Project Roles and Phone Numbers

Title	Name	Phone Number
Project Manager	Beau Johnson	O: 206-306-1900 C: 206-779-9389
Site Health and Safety Officer	Chris Cass	O: 206-306-1900 C: 425-765-4490
Principal-in-Charge	Ryan Bixby	O: 206-306-1900 C: 201-818-0669
Corporate Health and Safety Administrator	John Funderburk	O: 206-436-5933 C: 206-922-9922
Certified Industrial Hygienist working for SoundEarth	Michelle Copeland	O: 206-612-6355

On-site personnel are responsible for initiating emergency response actions, as necessary, and reporting any potentially hazardous conditions they encounter to the Corporate Health and Safety Administrator and initiating site evacuation procedures. **For a critical emergency, any SoundEarth employee should call 911.** Reference 02, Emergency Response Plan, provides more information.

Note: A SoundEarth employee MAY NOT transport a non-SoundEarth employee off of the site for medical attention.

The following list of emergency phone numbers and the location and driving directions to the nearby hospital must be posted at the site (Attachment C, Hospital Route).

Local Emergency Services and Phone Numbers		
Institution/Department	**Name/Address**	**Phone Number**
Hospital	Harborview Medical Center 325 9th Avenue Seattle, Washington	911 or 206-744-3000
Alternative Hospital	Highline Medical Center 16251 Sylvester Road Southwest Burien, Washington	911 or 206-244-9970
Ambulance		911
Police/Sheriff	Seattle Police Department 2300 Southwest Webster Street Seattle, Washington	911 or 206-625-5011
Fire	North Highline Fire District 1243 Southwest 112th Street Seattle, Washington	911 or 206-243-0330

4.0 SITE HAZARD ANALYSIS

This section is used to determine the project's potential health and safety hazards specifically as they relate to the site where the work will occur. Task-related hazards are analyzed in Section 5.0, Task-Related Site Hazard Analysis.

4.1 SITE HAZARD ANALYSIS—CHEMICAL

This section describes and identifies potential and known chemical hazards that may be encountered while working at the Property (summarized in Table 1: Chemical Hazards). Reference 03, Chemical Hazards Analysis, provides information on the process for identifying chemical hazards at a site.

4.1.1 Past Opportunities for Chemical Contamination

The Property formerly operated as a sand and gravel mining facility. Much of the Property is also underlain by unknown fill material, which may have resulted in metals contamination to soil and groundwater.

4.1.2 Opportunities for Unknown or Unidentified Chemical Contamination

No sources for unknown or unidentified chemical contamination at the Property are likely.

4.1.3 Summary of Potential Chemical Hazards

The following known or suspected chemical hazards have been identified at the Property:

- Arsenic
- Cadmium
- Lead

4.1.4 Reports that Provide Chemical Analytical Results

The following reports and associated tables containing chemical analytical data have been prepared for the Property:

- Limited Site Assessment Sampling Report, Proposed Lowe's West Seattle Project, Environmental Equalizers Inc., May 10, 2005.
- Groundwater and Soil Sampling Report, Myers Way Site, Pacific Groundwater Group, July 2004.
- Phase II Environmental Site Assessment, Myers Way Property, prepared by SoundEarth, dated January 7, 2015.
- Site Characterization Report, Myers Way Property, SoundEarth, August 27, 2015.
- Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report, Myers Way Property, SoundEarth, August 10, 2016.

TABLE 1: CHEMICAL HAZARDS

Chemical or Class (Synonyms or Isomers)	DOSH PEL/AL (OSHA PEL if different)	Other Pertinent Limits / Special Characteristics	Routes of Exposure / Warning Properties	Exposure Symptoms	Target Organs / First Aid	Recommended PPE / Respiratory Protection	Recommended Monitoring
Arsenic, Inorganic	DOSH PEL: 10 µg/m^3 TWA DOSH AL: 5 µg/m^3 TWA	NIOSH REL: 2 µg/m^3 15 min IDLH: 5 mg/m^3 ――― Carcinogen Explosion hazard in the form of dust when exposed to flame Hydrogen gas can react with inorganic arsenic and form toxic arsine gas	Inhalation, ingestion, skin or eye contact ――― Odorless dust; Solid form is silver-gray or tin-white, and brittle	Dermatitis, gastrointestinal disturbances, respiratory irritation, increased pigmentation of skin (potential occupational carcinogen)	Liver, kidneys, skin, lungs, lymphatic system ――― Eye: Irrigate immediately Skin: Soap wash promptly Inhalation: Respiratory support Ingestion: Medical attention immediately	▪ Impermeable, disposable clothing ▪ Nitrile or Neoprene gloves ――― If PEL is exceeded: min ½ Mask AP/HEPA; Higher APF per results of air monitoring	▪ Initiate personal air monitoring; additional monitoring if necessary based on initial results ▪ Verify method with laboratory prior to ordering media and equipment Real Time Monitoring Equipment: ▪ MiniRAM or DataRAM Particulate Monitor

Chemical or Class (Synonyms or Isomers)	DOSH PEL/AL (OSHA PEL if different)	Other Pertinent Limits / Special Characteristics	Routes of Exposure / Warning Properties	Exposure Symptoms	Target Organs / First Aid	Recommended PPE / Respiratory Protection	Recommended Monitoring
Cadmium	DOSH PEL: 5 µg/m^3 TWA DOSH AL: 2.5 µg/m^3 TWA	ACGIH TLV: 0.01 mg/m^3 TWA (total particulates) IDLH: 9 mg/m^3 ——— Carcinogen	Inhalation, ingestion, skin or eye contact ——— Odorless dust – poor warning properties	Pulmonary edema, breathing difficulty, cough, chest tightness or pain; headache; chills, muscle aches; nausea, vomiting, diarrhea	Respiratory system, kidneys, blood ——— Eye: Irrigate immediately Skin: Soap wash promptly Inhalation: Respiratory support Ingestion: Medical attention immediately	▪ Impermeable, disposable clothing ▪ Nitrile or Neoprene gloves ——— If PEL is exceeded: min full-face SA respirator in PP/PD mode	If potential for exposure exists: ▪ Initiate personal air monitoring; additional monitoring if necessary based on initial results ▪ Verify method with laboratory prior to ordering media and equipment Real Time Monitoring Equipment: ▪ MiniRAM or DataRAM Particulate Monitor

Chemical or Class (Synonyms or Isomers)	DOSH PEL/AL (OSHA PEL if different)	Other Pertinent Limits / Special Characteristics	Routes of Exposure / Warning Properties	Exposure Symptoms	Target Organs / First Aid	Recommended PPE / Respiratory Protection	Recommended Monitoring
Lead, Inorganic	DOSH PEL: 0.05 mg/m^3 TWA DOSH AL: 0.03 mg/m^3 TWA	NIOSH REL: 0.05 mg/m^3 TWA IDLH: 100 mg/m^3 ――― None	Inhalation, ingestion, skin and eye contact ――― Odorless dust – poor warning properties	Eye irritation, weakness, exhaustion, insomnia, facial paleness; weight loss, constipation, abdominal pain, colic, anemia, gingival lead line; tremor; paralysis of wrist and ankles, brain damage, kidney disease; hypotension (Carcinogen)	Eyes, gastro-intestinal tract, central nervous system, kidneys, blood, gingival tissue ――― Eye: Irrigate immediately Skin: Soap wash promptly Inhalation: Respiratory support Ingestion: Medical attention immediately	▪ Impermeable, disposable clothing ▪ Nitrile or Neoprene gloves ――― Min ½ Mask AP/HEPA; Higher APF if personal air monitoring	If potential for exposure exists: ▪ Initiate personal air monitoring; additional monitoring if necessary based on initial results ▪ Verify method with laboratory prior to ordering media and equipment

Chemical or Class (Synonyms or Isomers)	DOSH PEL/AL (OSHA PEL if different)	Other Pertinent Limits / Special Characteristics	Routes of Exposure / Warning Properties	Exposure Symptoms	Target Organs / First Aid	Recommended PPE / Respiratory Protection	Recommended Monitoring
Lead, Organic (as Tetraethyl Lead)	DOSH PEL: 0.075 mg/m3 TWA (Skin) 0.225 mg/m3 STEL	NIOSH REL: 0.075 mg/m3 TWA (Skin) IDLH: 40 mg/m3 FP: 200°F LEL: 1.8% ― None	Inhalation, ingestion, skin absorption, skin and eye contact ― Musty odor	Eye irritation, insomnia, weakness, exhaustion, anxiety, tremor, hyperactive reflexes, spasticity, slow heart rate, hypotension, hypothermia, paleness of skin, nausea, anorexia, weight loss, confusion, hallucinations/ delusions, mania, convulsions, coma	Central nervous system, cardiovascular system, kidneys, eyes ― Eye: Irrigate immediately Skin: Soap wash promptly Inhalation: Respiratory support Ingestion: Medical attention immediately	▪ Impermeable, chemical-resistant, disposable clothing ▪ Silver Shield/composite gloves ― If PEL is exceeded: any SA respirator operated in a continuous-flow mode	If potential for exposure exists: ▪ Initiate personal air monitoring; additional monitoring if necessary based on initial results ▪ Verify method with laboratory prior to ordering media and equipment

NOTES:

The NIOSH Pocket Guide provides more information for the chemical in question or for a chemical not listed.
μg/m^3 = micrograms per cubic meter
% = percentage
ACGIH = American Conference of Governmental Industrial Hygienists
AL = action limit
AP = air purifying respirator
APF = assigned protection factor
DOSH = Washington State Department of Labor and Industries, Division of Occupational Safety and Health
^{o}F = degrees Fahrenheit
FP = flash point
HEPA = high efficiency particulate air cartridge
IDLH = immediately dangerous to life and health
LEL = lower explosive limit
mg/m^3 = milligrams per cubic meter
min = minimum
NIOSH = National Institute of Safety and Health
OSHA = Occupational Safety and Health Administration
PEL = permissible exposure limit
PP/PD = positive pressure/pressure demand mode
PPE = personal protective equipment
REL = recommended exposure limit
SA = supplied air respirator
STEL = short-term exposure limit, 15 minutes, unless otherwise noted
TLV = threshold limit value
TWA = time-weighted average

4.2 SITE HAZARD ANALYSIS—PHYSICAL

This section addresses known and potential physical hazards specific to the site. Reference 04, Physical Hazards Analysis, provides more information regarding the process for identifying physical hazards. Please review any site documents provided by the client can that are helpful to identify Property-specific hazards.

4.2.1 Property-Specific Physical Hazards

The following physical hazards may be encountered while working on the Property:

- Ergonomic hazards
- Hazardous processes
- Heavy equipment/moving machinery
- Mechanical failures
- Noise Exposure
- Overhead utilities and features
- Potentially flammable or explosive environment
- Slips, trips, and falls
- Struck by
- Struck against
- Temperature extremes
- Traffic and moving equipment
- Underground utilities and features
- Unsecure/uncontrolled site
- Unstable ground
- Visibility

4.2.2 Utility Hazards

Described below are utility hazards that may be present at the site. In order to locate utilities, the Utilities Underground Location Center should be called at (800) 424-5555, a private locate should be scheduled (as appropriate), side sewer cards should be reviewed, owner/tenant documents should be reviewed, and the site should be visually inspected. References 10, Electrical Safety; 16, Overhead Hazards; and 19, Underground Services Location and Protection, provide additional information.

4.2.2.1 Underground Utilities

The following utilities and/or subsurface features have been identified beneath the Property:

- A stormwater drain is present beneath the southeast portion of the Property.

Please refer to Utility Locate Ticket #15367138 for a list of the utility companies that were notified to mark their locations during the most recent subsurface investigation.

4.2.2.2 Overhead Utilities

The following overhead utilities have been identified around the Property:

- Overhead power/telephone lines along the eastern side of the Property.
- Overhead power lines along the easement running east-west through the Property.

5.0 TASK-RELATED SITE HAZARD ANALYSIS

This section outlines the health and safety hazards that may be present on the site as a result of the tasks to be performed by SoundEarth or subcontractors as they relate to the chemical and physical hazards identified in Sections 4.1 and 4.2, above. References noted in Table 2: Site-Specific Task-Related Hazards, should be reviewed for the controls and any personal protective equipment (PPE) required. References 01, Project Safety Responsibilities, through 25, Demolition, as cited in Table 2, provide detailed information and instructions for protecting SoundEarth employees from chemical and physical hazards applicable to this Property-Specific HASP. A summary of the controls specific to the site is presented in Section 6.0, Task-Related Site Hazard Controls Summary.

TABLE 2: SITE-SPECIFIC TASK-RELATED HAZARDS

Tasks	Role	Hazard	References
Sampling – Environmental	Task performed by SoundEarth	Chemicals	Table 1, Chemical Hazards 06, Chemical Hazard Controls 17, Sample Collection
		Confined spaces	09, Confined Space Awareness
		Dust	06, Chemical Hazard Controls 07, General Site Safety Requirements 17, Sample Collection
		Emergencies	02, Emergency Response Plan
		Ergonomics	11, Ergonomics
		General site hazards	07, General Site Safety Requirements
		Ladders or heights	22, Work at Heights
		Processes	21, Work Around Hazardous Processes

Tasks	Role	Hazard	References
Sampling – Environmental ***(continued)***	Task performed by SoundEarth	Spills	06, Chemical Hazard Controls 24, Safe Handling of Flammable Liquids
		Temperature extremes	13, Temperature Extremes
		Traffic/mobile equipment	18, Traffic and Moving Equipment Hazards
		Unstable ground	20, Unstable Ground
		Visibility	07, General Site Safety Requirements 18, Traffic and Moving Equipment Hazards
		Working near water	23, Work Near Water
Excavation and Trenching	Subcontractor Observation	Chemicals	Table 1, Chemical Hazards 06, Chemical Hazard Controls 17, Sample Collection
		Confined spaces	09, Confined Space Awareness
		Cutting/welding	10, Electrical Safety 14, Hot Work Awareness
		Demolition	25, Demolition
		Dust	06, Chemical Hazard Controls 07, General Site Safety Requirements 17, Sample Collection
		Emergencies	02, Emergency Response Plan
		Ergonomics	11, Ergonomics
		General site hazards	07, General Site Safety Requirements
		Noise	15, Noise and Hearing Protection
		Overhead utilities and features	10, Electrical Safety 16, Overhead Hazards
		Powered tools and equipment	10, Electrical Safety

Tasks	Role	Hazard	References
Excavation and Trenching *(continued)*	Subcontractor Observation	Temperature extremes	13, Temperature Extremes
		Traffic/mobile equipment	18, Traffic and Moving Equipment Hazards
		Unsecure/uncontrolled site	08, Site Security and Overall Site Control
		Underground utilities and features	10, Electrical Safety 19, Underground Services Location and Protection
		Unstable ground	20, Unstable Ground
		Visibility	07, General Site Safety Requirements 18, Traffic and Moving Equipment Hazards

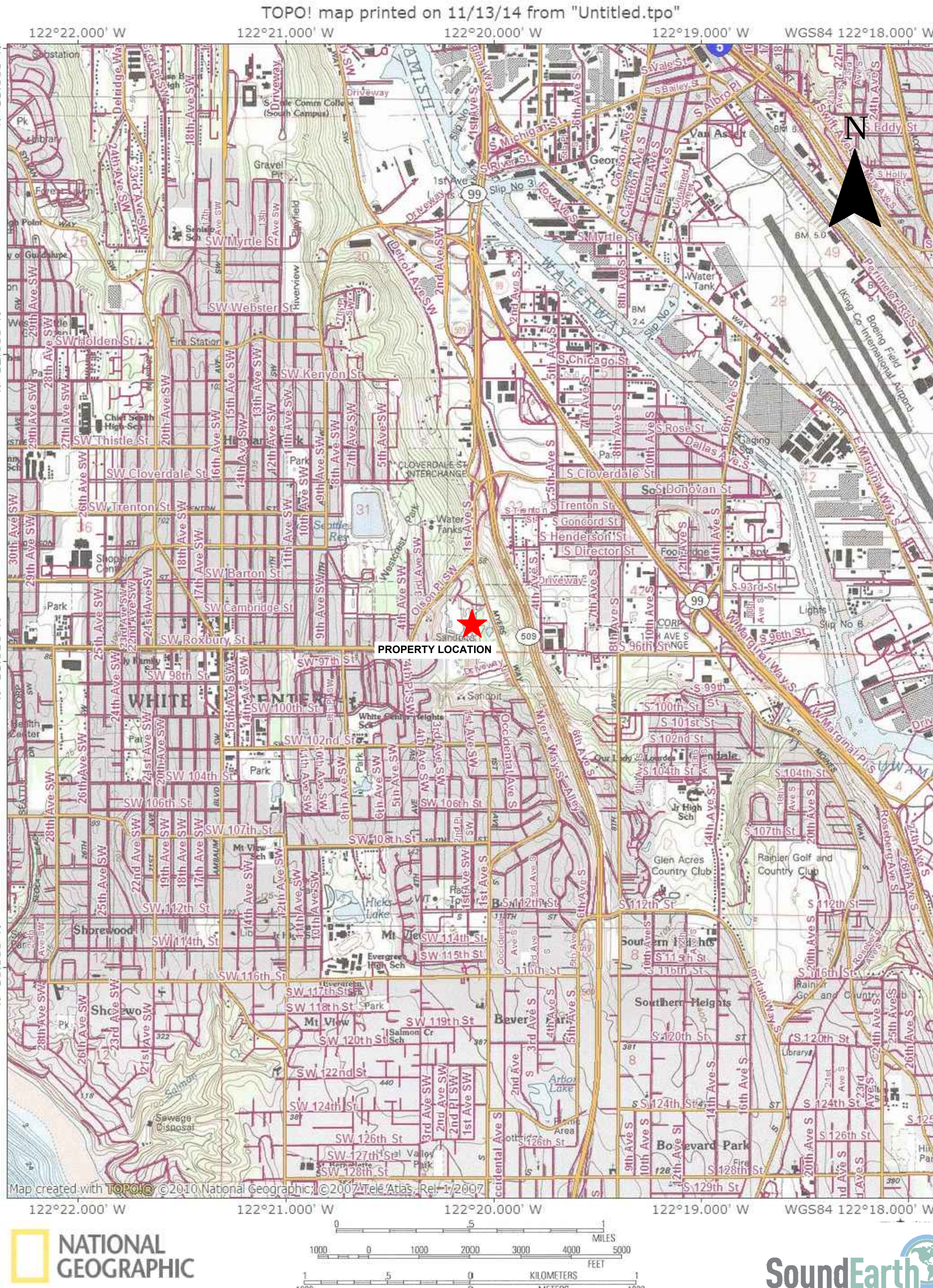
6.0 TASK-RELATED SITE HAZARD CONTROLS

The following additional hazard controls, based on the tasks identified in the Field Activities above, are required for employees of SoundEarth while performing work on the site:

- Level D PPE, which includes hard hats, steel-toed boots, safety glasses, a reflective safety vest, and ear plugs (when noise hazards are present).

FIGURES

8/4/2016



NATIONAL GEOGRAPHIC

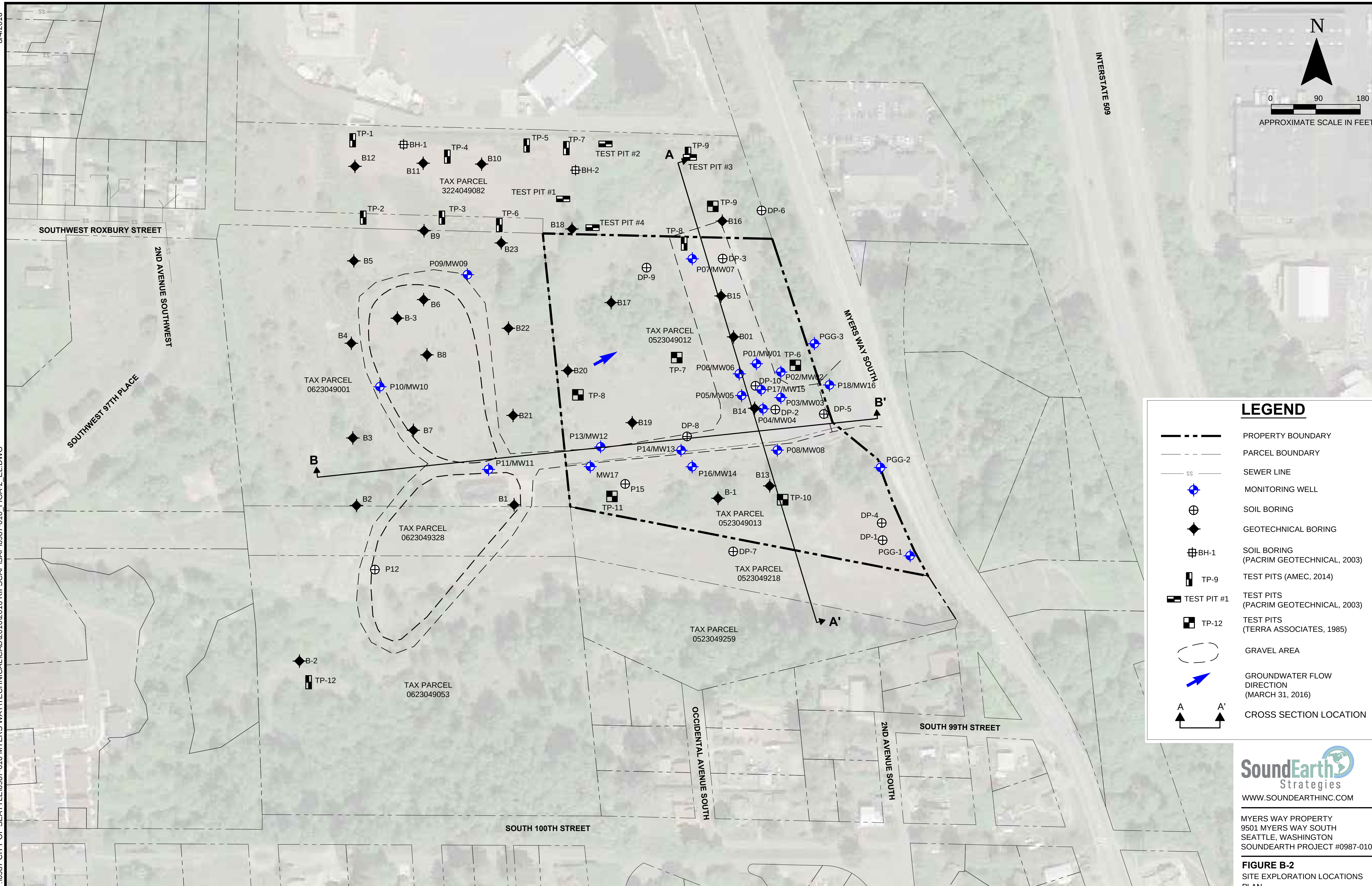
SoundEarth Strategies

WWW.SOUNDEARTHINC.COM

MYERS WAY PROPERTY
0987-010
9501 MYERS WAY SOUTH
SEATTLE, WASHINGTON

FIGURE B-1 SITE LOCATION MAP

P:\0987 CITY OF SEATTLE\0987-010 MYERS WAY\TECHNICAL\CAD\2016\2016 RIFSCAP\SAP\0987-010_FIGA-1_PL.DWG



8/4/2016

P:\0987 CITY OF SEATTLE\0987-010 MYERS WAY\TECHNICAL\CAD\2016\2016 RIFS\CAP\SAP\0987-010_FIGA-2_EL.DWG

ATTACHMENT A
ACKNOWLEDGMENT AND AGREEMENT FORM

ACKNOWLEDGMENT AND AGREEMENT FORM

Project Name/Facility Name: ____

Project Number/Facility Number: ____

I acknowledge that I have reviewed a copy of the Health and Safety Plan for this project, that I understand it, and that I agree to comply with all of its provisions. I also understand that I could be prohibited by the Site Manager/Health and Safety Officer or other SoundEarth personnel from working on this project if I fail to comply with any aspect of this Health and Safety Plan:

Name	*Signature*	*Company*	*Date*
Name	*Signature*	*Company*	*Date*
Name	*Signature*	*Company*	*Date*
Name	*Signature*	*Company*	*Date*
Name	*Signature*	*Company*	*Date*
Name	*Signature*	*Company*	*Date*
Name	*Signature*	*Company*	*Date*
Name	*Signature*	*Company*	*Date*
Name	*Signature*	*Company*	*Date*
Name	*Signature*	*Company*	*Date*
Name	*Signature*	*Company*	*Date*

ATTACHMENT B
DAILY HEALTH AND SAFETY BRIEFING LOG

SoundEarth Strategies

DAILY HEALTH AND SAFETY BRIEFING LOG

Date: ______________________ **Start Time:** ______________________

Site Discussed: ______________________

Subjects Discussed: ______________________

____

____

____

____

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____

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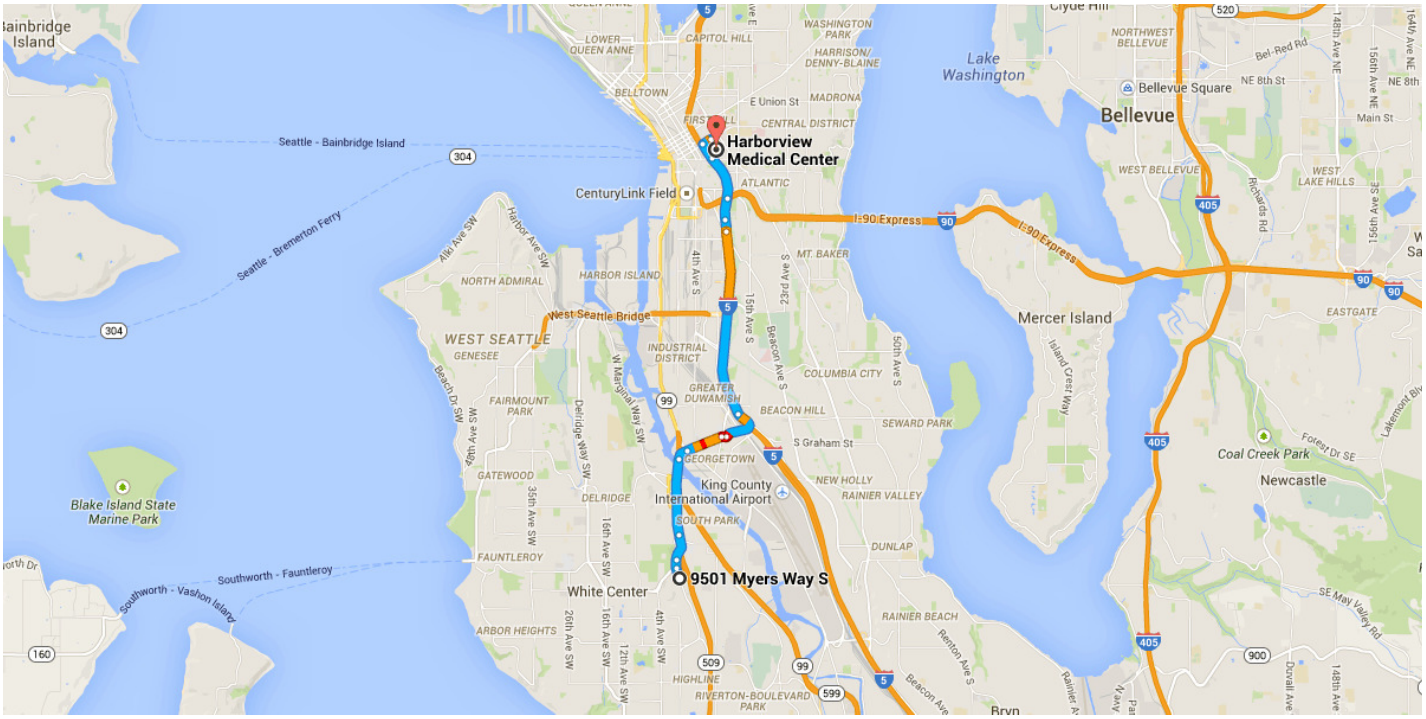
ATTENDEES

Print Name	**Signature**

Meeting Conducted by ______________________ **Date Signed**______________________

ATTACHMENT C
HOSPITAL ROUTE

Directions from **9501 Myers Way S** to **Harborview Medical Center**



9501 Myers Way S

Seattle, WA 98108

Get on **State Hwy 509 N**

0.6 mi / 1 min

1. Head **north** on **Myers Way S** toward **2nd Ave SW/Olson-Myers Way P&R Acrd**

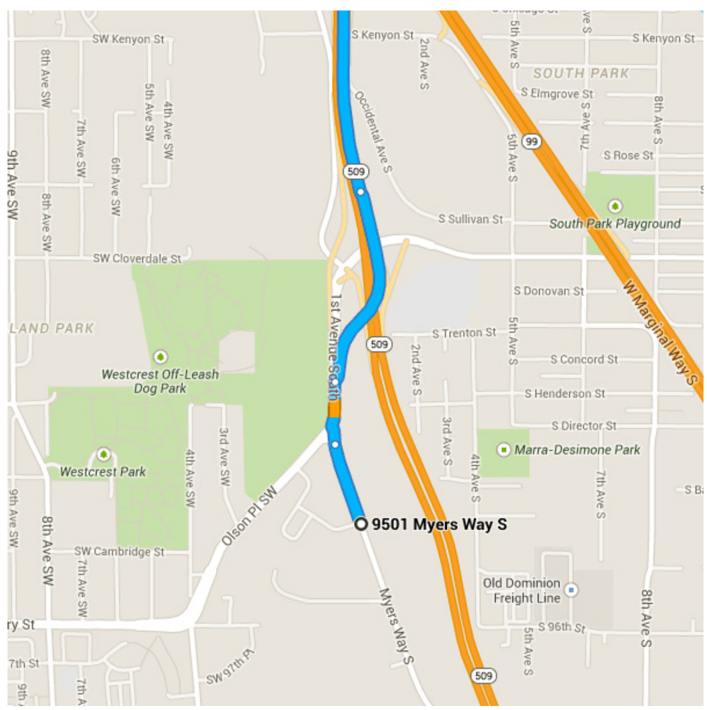
   0.1 mi

2. Slight **right** onto **1st Avenue South**

   0.1 mi

3. Slight **right** onto the **Washington 509 N** ramp to **Seattle**

   0.4 mi



Continue on **State Hwy 509 N** to **S Michigan St**. Take the **Michigan St** exit

from **State Hwy 509 N**

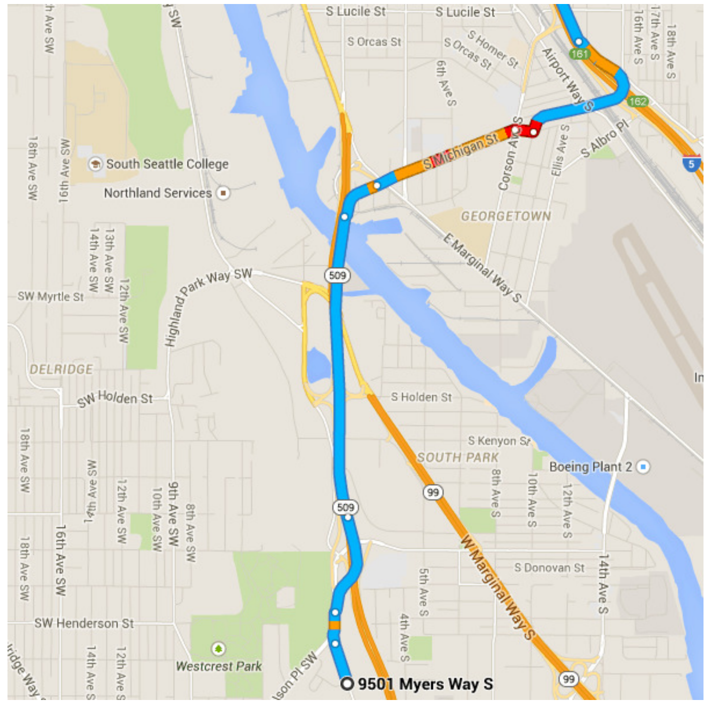
1.2 mi / 2 min

4. Merge onto **State Hwy 509 N**

1.0 mi

5. Exit onto **S Michigan St** toward **I-5**

0.2 mi



Get on **I-5 N**

1.2 mi / 3 min

6. Merge onto **S Michigan St**

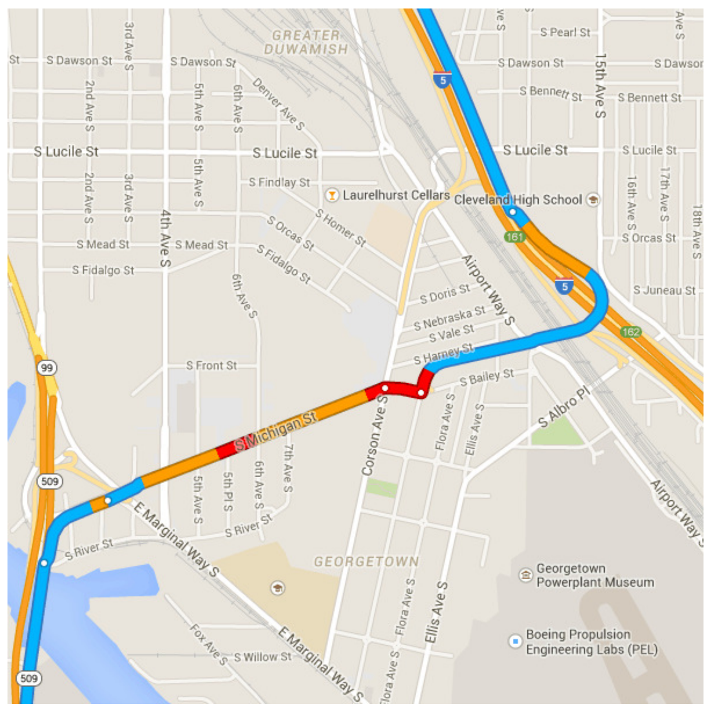
0.5 mi

7. Continue onto **S Bailey St**

335 ft

8. Turn **left** onto the **Interstate 5 N** ramp

0.6 mi



Take exit **164A** from **I-5 N**

3.8 mi / 5 min

9. Merge onto **I-5 N**

2.5 mi

10. Take exit **164A** for **I-90 E** toward **Spokane/Dearborn St/James St/Madison St**

0.1 mi

11. Keep **left** at the fork, follow signs for **Dearborn St/James St/Madison St**

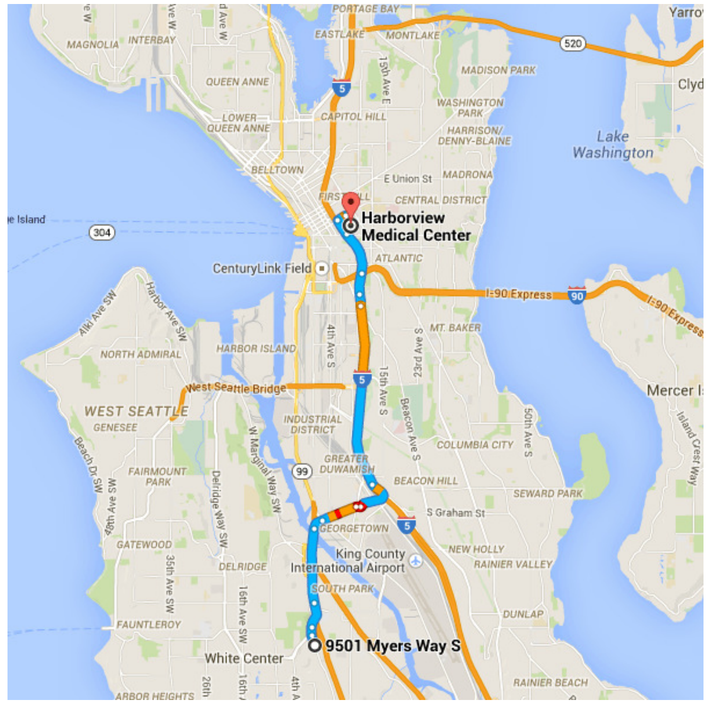
0.3 mi

12. Keep **left** to continue toward **James St**

0.6 mi

13. Keep **right**, follow signs for **James St**

0.2 mi



Continue on **James St**. Drive to **9th Ave**

0.2 mi / 1 min

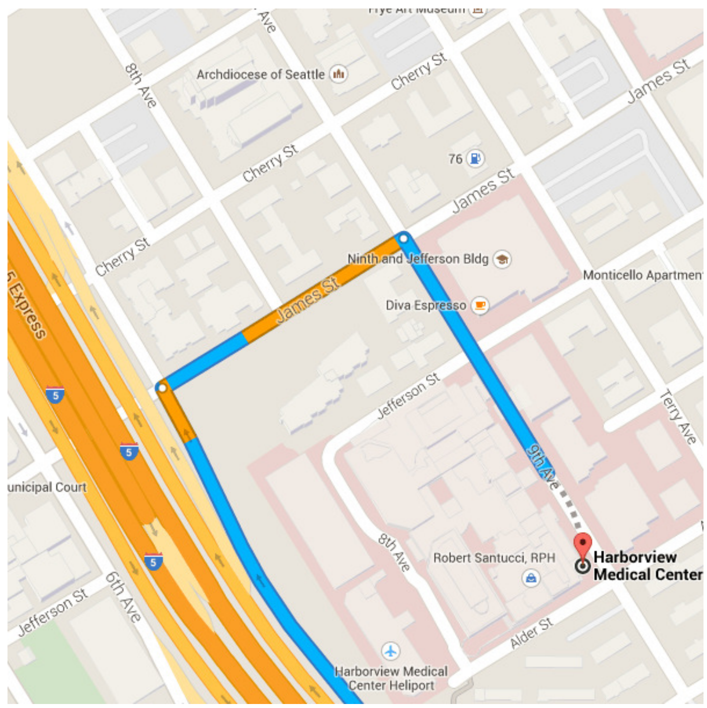
14. Turn **right** onto **James St**

0.1 mi

15. Take the 1st **right** onto **9th Ave**

Destination will be on the right

0.1 mi



Harborview Medical Center

325 9th Ave, Seattle, WA 98104

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

APPENDIX C
BORING LOGS

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	04/15/16
Surface Conditions:	Asphalt
Well Location N/S:	~40 feet South of well MW12.
Well Location E/W:	~21 feet west of well MW12.
Reviewed by:	BAJ
Date Completed:	04/15/16

BORING LOG MW17

Site Address: 9501 Myers Way South
Seattle, WA

Water Depth At Time of Drilling: 5 feet bgs

Water Depth After Completion: 6.2 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0						SP		**Cuttings: Damp, silty SAND with subrounded gravel, brown, no hydrocarbon or solvent odor. Fill.**	
5		35 40 50	100	0.0	MW17-05	SP		**Wet to saturated, very dense, medium to coarse SAND with trace silt, gray, no hydrocarbon or solvent odor (5-95-0). Fill.**	
						SM		**Wet, very dense, silty fine to medium SAND, gray, no hydrocarbon or solvent odor (35-65-0). Fill.**	
		20 50 50/5"	100	0.0	MW17-07.5	ML		**Damp, hard, sandy SILT with subrounded and subangular gravel, contains red brick pieces, gray, no hydrocarbon or solvent odor (65-20-15). Fill.**	
		18 22 20	100	0.1	MW17-09.5	CL		**Damp, stiff, silty CLAY with subrounded and subangular gravel and trace sand, gray, no hydrocarbon or solvent odor (75-5-20). Becomes dense and contains red brick fragments and some woody debris at ~9.5 to 11 feet bgs. Fill.**	
10		12 14 20	100						

Drilling Co./Driller:	Cascade/Curtis	
Drilling Equipment:	Limited Access HSA	
Sampler Type:	Dames & Moore	
Hammer Type/Weight:	150	lbs
Total Boring Depth:	16	feet bgs
Total Well Depth:	16	feet bgs
State Well ID No.:	BIX 463	

Well/Auger Diameter:	2" / 4.25" I.D.	inches
Well Screened Interval:	6 to 16	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Colorado Silica Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flush grade	

Notes/Comments:

(5-95-0): Estimated percentages by volume (clay/silt-sand-gravel).

SoundEarth Strategies

Project:	Myers Way Property		
Project Number:	0987-010		
Logged by:	CGC		
Date Started:	04/15/16		
Surface Conditions:	Asphalt		
Well Location N/S:	~40 feet South of well MW12.		
Well Location E/W:	~21 feet west of well MW12.		
Reviewed by:	BAJ		
Date Completed:	04/15/16		

BORING LOG **MW17**

Site Address: 9501 Myers Way South, Seattle, WA

Water Depth At Time of Drilling: 5 feet bgs

Water Depth After Completion: 6.2 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
10				0.1	MW17-11				
		12 12 15	100			ML		**Moist, very stiff, sandy SILT with clay and some subrounded and subangular gravel, contains small concrete fragments, red brick pieces, and a fragment of clear glass, brown and gray, no hydrocarbon and solvent odor (65-20-15). Fill.**	
				0.0	MW17-12.5	SM		**Wet, medium dense, silty SAND with subrounded gravel, light gray and brown, no hydrocarbon or solvent odor (35-55-10). Fill.**	
				0.0	MW17-15				
15		40 50	100			SP		**Saturated, very dense, medium to coarse SAND with trace silt, brown, no hydrocarbon or solvent odor (5-95-0). Fill.**	
								End of boring at 16 ft below ground surface (bgs). Two-inch diameter well installed to a depth of 16 feet bgs, screened from 6 to 16 feet bgs, and finished with a flush-mounted monument and concrete seal. Completed as monitoring well MW17.	

Drilling Co./Driller:	Cascade/Curtis		**Well/Auger Diameter:**	2" / 4.25" I.D.	inches
Drilling Equipment:	Limited Access HSA		**Well Screened Interval:**	6 to 16	feet bgs
Sampler Type:	Dames & Moore		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	150	lbs	**Filter Pack Used:**	Colorado Silica Sand	
Total Boring Depth:	16	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	16	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BIX 463		**Monument Type:**	Flush grade	

Notes/Comments:

(5-95-0): Estimated percentages by volume (clay/silt-sand-gravel).

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/17/14
Surface Conditions:	Gravel
Well Location N/S:	192030.8248
Well Location E/W:	1269837.955
Reviewed by:	RKB
Date Completed:	11/17/14

BORING LOG P01 MW01

Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling: 5/10 feet bgs

Water Depth After Completion: 5.3 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0				0.0		GP		**Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (15-25-60) (FILL).**	
			60			SM		**Damp, medium dense, silty fine SAND with gravel, medium brown, some rootlets, no hydrocarbon odor (30-50-20) (FILL).**	
						GP		**Damp dense, sandy GRAVEL with some silt, brown, no hydrocarbon odor (10-40-50) (FILL).**	
				0.0	P01-05	SM		**Damp, dense, silty SAND with gravel, brown, some rootlets, no hydrocarbon odor (40-50-10) (FILL).**	
5						SM		**Saturated, medium dense, silty SAND with gravel, brown, no hydrocarbon odor (30-60-10) (FILL).**	
				0.0				**Increasing gravel to 6.5' bgs (30-50-20) (FILL).**	
			80			SM		**Damp, dense, silty fine SAND with gravel, gray, no hydrocarbon odor (35-55-10) (FILL).**	
				0.0	P01-10	SM		**Damp, dense, silty fine SAND with gravel, dark brown, no hydrocarbon odor (30-55-15) (FILL).**	
								Damp, dense, silty fine SAND with gravel, gray, no hydrocarbon odor (30-55-15) (FILL).	
10				0.0		ML		**Wet to saturated, soft sandy SILT with gravel, brown and gray, no hydrocarbon odor (70-20-10) (FILL).**	
			100						
				0.0	P01-15	SM		**Wet, dense, silty fine SAND with gravel, gray, no hydrocarbon odor (30-60-10).**	
15									

Drilling Co./Driller:	ESN/Trever	
Drilling Equipment:	Combo Rig	
Sampler Type:	Core Tube	
Hammer Type/Weight:	NA	lbs
Total Boring Depth:	15	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BIM 048	

Well/Auger Diameter:	2 / 4.25 ID	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount Traffic Grade	

Notes/Comments:

EOB: 15' bgs. Overdrilled probe boring with auger to set well MW01.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/17/14
Surface Conditions:	Gravel
Well Location N/S:	192014.0251
Well Location E/W:	1269887.393
Reviewed by:	RKB
Date Completed:	11/18/14

BORING LOG P02 MW02

Site Address: 9501 Myers Way South, Seattle, Washington

Water Depth At Time of Drilling: 14 feet bgs

Water Depth After Completion: 8.1 feet bgs

Depth (feet bgs)	% Recovery	PID (ppmv)	Sample ID	USCS Class	Lithologic Description
0				GP	Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (15-25-60) (FILL).
	75	0.0		SM	Damp, medium dense, silty fine SAND with gravel and some organics, no hydrocarbon odor (30-55-15) (FILL).
		0.0	P02-05	SM	Damp, stiff, sandy SILT with gravel and some organics, no hydrocarbon odor (65-30-5) (FILL).
5		0.0	P02-07	ML	Damp, stiff, sandy SILT with chalky material, gray/ light gray, no hydrocarbon odor (70-30-0) (FILL). At 6' bgs: 3" of sandy SILT, gray, no hydrocarbon odor (70-30-0) (FILL).
	80			SM	Damp, dense, silty fine SAND with gravel, tan, no hydrocarbon odor (30-60-10) (FILL).
		0.0		SM	Damp, dense, silty fine SAND with gravel, dark brown, no hydrocarbon odor (30-55-15) (FILL).
10				ML	Damp, stiff, SILT with fine sand, gray, no hydrocarbon odor (90-10-0) (FILL).
	75	0.0		SM	Damp, dense, silty fine SAND with gravel, brown and gray, no hydrocarbon odor (30-55-15) (FILL?).
15		0.0	P02-14		Wet, dense, silty fine SAND with gravel, brown and gray, no hydrocarbon odor (30-55-15) (FILL?).

Drilling Co./Driller:	ESN/Trever	
Drilling Equipment:	Combo Rig	
Sampler Type:	Core Tube	
Hammer Type/Weight:	NA	lbs
Total Boring Depth:	20	feet bgs
Total Well Depth:	20	feet bgs
State Well ID No.:	BIM 049	

Well/Auger Diameter:	2 / 4.25 ID	inches
Well Screened Interval:	10 to 20	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount Traffic Grade	

Notes/Comments:

EOB: 20' bgs. Overdrilled probe boring with auger to set well MW02.

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/17/14
Surface Conditions:	Gravel
Well Location N/S:	192014.0251
Well Location E/W:	1269887.393
Reviewed by:	RKB
Date Completed:	11/18/14

BORING LOG P02 MW02

Site Address: 9501 Myers Way South, Seattle, Washington

Water Depth At Time of Drilling	14	feet bgs
Water Depth After Completion	8.1	feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
15			100	0.0		SM		**Saturated, dense, silty fine SAND with gravel, brown and gray, no hydrocarbon odor (30-55-15) (FILL?).**	
20				0.0	P02-20				
								End of boring at 20 feet bgs. Well MW02 set at 20 feet below ground surface.	
25									
30									

Drilling Co./Driller:	ESN/Trever		**Well/Auger Diameter:**	2 / 4.25 ID	inches	
Drilling Equipment:	Combo Rig		**Well Screened Interval:**	10 to 20	feet bgs	
Sampler Type:	Core Tube		**Screen Slot Size:**	0.010	inches	
Hammer Type/Weight:	NA	lbs	**Filter Pack Used:**	Sand		
Total Boring Depth:	20	feet bgs	**Surface Seal:**	Concrete		
Total Well Depth:	20	feet bgs	**Annular Seal:**	Bentonite		
State Well ID No.:	BIM 049		**Monument Type:**	Flushmount Traffic Grade		

Notes/Comments:

EOB: 20' bgs. Overdrilled probe boring with auger to set well MW02.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/17/14
Surface Conditions:	Gravel
Well Location N/S:	191962.4262
Well Location E/W:	1269887.185
Reviewed by:	RKB
Date Completed:	11/18/14

BORING LOG P03 MW03

Site Address: 9501 Myers Way South, Seattle, Washington

Water Depth At Time of Drilling: 4.5/10 feet bgs

Water Depth After Completion: 8.9 feet bgs

Depth (feet bgs)	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Lithologic Description
0					GP	**Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (15-25-60) (FILL).**
			0.0			
		70				**Damp, medium dense, silty SAND with gravel, brown, some rootlets, no hydrocarbon odor (25-65-10) (FILL).**
			0.0	P03-04.5		
5					SP	**Saturated, medium dense, medium to coarse SAND with silt and gravel, gray, no hydrocarbon odor (5-90-5) (FILL).**
			0.0			
		100			ML	**Damp, stiff, sandy SILT with gravel, gray, no hydrocarbon odor, pieces of red brick (70-25-5) (FILL).**
						Piece of tree root.
			0.0	P03-09	ML	**6" layer of damp, stiff, sandy SILT with chalky material (FILL).**
					SM	**Damp, dense, silty fine SAND with gravel, no hydrocarbon odor (FILL).**
10			0.0		SP	**Saturated, dense, fine to coarse SAND with trace silt and gravel, gray, no hydrocarbon odor (5-90-5) (FILL).**
		100			SM	**Saturated to wet, dense, silty fine SAND with gravel, gray, no hydrocarbon odor (30-60-10).**
			0.0	P03-15		
15						

Drilling Co./Driller:	ESN/Trever		**Well/Auger Diameter:**	2 / 4.25 ID	inches
Drilling Equipment:	Combo Rig		**Well Screened Interval:**	5 to 15	feet bgs
Sampler Type:	Core Tube		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	NA	lbs	**Filter Pack Used:**	Sand	
Total Boring Depth:	15	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	15	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BIM 055		**Monument Type:**	Flushmount Traffic Grade	

Notes/Comments:

EOB: 15' bgs. Overdrilled probe boring with auger to set well MW03.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/17/14
Surface Conditions:	Gravel
Well Location N/S:	191939.6267
Well Location E/W:	1269851.37
Reviewed by:	RKB
Date Completed:	11/18/14

BORING LOG **P04** MW04

Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling	4.8/8.0	feet bgs
Water Depth After Completion	2.6	feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0				0.0		SM		**Damp, medium dense, silty-sandy GRAVEL, brown, no hydrocarbon odor (15-25-60) (FILL).**	
			60			SM		**Damp, medium dense, silty fine SAND with gravel, brown, no hydrocarbon odor (30-65-5) (FILL).**	
				0.0	P04-03.5	SP		**Wet, medium dense, medium to coarse SAND with silt and gravel, brown, no hydrocarbon odor (5-90-5) (FILL).**	
5						SM		**Damp, dense, silty fine SAND with gravel, brown, no hydrocarbon odor (40-50-10) (FILL).**	
						ML		**Damp, medium stiff, sandy SILT, gray, no hydrocarbon odor (80-20-0) (FILL).**	
			100			GP		**Damp, dense, silty-sandy GRAVEL, gray, no hydrocarbon odor (20-30-50) (FILL).**	
				0.0	P04-08	SM		**Wet, dense, silty SAND with gravel, brown, no hydrocarbon odor (30-60-10) (FILL).**	
10				0.0 0.0		SP		**Wet to saturated, dense, medium to coarse SAND with silt and gravel, brown, no hydrocarbon odor (5-90-5) (FILL).**	
15			100	0.0	P04-15	SM		**Wet, dense, silty fine SAND with trace gravel, dark brown, no hydrocarbon odor (25-70-5) (FILL).** **Piece of potential white plastic (PVC-like) at 14' bgs (FILL).**	

Drilling Co./Driller:	ESN/Trever	
Drilling Equipment:	Combo Rig	
Sampler Type:	Core Tube	
Hammer Type/Weight:	NA	lbs
Total Boring Depth:	15	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BIM 051	

Well/Auger Diameter:	2 / 4.25 ID	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount Traffic Grade	

Notes/Comments:

EOB: 15' bgs. Overdrilled probe boring with auger to set well MW04.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/17/14
Surface Conditions:	Gravel
Well Location N/S:	191966.6261
Well Location E/W:	1269808.144
Reviewed by:	RKB
Date Completed:	11/18/14

BORING LOG **P05** MW05

Site Address: 9501 Myers Way South, Seattle, Washington

Water Depth At Time of Drilling: 5.2/10 feet bgs

Water Depth After Completion: 7.3 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0				0.0		SM		**Damp, medium dense, silty sandy GRAVEL, brown, no hydrocarbon odor (20-30-50) (FILL).**	
			40			SM		**Damp, medium dense, silty sandy GRAVEL, brown, no hydrocarbon odor (15-15-70) (FILL).**	
						SM-SP		**Damp, medium dense, silty fine SAND with gravel, grading into medium to coarse SAND with trace silt and gravel, brown, no hydrocarbon odor (30-60-10)/(5-90-5) (FILL).**	
5				0.0	P05-05			**Damp, medium dense, silty SAND with gravel, interlayered with 2 to 3" thick lenses of coarse SAND with trace silt, gray and brown, no hydrocarbon odor (30-60-10)/(5-90-5) (FILL).**	
						SM-SP		**Wet to saturated, medium dense, silty SAND with gravel, interlayered with 2 to 3" thick lenses of coarse SAND with trace silt, gray and brown, no hydrocarbon odor (30-60-10)/(5-90-5) (FILL).**	
						SM		**Damp, dense, silty SAND with gravel, gray, no hydrocarbon odor (30-60-10) (FILL).**	
			100	0.0		ML		**Damp, stiff SILT, gray, no hydrocarbon odor (100-0-0) (FILL).**	
						SM		**Damp, dense, silty SAND with gravel, brown and gray, no hydrocarbon odor (20-50-30) (FILL).**	
				0.0	P05-09	ML		**Damp, stiff, sandy SILT with chalky material, light gray, no hydrocarbon odor (70-30-0)/(40-60-0) (FILL).**	
10						SM		**Damp, dense, silty fine SAND with gravel, dark brown, no hydrocarbon odor (35-40-25) (FILL).**	
			70	0.0		SM		**Wet to saturated, dense, silty fine SAND with gravel, gray, no hydrocarbon odor (30-55-15).**	
15				0.0	P05-15				

Drilling Co./Driller:	ESN/Trever	
Drilling Equipment:	Combo Rig	
Sampler Type:	Core Tube	
Hammer Type/Weight:	NA	lbs
Total Boring Depth:	15	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BIM 047	

Well/Auger Diameter:	2 / 4.25 ID	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount Traffic Grade	

Notes/Comments:

EOB: 15' bgs. Overdrilled probe boring with auger to set well MW05.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/17/14
Surface Conditions:	Gravel
Well Location N/S:	192010.4252
Well Location E/W:	1269803.134
Reviewed by:	RKB
Date Completed:	11/18/14

BORING LOG P06 MW06

Site Address: 9501 Myers Way South, Seattle, Washington

Water Depth At Time of Drilling: 5.5/14 feet bgs

Water Depth After Completion: 8.7 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0						SM		Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (20-30-50) (FILL).	
				0.0					
			55			SM		Damp, medium dense, silty SAND with gravel, brown, no hydrocarbon odor becoming siltier at 4' bgs (25-65-10)/(35-55-10) (FILL).	
5				0.0	P06-05	SM		Damp, medium dense, silty SAND with gravel, brown, no hydrocarbon odor (20-70-10) (FILL). Wet, medium dense, silty SAND with gravel, brown, no hydrocarbon odor (20-70-10) (FILL).	
						ML		Damp, stiff, sandy SILT, gray, no hydrocarbon odor (70-30-0) (FILL).	
			80	0.0		SM		Damp, dense, silty-sandy GRAVEL, brown, no hydrocarbon odor (20-30-50) (FILL).	
				0.0	P06-08.5	ML		Damp, stiff, sandy SILT with chalky material, gray-brown and light gray, no hydrocarbon odor (80-20-0) (FILL).	
10						SM		Damp, dense, silty fine SAND with gravel, gray, no hydrocarbon odor (30-60-10) (FILL). Brick pieces at 9.8' bgs.	
				0.0					
			90			CL		Damp, stiff, silty CLAY, gray, no hydrocarbon odor (100-0-0) (FILL).	
15				0.0	P06-15	SM		Saturated, dense, silty SAND with gravel, gray, no hydrocarbon odor (20-75-5).	

Drilling Co./Driller:	ESN/Trever	
Drilling Equipment:	Combo Rig	
Sampler Type:	Core Tube	
Hammer Type/Weight:	NA	lbs
Total Boring Depth:	15	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BIM 057	

Well/Auger Diameter:	2 / 4.25 ID	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount Traffic Grade	

Notes/Comments:

EOB: 15' bgs. Overdrilled probe boring with auger to set well MW06.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/19/14
Surface Conditions:	Gravel
Well Location N/S:	192243.1423
Well Location E/W:	1269708.316
Reviewed by:	RKB
Date Completed:	11/18/14

BORING LOG P07 MW07

Site Address: 9501 Myers Way South, Seattle, Washington

Water Depth At Time of Drilling: 8.5 feet bgs

Water Depth After Completion: 7.5 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0						GP		**Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (20-30-50) (FILL).**	
				0.0		GP		**Damp, medium dense, silty sandy GRAVEL, gray and brown, no hydrocarbon odor (15-40-45) (FILL).**	
			70			SM		**Damp, medium dense, silty fine SAND with gravel, light brown, no hydrocarbon odor (30-60-10) (FILL).**	
						SP		**Damp, medium dense, fine to medium SAND with silt, light brown, no hydrocarbon odor (10-90-0) (FILL).**	
						SM		**Damp, medium dense, silty fine SAND with gravel, dark brown, no hydrocarbon odor (25-70-5) (FILL).**	
5				0.0	P07-04	GP		**Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (20-30-50) (FILL).**	
				0.0		CL		**Damp, soft silty CLAY, gray, no hydrocarbon odor (100-0-0) (FILL).**	
			95						Water Depth After Completion (7.5)
				0.0	P07-08.5	CL		**Pieces of red brick**	Water Depth At Time of Drilling (8.5)
				0.0				**Wet, soft silty CLAY, gray, no hydrocarbon odor (100-0-0) (FILL).**	
10								**Pieces of wood present.** **Saturated, soft silty CLAY, gray, no hydrocarbon odor (100-0-0) (FILL).**	
				0.0		GP		**Saturated, medium dense, silty-sandy angular GRAVEL, gray and brown, no hydrocarbon odor (15-15-70) (FILL).**	
			100			CL		**Wet to saturated, soft silty CLAY, gray, no hydrocarbon odor (100-0-0) (FILL).**	
15				0.0	P07-15				

Drilling Co./Driller:	ESN/Trever	
Drilling Equipment:	Combo Rig	
Sampler Type:	Core Tube	
Hammer Type/Weight:	NA	lbs
Total Boring Depth:	15	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BIM 036	

Well/Auger Diameter:	2 / 4.25 ID	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount Traffic Grade	

Notes/Comments:

EOB: 15' bgs. Overdrilled probe boring with auger to set well MW07.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/19/14
Surface Conditions:	Gravel
Well Location N/S:	191856.364
Well Location E/W:	1269880.283
Reviewed by:	RKB
Date Completed:	11/19/14

BORING LOG P08 MW08

Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling: 7.0 feet bgs

Water Depth After Completion: 10.3 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0				0.0		GP		**Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (20-30-50) (FILL).**	
			70			SM		**Damp, medium dense, silty fine SAND with gravel, light brown, no hydrocarbon odor (30-60-10) (FILL).**	
						GP		**Damp, medium dense, silty sandy GRAVEL, no hydrocarbon odor (25-30-45) (FILL).**	
				0.0	P08-04	SM		**Damp, medium dense, silty fine SAND with gravel, brown and tan, some brick fragments, no hydrocarbon odor (25-60-15) (FILL).**	
5						SM		**Damp, medium dense, silty SAND with gravel, dark brown, no hydrocarbon odor (20-65-15) (FILL).** **Rock in sampler at 6.5 to 6.8' bgs.**	
				0.0	P08-07				
			95	0.0		SP		**Wet, medium dense, medium to coarse SAND with silt, brown, no hydrocarbon odor (10-90-0) (FILL).** **Locally more gravel at 9 to 9.5' bgs (10-80-10) (FILL).**	
10				0.0		SP		**Saturated, medium dense, fine to coarse SAND with silt and trace gravel, brown, no hydrocarbon odor (10-85-5) (FILL).**	
			100	0.0					
				0.0					
15					P08-15	SP		**Slight sheen on water and soil at 14.5 to 15' bgs. No hydrocarbon odor.**	

Drilling Co./Driller:	ESN/Trever	
Drilling Equipment:	Combo Rig	
Sampler Type:	Core Tube	
Hammer Type/Weight:	NA	lbs
Total Boring Depth:	15	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BIM 042	

Well/Auger Diameter:	2 / 4.25 ID	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount Traffic Grade	

Notes/Comments:
EOB: 15' bgs. Overdrilled probe boring with auger to set well MW08.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/19/14
Surface Conditions:	Gravel
Well Location N/S:	192210.793
Well Location E/W:	1269253.851
Reviewed by:	RKB
Date Completed:	11/19/14

BORING LOG P09 MW09

Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling 6.0 feet bgs

Water Depth After Completion 7.5 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0				0.0		GP		**Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (20-30-50) (FILL).**	
			55			SM		**Damp, medium dense, silty fine SAND with gravel, no hydrocarbon odor (30-60-10) (FILL).**	
5				0.0	P09-04	SM		**Damp, medium dense, silty fine SAND with gravel, gray, no hydrocarbon odor (25-70-5) (FILL).**	
				0.0	P09-06	SM		**Wet, medium dense, silty SAND with trace gravel, gray, no hydrocarbon odor (25-70-5) (FILL).**	
			80	0.0		SP		**Saturated, medium dense, medium to coarse SAND with silt, no hydrocarbon odor (10-90-0) (FILL).**	
10				0.0					
			100	0.0		SP		**Saturated, medium dense, coarse SAND with silt, brown, no hydrocarbon odor (10-90-0) (FILL).**	
15					P09-15				

Drilling Co./Driller:	ESN/Trever		**Well/Auger Diameter:**	2 / 4.25 ID	inches
Drilling Equipment:	Combo Rig		**Well Screened Interval:**	5 to 15	feet bgs
Sampler Type:	Core Tube		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	NA	lbs	**Filter Pack Used:**	Sand	
Total Boring Depth:	15	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	15	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BIM 037		**Monument Type:**	Flushmount Traffic Grade	

Notes/Comments:

EOB: 15' bgs. Overdrilled probe boring with auger to set well MW09.

BORING LOG P10 MW10

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/19/14
Surface Conditions:	Gravel
Well Location N/S:	191984.5529
Well Location E/W:	1269076.87
Reviewed by:	RKB
Date Completed:	11/19/14

Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling	5.5	feet bgs
Water Depth After Completion	5.8	feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0						GP		**Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (20-30-50) (FILL).**	
			55	0.0 0.0	P10-04	SM		**Damp, medium dense, silty fine SAND with trace gravel, no hydrocarbon odor (30-65-5) (FILL).**	
5			90	0.0 0.0	P10-05.5	SP		**Wet to saturated, fine to coarse SAND with silt, grading to medium to coarse SAND with silt at 6.5' bgs, gray, no hydrocarbon odor (10-90-0) (FILL).** **Wet to saturated, medium to coarse SAND with silt, tan, no hydrocarbon odor (10-90-0) (FILL).**	
10			100	0.0	P10-15	SP		**Sample core tube jammed. Sample hammered out of sleeve onto plastic for internal observation: Saturated, fine to coarse SAND with silt, tan and brown, no hydrocarbon odor (10-90-0) (FILL).**	
15									

Drilling Co./Driller:	ESN/Trever	
Drilling Equipment:	Combo Rig	
Sampler Type:	Core Tube	
Hammer Type/Weight:	NA	lbs
Total Boring Depth:	15	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BIM 038	

Well/Auger Diameter:	2 / 4.25 ID	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount Traffic Grade	

Notes/Comments:

EOB: 15' bgs. Overdrilled probe boring with auger to set well MW10.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/19/14
Surface Conditions:	Gravel
Well Location N/S:	191817.2789
Well Location E/W:	1269296.486
Reviewed by:	RKB
Date Completed:	11/19/14

BORING LOG P11 MW11

Site Address: 9501 Myers Way South, Seattle, Washington

Water Depth At Time of Drilling: 10.0 feet bgs

Water Depth After Completion: 8.9 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0						GP		Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (20-30-50) (FILL).	
			55	0.0		SM		Damp, medium dense, silty fine SAND with trace gravel, light brown, no hydrocarbon odor (25-70-5) (FILL).	
				0.0	P11-04				
5				0.0					
			80			SP		Damp to moist, medium dense, silty fine to medium SAND with trace gravel, gray, no hydrocarbon odor (25-70-5) (FILL).	
				0.0	P11-10				
10						SP		Saturated, medium dense, medium to coarse SAND with silt, gray, no hydrocarbon odor (10-90-0) (FILL).	
			60		P11-13				
								Probe sampler fail at 13' bgs. Probe boring terminated. Overdrilled with auger to 15' bgs to set well.	
15									

Drilling Co./Driller:	ESN/Trever	
Drilling Equipment:	Combo Rig	
Sampler Type:	Core Tube	
Hammer Type/Weight:	NA	lbs
Total Boring Depth:	13/15	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BIM 039	

Well/Auger Diameter:	2 / 4.25 ID	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount Traffic Grade	

Notes/Comments:

Probe boring to 13' bgs. Overdrilled boring to 15' bgs with auger to set well MW11.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/19/14
Surface Conditions:	Gravel
Well Location N/S:	191614.9788
Well Location E/W:	1269066.58
Reviewed by:	RKB
Date Completed:	11/19/14

BORING LOG P12 --

Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling	--	feet bgs
Water Depth After Completion	--	feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0						GP		**Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (20-30-50) (FILL).**	
			45	0.0		GP		**Damp, medium dense, silty-sandy GRAVEL, brown, no hydrocarbon odor (20-35-45) (FILL).**	
5				0.0	P12-05	SM		**Damp, medium dense, silty fine SAND with gravel, brown, no hydrocarbon odor (25-70-5) (FILL).** **Moist, medium dense, silty fine SAND with gravel, brown, no hydrocarbon odor (25-70-5) (FILL).** **Locally siltier at 6 to 7.5' bgs (30-65-5) (FILL).**	
			50	0.0					
10				0.0	P12-10	SM		**Damp, medium dense, silty fine SAND with gravel, orange-brown, no hydrocarbon odor (40-50-10).**	
			50	0.0				**Rock crushed in sampler.**	
15				0.0	P12-15	SP		**Damp, medium dense, medium to coarse SAND with trace silt, tan, no hydrocarbon odor (5-95-0) (FILL).**	

Drilling Co./Driller:	ESN/Trever	
Drilling Equipment:	--	
Sampler Type:	--	
Hammer Type/Weight:	NA	lbs
Total Boring Depth:	20	feet bgs
Total Well Depth:	--	feet bgs
State Well ID No.:	--	

Well/Auger Diameter:	--	inches
Well Screened Interval:	--	feet bgs
Screen Slot Size:	--	inches
Filter Pack Used:	--	
Surface Seal:	--	
Annular Seal:	--	
Monument Type:	--	

Notes/Comments:

EOB: 20' bgs. No groundwater seepage encountered.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/19/14
Surface Conditions:	Gravel
Well Location N/S:	191614.9788
Well Location E/W:	1269066.58
Reviewed by:	RKB
Date Completed:	11/19/14

BORING LOG P12

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Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling	--	feet bgs
Water Depth After Completion	--	feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
15						SP			
				0.0		SM		**Damp, medium dense, silty fine SAND, brown, no hydrocarbon odor (40-60-0) (FILL).**	
			60			SM		**Damp, dense, silty fine SAND with trace gravel, tan, no hydrocarbon odor (20-75-5) (FILL).**	
				0.0	P12-20				
20								**EOB: 20' bgs. Boring abandoned with hydrated bentonite chips.**	
25									
30									

Drilling Co./Driller:	ESN/Trever		**Well/Auger Diameter:**	--	inches
Drilling Equipment:	--		**Well Screened Interval:**	--	feet bgs
Sampler Type:	--		**Screen Slot Size:**	--	inches
Hammer Type/Weight:	NA	lbs	**Filter Pack Used:**	--	
Total Boring Depth:	20	feet bgs	**Surface Seal:**	--	
Total Well Depth:	--	feet bgs	**Annular Seal:**	--	
State Well ID No.:	--		**Monument Type:**	--	

Notes/Comments:

EOB: 20' bgs. No groundwater seepage encountered.

SoundEarth Strategies

Project:	Myers Way Property	**BORING LOG**	**P13** MW12
Project Number:	0987-010	**Site Address:**	9501 Myers Way South, Seattle, Washington
Logged by:	CGC	Water Depth At Time of Drilling	5/10.5 feet bgs
Date Started:	11/19/14	Water Depth After Completion	7.3 feet bgs
Surface Conditions:	Gravel		
Well Location N/S:	191862.9052		
Well Location E/W:	1269523.071		
Reviewed by:	RKB		
Date Completed:	11/19/14		

Depth (feet bgs)	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Lithologic Description
0					GP	**Damp, medium dense, silty sandy GRAVEL, dark brown, no hydrocarbon odor (20-30-50) (FILL).**
			0.0		GP	**Damp, medium dense, silty sandy GRAVEL, brown, no hydrocarbon odor (20-25-55) (FILL).**
		75	0.0	P13-05	SM	**Damp, medium dense, silty fine SAND with gravel, brown, no hydrocarbon odor (30-65-5) (FILL).**
5						**Wet, medium dense, silty fine SAND with gravel, brown, no hydrocarbon odor (30-65-5) (FILL).**
					SM	**Wet, medium dense, silty SAND, gray, no hydrocarbon odor (15-85-0) (FILL).**
		80	0.0	P13-08	ML	**Damp, stiff, sandy SILT with streaks of chalky material, light gray, no hydrocarbon odor (70-30-0) (FILL).**
			0.0			
10					SM	**Damp, medium dense, silty fine SAND with gravel, dark brown, no hydrocarbon odor (25-65-10) (FILL).**
			0.0		SM	**Wet to saturated, silty fine SAND with gravel, gray, no hydrocarbon odor (40-50-10) (FILL).**
		100			CL	**Damp, medium stiff, silty CLAY, contains tree roots, gray, no hydrocarbon odor (100-0-0) (FILL).**
						Damp, medium stiff, silty CLAY with sand and gravel, contains tree roots, gray, no hydrocarbon odor (80-10-10) (FILL).
15			0.0	P13-15		

Drilling Co./Driller:	ESN/Trever		**Well/Auger Diameter:**	2 / 4.25 ID	inches
Drilling Equipment:	Combo Rig		**Well Screened Interval:**	4 to 14	feet bgs
Sampler Type:	Core Tube		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	NA	lbs	**Filter Pack Used:**	Sand	
Total Boring Depth:	15	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	14	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BIM 040		**Monument Type:**	Flushmount Traffic Grade	

Notes/Comments:

Overdrilled probe boring to 14' bgs with auger to set well MW12.

BORING LOG P14 MW13

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	CGC
Date Started:	11/19/14
Surface Conditions:	Gravel
Well Location N/S:	191855.9906
Well Location E/W:	1269685.461
Reviewed by:	RKB
Date Completed:	11/19/14

Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling: 7/10.5 feet bgs

Water Depth After Completion: 8.1 feet bgs

Depth (feet bgs)	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Lithologic Description
0					GP	**Damp, medium dense, silty-sandy GRAVEL, dark brown, no hydrocarbon odor (20-30-50) (FILL).**
		70	0.0		GP	**Damp, medium dense, silty sandy GRAVEL, medium brown, no hydrocarbon odor (20-25-55) (FILL).**
5			0.0	P14-05	SM	**Damp, medium dense, silty fine SAND with gravel, brown and gray, no hydrocarbon odor (30-55-15) (FILL).**
		80		P14-08.5	SM	**Wet to saturated. silty SAND, brown, no hydrocarbon odor (15-85-0) (FILL).**
			0.0		CL	**Damp, stiff, silty CLAY, gray, contains plastic bits and minor chalky material, no hydrocarbon odor (100-0-0) (FILL).**
			0.0		ML	**Damp, stiff, sandy SILT, orange-brown, no hydrocarbon odor (80-20-0) (FILL).**
10					SM	**Moist, medium dense, silty fine to medium SAND with gravel, brown, no hydrocarbon odor (20-70-10) (FILL).**
		100	0.0 0.0	P14-10.5	SP	**Saturated, medium dense, fine to coarse SAND with silt and trace gravel, tan, no hydrocarbon odor (10-85-5) (FILL?)**
15						

Drilling Co./Driller:	ESN/Trever		**Well/Auger Diameter:**	2 / 4.25 ID	inches	
Drilling Equipment:	Combo Rig		**Well Screened Interval:**	5 to 15	feet bgs	
Sampler Type:	Core Tube		**Screen Slot Size:**	0.010	inches	
Hammer Type/Weight:	NA	lbs	**Filter Pack Used:**	Sand		
Total Boring Depth:	15	feet bgs	**Surface Seal:**	BIM 041		
Total Well Depth:	15	feet bgs	**Annular Seal:**	Bentonite		
State Well ID No.:	BIM 04		**Monument Type:**	Flushmount Traffic Grade		

Notes/Comments:

EOB: 15' bgs. Overdrilled probe boring with auger to set well MW13.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	GCF
Date Started:	1/5/15
Surface Conditions:	Grass
Well Location N/S:	191787.8968
Well Location E/W:	1269572.574
Reviewed by:	LDS
Date Completed:	1/5/15

BORING LOG P15
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Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling	9	feet bgs
Water Depth After Completion	--	feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0									
5		18 50/6"	60	0.3	P15-05	**SM**		**Moist, very dense, SAND with silt, gray, no odor (10-90-0).**	
		5 11 16	50	0.2	P15-07.5	**SP**		**Moist, medium dense, SAND, medium, gray, no odor (0-100-0). Organic matter and wood debris in sampler at 7.5 feet bgs.**	
10		5 8 13	60	0.3	P15-10	**SP**		**Wet, medium dense, SAND, medium to fine, gray, no odor (0-100-0). 2-inch-thick organic silty layer at 10 feet bgs.**	
15									

Drilling Co./Driller:	Holt / Todd		**Well/Auger Diameter:**	-- / 8" OD, 6" ID	inches
Drilling Equipment:	Hollow Stem Auger		**Well Screened Interval:**	--	feet bgs
Sampler Type:	Split Spoon		**Screen Slot Size:**	--	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	--	
Total Boring Depth:	16.5	feet bgs	**Surface Seal:**	--	
Total Well Depth:	--	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	--		**Monument Type:**	--	

Notes/Comments:
(15-25-60) = Estimated percentages of fines, sand, and gravel, respectively.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	GCF
Date Started:	1/5/15
Surface Conditions:	Grass
Well Location N/S:	191787.8968
Well Location E/W:	1269572.574
Reviewed by:	LDS
Date Completed:	1/5/15

BORING LOG P15
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Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling: 9 feet bgs

Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
15		5 12 18	100	0.4	P15-15	**SP**		**Wet, medium dense, SAND, medium, gray, no odor (0-100-0). Wood debris at 15.5 feet bgs.**	
								Boring terminated at 16.5 feet bgs. Groundwater encountered at approximately 9 feet bgs at time of drilling.	
20									
25									
30									

Drilling Co./Driller:	Holt / Todd	
Drilling Equipment:	Hollow Stem Auger	
Sampler Type:	Split Spoon	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	16.5	feet bgs
Total Well Depth:	--	feet bgs
State Well ID No.:	--	

Well/Auger Diameter:	-- / 8" OD, 6" ID	inches
Well Screened Interval:	--	feet bgs
Screen Slot Size:	--	inches
Filter Pack Used:	--	
Surface Seal:	--	
Annular Seal:	Bentonite	
Monument Type:	--	

Notes/Comments:

(15-25-60) = Estimated percentages of fines, sand, and gravel, respectively.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	GCF
Date Started:	1/5/16
Surface Conditions:	Grass
Well Location N/S:	191822.8291
Well Location E/W:	1269708.036
Reviewed by:	LDS
Date Completed:	1/5/15

BORING LOG P16 MW14

Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling: 8 feet bgs

Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0									
5		11 40 50	30	0.3	P16-05	SM		**Moist, silty SAND with gravel, gray, no odor (15-70-5).**	
		5 11 15	66	0.3	P16-07.5	SP		**Wet, medium dense, SAND, dark gray, no odor, brown water in sampler (0-100-0).**	
10		NR	90	0.2	P16-10	SP		**Wet, SAND with trace silt, medium, gray to brown, no odor. Silty lens at 11 feet bgs (0-95-5).**	
15									

Drilling Co./Driller:	Holt / Todd		**Well/Auger Diameter:**	2" / 6" ID, 8" OD	inches
Drilling Equipment:	Hollow Stem Auger		**Well Screened Interval:**	5 to 15	feet bgs
Sampler Type:	Split spoon		**Screen Slot Size:**	0.020	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Silica Sand	
Total Boring Depth:	16.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	15	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BJZ039		**Monument Type:**	Flushmount	

Notes/Comments:

(15-25-60) = Estimated percentages of fines, sand, and gravel, respectively.

MW14 set to15' bgs.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	GCF
Date Started:	1/5/16
Surface Conditions:	Grass
Well Location N/S:	191822.8291
Well Location E/W:	1269708.036
Reviewed by:	LDS
Date Completed:	1/5/15

BORING LOG P16 MW14

Site Address: 9501 Myers Way South, Seattle, Washington

Water Depth At Time of Drilling: 8 feet bgs

Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
15		3 18 24	100	0.3	P16-15	**SP**		**Wet, dense, SAND, medium, gray, no odor (0-100-0).**	
								Boring terminated at 16.5 feet bgs. Groundwater encountered at 8 feet bgs at time of drilling.	
20									
25									
30									

Drilling Co./Driller:	Holt / Todd	
Drilling Equipment:	Hollow Stem Auger	
Sampler Type:	Split spoon	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	16.5	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BJZ039	

Well/Auger Diameter:	2" / 6" ID, 8" OD	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.020	inches
Filter Pack Used:	Silica Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount	

Notes/Comments:

(15-25-60) = Estimated percentages of fines, sand, and gravel, respectively.

MW14 set to15' bgs.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	GCF
Date Started:	1/4/15
Surface Conditions:	Gravel
Well Location N/S:	191978.4568
Well Location E/W:	1269847.735
Reviewed by:	LDS
Date Completed:	1/4/15

BORING LOG P17 MW15

Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling: 7.5 feet bgs
Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0									
5		5 8 11	80	0.0	P17-05	**SM**		**Moist, medium dense, SAND with silt and trace gravel, gray, no odor (25-70-5).**	
		2 5 18	100	0.2	P17-07.5	**SM**		**7.5 to 8 feet bgs: Moist, ash-like substance, gray to white, no odor.** **8 to 8.5 feet bgs: Moist, loose, silty SAND, gray, no odor (15-85-0).**	
10		2 3 4	60	0.0	P17-10	**SM**		**10 to 10.5 feet bgs: Moist, ash-like substance, gray to white, no odor.** **10.5 to 11.5 feet bgs: Moist, loose, silty SAND, gray, no odor (15-85-0).**	
15									

Drilling Co./Driller:	Holt / Todd	
Drilling Equipment:	Hollow Stem Auger	
Sampler Type:	Split spoon	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	41.5	feet bgs
Total Well Depth:	35	feet bgs
State Well ID No.:	BJZ037	

Well/Auger Diameter:	2" / 6" ID, 8" OD	inches
Well Screened Interval:	35 to 25	feet bgs
Screen Slot Size:	0.020	inches
Filter Pack Used:	Silica Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount	

Notes/Comments:

(15-25-60) = Estimated percentages of fines, sand, and gravel, respectively.

MW15 set to 35' bgs.

SoundEarth Strategies

Project:	Myers Way Property	**BORING LOG**	**P17** MW15
Project Number:	0987-010	**Site Address:**	9501 Myers Way South, Seattle, Washington
Logged by:	GCF	**Water Depth At Time of Drilling**	7.5 feet bgs
Date Started:	1/4/15	**Water Depth After Completion**	-- feet bgs
Surface Conditions:	Gravel		
Well Location N/S:	191978.4568		
Well Location E/W:	1269847.735		
Reviewed by:	LDS		
Date Completed:	1/4/15		

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
15		4 0 2	30	0.0	P17-15	**SM**		**Moist, very loose, medium SAND with silt, gray, no odor (10-90-0).**	
20		3 5 10	100	0.2	P17-20	**SP**		**Wet, medium dense, SAND, gray, no odor (0-100-0).**	
25		4 7 12	100		P17-25	**SP**		**Wet, medium dense, medium to fine SAND, gray, no odor (0-100-0).**	
30									

Drilling Co./Driller:	Holt / Todd		**Well/Auger Diameter:**	2" / 6" ID, 8" OD	inches
Drilling Equipment:	Hollow Stem Auger		**Well Screened Interval:**	35 to 25	feet bgs
Sampler Type:	Split spoon		**Screen Slot Size:**	0.020	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Silica Sand	
Total Boring Depth:	41.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	35	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BJZ037		**Monument Type:**	Flushmount	

Notes/Comments:

(15-25-60) = Estimated percentages of fines, sand, and gravel, respectively.

MW15 set to 35' bgs.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	GCF
Date Started:	1/4/15
Surface Conditions:	Gravel
Well Location N/S:	191978.4568
Well Location E/W:	1269847.735
Reviewed by:	LDS
Date Completed:	1/4/15

BORING LOG **P17** MW15

Site Address: 9501 Myers Way South
Seattle, Washington

Water Depth At Time of Drilling: 7.5 feet bgs

Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
30		3 5 7	100	0.2	P17-30	**SP**		**Wet, medium dense, SAND, gray, no odor (0-100-0).**	
35		7 14 23	100	0.2	P17-35	**SP**		**35 to 35.5 feet bgs: Wet, coarse to medium SAND, gray (0-100-0).** **35.5 to 36.5 feet bgs: Moist, becomes dense, fine SAND with trace silt, no odor (5-95-0).**	
40		8 15 22	100	0.3	P17-40	**SP**		**Moist, dense, fine SAND with trace silt, gray, no odor (5-95-0).**	
								Boring terminated at 41.5 feet bgs. Groundwater encountered at approximately 7.5 feet bgs at time of drilling.	
45									

Drilling Co./Driller:	Holt / Todd	
Drilling Equipment:	Hollow Stem Auger	
Sampler Type:	Split spoon	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	41.5	feet bgs
Total Well Depth:	35	feet bgs
State Well ID No.:	BJZ037	

Well/Auger Diameter:	2" / 6" ID, 8" OD	inches
Well Screened Interval:	35 to 25	feet bgs
Screen Slot Size:	0.020	inches
Filter Pack Used:	Silica Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount	

Notes/Comments:

(15-25-60) = Estimated percentages of fines, sand, and gravel, respectively.

MW15 set to 35' bgs.

SoundEarth Strategies

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	GCF
Date Started:	1/4/16
Surface Conditions:	Gravel
Well Location N/S:	191987.8823
Well Location E/W:	1269985.555
Reviewed by:	LDS
Date Completed:	1/4/15

BORING LOG P18 MW16

Site Address: 9501 Myers Way South, Seattle, Washington

Water Depth At Time of Drilling: 9 feet bgs

Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
0									
5		8 12 20	80	0.4	P18-05	**SM**		**Moist, dense, silty SAND with trace gravel, gray, no odor (15-70-5).**	
		5 8 14	100	0.4	P18-07.5	**SP**		**Moist, medium dense, medium SAND, gray, no odor (0-100-0).**	
10		9 15 20	100	NR	P18-10	**SP**		**Wet, dense, medium SAND, gray to black, no odor (0-100-0).**	
15									

Drilling Co./Driller:	Holt / Todd	
Drilling Equipment:	Hollow Stem Auger	
Sampler Type:	Split spoon	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	16.5	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BJZ038	

Well/Auger Diameter:	2" / 6" ID, 8" OD	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.020	inches
Filter Pack Used:	Silica Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount	

Notes/Comments:

(15-25-60) = Estimated percentages of fines, sand, and gravel, respectively.

MW16 set to 15' bgs.

Project:	Myers Way Property
Project Number:	0987-010
Logged by:	GCF
Date Started:	1/4/16
Surface Conditions:	Gravel
Well Location N/S:	191987.8823
Well Location E/W:	1269985.555
Reviewed by:	LDS
Date Completed:	1/4/15

BORING LOG P18 MW16

Site Address: 9501 Myers Way South, Seattle, Washington

Water Depth At Time of Drilling: 9 feet bgs

Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Detail/ Water Depth
15		6 12 23	100	NR	P18-15	**SP**		**Wet, dense, medium SAND, gray, no odor (0-100-0).**	
								Boring terminated at 16.5 feet bgs. Groundwater encountered at 9 feet bgs at time of drilling.	
20									
25									
30									

Drilling Co./Driller:	Holt / Todd	
Drilling Equipment:	Hollow Stem Auger	
Sampler Type:	Split spoon	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	16.5	feet bgs
Total Well Depth:	15	feet bgs
State Well ID No.:	BJZ038	

Well/Auger Diameter:	2" / 6" ID, 8" OD	inches
Well Screened Interval:	5 to 15	feet bgs
Screen Slot Size:	0.020	inches
Filter Pack Used:	Silica Sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flushmount	

Notes/Comments:

(15-25-60) = Estimated percentages of fines, sand, and gravel, respectively.

MW16 set to 15' bgs.

APPENDIX D
LABORATORY ANALYTICAL REPORTS

Friedman & Bruya, Inc. #411304 and additional

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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December 3, 2014

Audrey Hackett, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Hackett:

Included are the results from the testing of material submitted on November 18, 2014 from the SOU_0987-010-01_20141118, F&BI 411304 project. There are 22 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SOU1203R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 18, 2014 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-01_20141118, F&BI 411304 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
411304-01	P01-05
411304-02	P01-10
411304-03	P01-15
411304-04	P02-05
411304-05	P02-07
411304-06	P02-14
411304-07	P02-20
411304-08	P03-04.5
411304-09	P03-09
411304-10	P03-15
411304-11	P04-03.5
411304-12	P04-08
411304-13	P04-15
411304-14	P05-05
411304-15	P05-09
411304-16	P05-15
411304-17	P06-05
411304-18	P06-08.5
411304-19	P06-15

All quality control requirements were acceptable.

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	P01-10	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/25/14	Lab ID:	411304-02 1/5
Date Analyzed:	11/25/14	Data File:	112519.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	50	150
Benzo(a)anthracene-d12	110	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.010
Anthracene	<0.01
Fluoranthene	0.017
Pyrene	0.021
Benz(a)anthracene	0.011
Chrysene	0.017
Benzo(a)pyrene	0.015
Benzo(b)fluoranthene	0.016
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	0.010
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	0.013

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	P02-07	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/24/14	Lab ID:	411304-05 1/5
Date Analyzed:	11/24/14	Data File:	112419.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	76	50	150
Benzo(a)anthracene-d12	87	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.017
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.031
Anthracene	<0.01
Fluoranthene	0.036
Pyrene	0.043
Benz(a)anthracene	0.013
Chrysene	0.019
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	0.016
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	P03-09	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/24/14	Lab ID:	411304-09 1/5
Date Analyzed:	11/24/14	Data File:	112412.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	76	50	150
Benzo(a)anthracene-d12	88	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.017
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.038
Anthracene	<0.01
Fluoranthene	0.054
Pyrene	0.056
Benz(a)anthracene	0.021
Chrysene	0.023
Benzo(a)pyrene	0.015
Benzo(b)fluoranthene	0.027
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	0.010
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	0.011

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	P04-15	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/24/14	Lab ID:	411304-13 1/5
Date Analyzed:	11/24/14	Data File:	112413.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	74	50	150
Benzo(a)anthracene-d12	88	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.016
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.035
Anthracene	<0.01
Fluoranthene	0.068
Pyrene	0.087
Benz(a)anthracene	0.046
Chrysene	0.053
Benzo(a)pyrene	0.057
Benzo(b)fluoranthene	0.068
Benzo(k)fluoranthene	0.019
Indeno(1,2,3-cd)pyrene	0.044
Dibenz(a,h)anthracene	0.011
Benzo(g,h,i)perylene	0.052

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	P06-08.5	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/24/14	Lab ID:	411304-18 1/5
Date Analyzed:	11/25/14	Data File:	112509.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	50	150
Benzo(a)anthracene-d12	100	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.015
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.027
Anthracene	<0.01
Fluoranthene	0.061
Pyrene	0.068
Benz(a)anthracene	0.028
Chrysene	0.042
Benzo(a)pyrene	0.025
Benzo(b)fluoranthene	0.039
Benzo(k)fluoranthene	0.016
Indeno(1,2,3-cd)pyrene	0.018
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	0.023

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/24/14	Lab ID:	04-2373 mb 1/5
Date Analyzed:	11/24/14	Data File:	112404.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	69	50	150
Benzo(a)anthracene-d12	81	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/25/14	Lab ID:	04-2373 mb2
Date Analyzed:	11/25/14	Data File:	112518.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	50	150
Benzo(a)anthracene-d12	118	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	P01-05	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	411304-01
Date Analyzed:	11/24/14	Data File:	411304-01.021
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	102	60	125
Indium	92	60	125
Holmium	98	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	12.7
Arsenic	3.82
Cadmium	<1
Lead	27.4
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P01-10	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	411304-02
Date Analyzed:	11/24/14	Data File:	411304-02.022
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	60	125
Indium	90	60	125
Holmium	95	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	7.54
Arsenic	6.76
Cadmium	<1
Lead	112
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P02-05	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	411304-04
Date Analyzed:	11/24/14	Data File:	411304-04.023
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	105	60	125
Indium	90	60	125
Holmium	97	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	26.2
Arsenic	9.12
Cadmium	<1
Lead	14.0
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P02-07	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	411304-05
Date Analyzed:	11/24/14	Data File:	411304-05.024
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	94	60	125
Holmium	95	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	18.4
Arsenic	55.2
Cadmium	1.23
Lead	245
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P03-04.5	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	411304-08
Date Analyzed:	11/24/14	Data File:	411304-08.025
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	90	60	125
Holmium	96	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	11.5
Arsenic	1.74
Cadmium	<1
Lead	5.45
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P03-09	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	411304-09
Date Analyzed:	11/24/14	Data File:	411304-09.026
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	100	60	125
Indium	96	60	125
Holmium	95	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	18.7
Arsenic	58.7
Cadmium	1.34
Lead	351
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	P04-08	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	411304-12
Date Analyzed:	11/24/14	Data File:	411304-12.027
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	107	60	125
Indium	93	60	125
Holmium	100	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	16.9
Arsenic	6.49
Cadmium	<1
Lead	29.9
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P05-09	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	411304-15
Date Analyzed:	11/24/14	Data File:	411304-15.028
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	100	60	125
Indium	96	60	125
Holmium	94	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	15.9
Arsenic	71.7
Cadmium	1.33
Lead	338
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P06-08.5	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	411304-18
Date Analyzed:	11/24/14	Data File:	411304-18.030
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	60	125
Indium	97	60	125
Holmium	93	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	15.2
Arsenic	109
Cadmium	1.63
Lead	524
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P06-15	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	411304-19
Date Analyzed:	11/24/14	Data File:	411304-19.031
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	100	60	125
Indium	92	60	125
Holmium	96	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	8.08
Arsenic	3.97
Cadmium	<1
Lead	15.4
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	11/21/14	Lab ID:	I4-748 mb
Date Analyzed:	11/24/14	Data File:	I4-748 mb.009
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	100	60	125
Indium	97	60	125
Holmium	99	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Cadmium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/03/14
Date Received: 11/18/14
Project: SOU_0987-010-01_20141118, F&BI 411304

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 411388-01 (Matrix Spike) 1/5

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	0.034	101	98	44-129	3
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	86	84	52-121	2
Acenaphthene	mg/kg (ppm)	0.17	<0.01	91	91	51-123	0
Fluorene	mg/kg (ppm)	0.17	0.034	96	91	37-137	5
Phenanthrene	mg/kg (ppm)	0.17	0.043	91 b	85 b	45-124	7 b
Anthracene	mg/kg (ppm)	0.17	<0.01	88	87	32-124	1
Fluoranthene	mg/kg (ppm)	0.17	<0.01	87	85	50-125	2
Pyrene	mg/kg (ppm)	0.17	0.014	98	92	41-135	6
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	90	88	23-144	2
Chrysene	mg/kg (ppm)	0.17	<0.01	88	86	45-122	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	97	94	31-144	3
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	106	102	45-130	4
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	94	93	39-128	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	94	93	28-146	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	94	93	46-129	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	92	92	37-133	0

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	84	58-121
Acenaphthylene	mg/kg (ppm)	0.17	85	54-121
Acenaphthene	mg/kg (ppm)	0.17	86	54-123
Fluorene	mg/kg (ppm)	0.17	88	56-127
Phenanthrene	mg/kg (ppm)	0.17	87	55-122
Anthracene	mg/kg (ppm)	0.17	81	50-120
Fluoranthene	mg/kg (ppm)	0.17	86	54-129
Pyrene	mg/kg (ppm)	0.17	91	53-127
Benz(a)anthracene	mg/kg (ppm)	0.17	88	51-115
Chrysene	mg/kg (ppm)	0.17	90	55-129
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	95	56-123
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	104	54-131
Benzo(a)pyrene	mg/kg (ppm)	0.17	87	51-118
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	96	49-148
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	97	50-141
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	96	52-131

Date of Report: 12/03/14
Date Received: 11/18/14
Project: SOU_0987-010-01_20141118, F&BI 411304

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 411378-27 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	5.16	100	99	57-128	1
Arsenic	mg/kg (ppm)	10	<1	94	96	70-118	2
Cadmium	mg/kg (ppm)	10	<1	105	107	83-116	2
Lead	mg/kg (ppm)	50	1.24	107	108	59-148	1
Mercury	mg/kg (ppm	10	<1	101	102	50-150	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	94	78-121
Arsenic	mg/kg (ppm)	10	91	83-113
Cadmium	mg/kg (ppm)	10	97	54-114
Lead	mg/kg (ppm)	50	97	80-120
Mercury	mg/kg (ppm)	10	89	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

411304

SAMPLE CHAIN OF CUSTODY ME 11-18-14

Page # 1 of 3

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E. Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. Myers Way Property

PO # 0987-010-01

REMARKS Hold

TURNAROUND TIME
Standard (2 Weeks)
RUSH NEED By 12/1
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 Metals 200.8/1631E	PAHs 8270		Notes
P01-05	P01	05	01 A-B	11/17/14	1015	Soil	2						X			
P01-10		10	02		1025		2						X	X		
P01-15		15	03		1030		2									
P02-05	P02	05	04		1135		2						X			
P02-07		07	05		1145		2						X	X		
P02-14		14	06		1155		2									
P02-20		20	07		1200		2									
~~P02~~		CC 11/17/14														

Samples received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Chris Cass	SoundEarth Strategies, Inc.	11/18/14	
Received by:		E McKay	POST EXP	11/18/14	1320
Relinquished by:					
Received by:		Nhan Phan	FeB I	11/18/14	1320

(411304

SAMPLE CHA(OF CUSTODY

ME 11-18-14

Page # 2 of 3 Day

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E. Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)	
PROJECT NAME/NO. Myers Way Property	PO # 0987-010-01
REMARKS Hold	

TURNAROUND TIME
- Standard (2 Weeks)
- X RUSH Need By 12/1

Rush charges authorized by:

SAMPLE DISPOSAL
- Dispose after 30 days
- Return samples
- Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 Metals 200.8/1631E	PAHs 8270		Notes
PO3-04.5	PO3	04.5	08 A-B	11/17/14	1205	Soil	2						X			
PO3-09	↓	09	09		1210		2						X	X		
PO3-15	↓	15	10		1220		2									
PO4-03.5	PO4	03.5	11		1230		2									
PO4-08	↓	08	12		1240		2						X			
PO4-15	↓	15	13		1250		2							X		
PO5-05	PO5	05	14		1300		2									
PO5-09	↓	09	15		1310		2						X			
PO5-15	↓	15	16		1320		2									
PO6-05	PO6	05	17 ↓	↓	1335	↓	2									received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Chris Cass	SoundEarth Strategies, Inc.	11/18/14	
Received by:	F. McKay	VOSTEW	11/18/14	1238
Relinquished by:				
Received by:	Nhan Phan	FeBI	11/18/14	1320

(411304 **SAMPLE CHA(OF CUSTODY** ME 11-18-14 D04

Page # 3 of 3

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E. Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)	
PROJECT NAME/NO. Myers Way Property	PO # 0987-010-01
REMARKS Hold	

TURNAROUND TIME
Standard (2 Weeks)
⊗ RUSH Need By 12/1
Rush charges authorized by:
SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 Metals 200.8/1631E	PAHs 8270		Notes
PCE-08.5	PCE	08.5	18 A-B	11/17/14	1345	Soil	2						X	X		
PCE-15	↓	15	19 ↓	↓	1355	↓	2						X			
																Samples received at 4 °C

RCE 11/17/14

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Chris Cass	SoundEarth Strategies, Inc.	11/18/14	
Received by:	F. Mulkey	Most Exp	11/18/14	1230
Relinquished by:				
Received by:	Nhan Phan	FeBI	11/18/14	1320

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 30, 2014

Audrey Hackett, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Hackett:

Included are the additional results from the testing of material submitted on November 18, 2014 from the SOU_0987-010-01_20141118, F&BI 411304 project. There are 9 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SOU1230R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 18, 2014 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-01_20141118, F&BI 411304 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
411304-01	P01-05
411304-02	P01-10
411304-03	P01-15
411304-04	P02-05
411304-05	P02-07
411304-06	P02-14
411304-07	P02-20
411304-08	P03-04.5
411304-09	P03-09
411304-10	P03-15
411304-11	P04-03.5
411304-12	P04-08
411304-13	P04-15
411304-14	P05-05
411304-15	P05-09
411304-16	P05-15
411304-17	P06-05
411304-18	P06-08.5
411304-19	P06-15

All quality control requirements were acceptable.

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	P01-10	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	12/19/14	Lab ID:	411304-02
Date Analyzed:	12/19/14	Data File:	411304-02.015
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	98	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	P02-07	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	12/19/14	Lab ID:	411304-05
Date Analyzed:	12/19/14	Data File:	411304-05.019
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	99	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	P03-09	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	12/19/14	Lab ID:	411304-09
Date Analyzed:	12/19/14	Data File:	411304-09.020
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	99	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	P05-09	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	12/19/14	Lab ID:	411304-15
Date Analyzed:	12/19/14	Data File:	411304-15.021
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	97	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	P06-08.5	Client:	SoundEarth Strategies
Date Received:	11/18/14	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	12/19/14	Lab ID:	411304-18
Date Analyzed:	12/19/14	Data File:	411304-18.022
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	96	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Arsenic	<1	5.0

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141118, F&BI 411304
Date Extracted:	12/19/14	Lab ID:	I4-812 mb
Date Analyzed:	12/19/14	Data File:	I4-812 mb.013
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	97	60	125
Holmium	98	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Arsenic	<1	5.0
Lead	<1	5.0

Date of Report: 12/30/14
Date Received: 11/18/14
Project: SOU_0987-010-01_20141118, F&BI 411304

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TCLP METALS USING
EPA METHOD 200.8 AND 40 CFR PART 261

Laboratory Code: 411304-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/L (ppm)	1.0	<1	100	93	50-150	7
Lead	mg/L (ppm)	1.0	<1	106	97	50-150	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/L (ppm)	1.0	100	70-130
Lead	mg/L (ppm)	1.0	106	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

(411304 SAMPLE CH(OF CUSTODY ME 11-18-14 (Page # 1 of 3 Doc

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E. Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. Myers Way Property

PO # 0987-010-01

REMARKS Hold

TURNAROUND TIME
Standard (2 Weeks)
RUSH Need By 12/1
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 Metals 200.8/1631E	PAHs 8270	TCLP Lead	Notes
P01-05	P01	05	01	11/17/14	1015	Soil	2						X			O-per AH
P01-10		10	02		1025		2						X	X	O	12/17/14
P01-15		15	03		1030		2									ms
P02-05	P02	05	04		1135		2						X			
P02-07		07	05		1145		2						X	X	O	
P02-14		14	06		1155		2									
P02-20		20	07		1200		2									
~~P02~~																
		CCC 11/17/14											Samples received at 4 °C			

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Chris Cass	SoundEarth Strategies, Inc.	11/18/14	
Received by:	E Mckay	Post Exp	11/18/14	1320
Relinquished by:				
Received by:	Nhan Phan	FeB I	11/18/14	1320

(411304

SAMPLE CHA(OF CUSTODY

ME 11-18-14

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E. Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)	
PROJECT NAME/NO. Myers Way Property	PO # 0987-010-01
REMARKS Hold	

Page # 2 of 3 Day

TURNAROUND TIME
Standard (2 Weeks)
X RUSH Need By 12/1
Rush charges authorized by:
SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 Metals 200.8/1631E	PAHs 8270	TCLP Lead	Notes
PO3-C4.5	PO3	C4.5	08	11/17/14	1205	Soil	2						X			
PO3-C9	↓	C9	09	↓	1210	↓	2						X	X	O	
PO3-15	↓	15	10	↓	1220	↓	2									
PO4-C3.5	PO4	C3.5	11	↓	1230	↓	2									
PO4-08	↓	C8	12	↓	1240	↓	2						X			
PO4-15	↓	15	13	↓	1250	↓	2							X		
PC5-C5	PC5	C5	14	↓	1300	↓	2									
PC5-C9	↓	C9	15	↓	1310	↓	2						X		O	
PO5-15	↓	15	16	↓	1320	↓	2									
PO6-05	PO6	C5	17	↓	1335	↓	2									received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Chris Cass	SoundEarth Strategies, Inc.	11/18/14	
Received by:	F. McKay	VOSTEW	11/18/14	1235
Relinquished by:				
Received by:	Nhan Phan	FeBI	11/18/14	1320

(411304

SAMPLE CHA(OF CUSTODY ME 11-18-14

DO4

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E. Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO.	PO #
Myers Way Property	0987-010-01

REMARKS Hold

Page # 3 of 3

TURNAROUND TIME

Standard (2 Weeks)

☒ RUSH Need By 12/1

Rush charges authorized by: [illegible]

SAMPLE DISPOSAL

Dispose after 30 days

Return samples

Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 METALS 200.8/1631E	PAHS 8270	TCLP Lead, Arsenic	Notes
PCE-0.85	PCE	0.85	18 A-B	11/17/14	~~[illegible]~~ 1345	Soil	2						X	X	O	
PCE-15	↓	15	19	↓	1355	↓	2						X			

RCC 11/17/14

Samples received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Chris Cass	SoundEarth Strategies, Inc.	11/18/14	
Received by: [signature]	E MULKEY	[illegible] EXP	11/18/14	1230
Relinquished by:				
Received by: [signature]	Nhan Phan	FeBI	11/18/14	1320

Friedman & Bruya, Inc. #411326

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 26, 2014

Audrey Hackett, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Hackett:

Included are the results from the testing of material submitted on November 19, 2014 from the SOU_0987-010-01_20141119, F&BI 411326 project. There are 12 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SOU1126R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 19, 2014 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-01_20141119, F&BI 411326 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
411326 -01	PGG-3-20141118
411326 -02	PGG-2-20141118

The samples were filtered at Friedman and Bruya on November 19, 2014 at 10:40 AM. The data were flagged accordingly.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	PGG-3-20141118 f	Client:	SoundEarth Strategies
Date Received:	11/19/14	Project:	SOU_0987-010-01_20141119, F&BI 411326
Date Extracted:	11/20/14	Lab ID:	411326-01
Date Analyzed:	11/20/14	Data File:	411326-01.060
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	102	60	125
Indium	97	60	125
Holmium	100	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	<1
Cadmium	<1
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	PGG-2-20141118 f	Client:	SoundEarth Strategies
Date Received:	11/19/14	Project:	SOU_0987-010-01_20141119, F&BI 411326
Date Extracted:	11/20/14	Lab ID:	411326-02
Date Analyzed:	11/20/14	Data File:	411326-02.063
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	100	60	125
Indium	96	60	125
Holmium	99	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	<1
Cadmium	<1
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141119, F&BI 411326
Date Extracted:	11/20/14	Lab ID:	I4-738 mb
Date Analyzed:	11/20/14	Data File:	I4-738 mb.058
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	110	60	125
Indium	106	60	125
Holmium	105	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	<1
Cadmium	<1
Lead	<1

Date of Report: 11/26/14
Date Received: 11/19/14
Project: SOU_0987-010-01_20141119, F&BI 411326
Date Extracted: 11/20/14
Date Analyzed: 11/21/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED MERCURY
USING EPA METHOD 1631E
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Dissolved Mercury
PGG-3-20141118 f 411326-01	<0.1
PGG-2-20141118 f 411326-02	<0.1
Method Blank	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	PGG-3-20141118	Client:	SoundEarth Strategies
Date Received:	11/19/14	Project:	SOU_0987-010-01_20141119
Date Extracted:	11/19/14	Lab ID:	411326-01 1/2
Date Analyzed:	11/20/14	Data File:	112007.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	50	150
Benzo(a)anthracene-d12	109	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	PGG-2-20141118	Client:	SoundEarth Strategies
Date Received:	11/19/14	Project:	SOU_0987-010-01_20141119
Date Extracted:	11/19/14	Lab ID:	411326-02 1/2
Date Analyzed:	11/20/14	Data File:	112008.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	50	150
Benzo(a)anthracene-d12	103	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141119
Date Extracted:	11/19/14	Lab ID:	04-2349 mb2 1/2
Date Analyzed:	11/20/14	Data File:	112006.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98	50	150
Benzo(a)anthracene-d12	113	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Date of Report: 11/26/14
Date Received: 11/19/14
Project: SOU_0987-010-01_20141119, F&BI 411326

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 411326-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	ug/L (ppb)	20	<1	103	101	64-132	2
Arsenic	ug/L (ppb)	10	<1	104	101	60-150	3
Cadmium	ug/L (ppb)	5	<1	101	99	83-116	2
Lead	ug/L (ppb)	10	<1	105	104	79-121	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	100	80-119
Arsenic	ug/L (ppb)	10	95	80-111
Cadmium	ug/L (ppb)	5	96	83-113
Lead	ug/L (ppb)	10	105	83-115

Date of Report: 11/26/14
Date Received: 11/19/14
Project: SOU_0987-010-01_20141119, F&BI 411326

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
DISSOLVED MERCURY
USING EPA METHOD 1631E**

Laboratory Code: 411326-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	ug/L (ppb)	0.5	<0.1	94	95	71-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.5	92	88-113

Date of Report: 11/26/14
Date Received: 11/19/14
Project: SOU_0987-010-01_20141119, F&BI 411326

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	91	92	67-116	1
Acenaphthylene	ug/L (ppb)	1	94	96	65-119	2
Acenaphthene	ug/L (ppb)	1	91	93	66-118	2
Fluorene	ug/L (ppb)	1	95	97	64-125	2
Phenanthrene	ug/L (ppb)	1	93	96	67-120	3
Anthracene	ug/L (ppb)	1	94	95	65-122	1
Fluoranthene	ug/L (ppb)	1	94	96	65-127	2
Pyrene	ug/L (ppb)	1	96	96	62-130	0
Benz(a)anthracene	ug/L (ppb)	1	98	97	60-118	1
Chrysene	ug/L (ppb)	1	95	98	66-125	3
Benzo(b)fluoranthene	ug/L (ppb)	1	107	106	55-135	1
Benzo(k)fluoranthene	ug/L (ppb)	1	105	108	62-125	3
Benzo(a)pyrene	ug/L (ppb)	1	107	108	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	105	107	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	87	95	37-133	9
Benzo(g,h,i)perylene	ug/L (ppb)	1	91	98	34-135	7

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

411326

SAMPLE CHAIN OF CUSTODY ME 11-19-14

D04 / 1 / A25

Send Report to	Audrey Hackett
Company	SoundEarth Strategies, Inc.
Address	2811 Fairview Avenue E, Suite 2000
City, State, ZIP	Seattle, Washington 98102
Phone #	206-306-1900
Fax #	206-306-1907

SAMPLERS *(signature)*	
PROJECT NAME/NO.	PO #
Myers Way Property	0987-010-01
REMARKS	
* [illegible] MTCA 5 analysis	

Page # 1 of 1

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	Dissolved MTCA 5 metals *	PAHs 8270		Notes
PGG-3-20141118	PGG-3	-	01 A-B	11/18/14	1048	H_2O	2						X	X		* Lab Filter prior to MTCA 5 analysis
PGG-1-20141118	PGG-1	-	02 ↓	11/18/14	1204	H_2O	2						X	X		* ↓
													Samples received at 4 °C			

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Chris Cass	SoundEarth Strategies, Inc.	11/19/14	
Received by:	Deborah Sams	Fedex SOC	11/19	9:30
Relinquished by:				
Received by:	Nhan Phan	FEBI	11/19/14	1025

MS\COC\COC.DOC

Friedman & Bruya, Inc. #411327

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 26, 2014

Audrey Hackett, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Hackett:

Included are the results from the testing of material submitted on November 19, 2014 from the SOU_0987-010-01_20141119, F&BI 411327 project. There are 12 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SOU1126R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 19, 2014 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-01_20141119, F&BI 411327 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
411327-01	P07-04
411327-02	P07-08.5
411327-03	P07-15

All quality control requirements were acceptable.

Date of Report: 11/26/14
Date Received: 11/19/14
Project: SOU_0987-010-01_20141119, F&BI 411327
Date Extracted: 11/21/14
Date Analyzed: 11/21/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx
Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
P07-08.5 411327-02	<0.02	<0.02	<0.02	<0.06	<2	85
Method Blank 04-2339 MB	<0.02	<0.02	<0.02	<0.06	<2	87

Date of Report: 11/26/14
Date Received: 11/19/14
Project: SOU_0987-010-01_20141119, F&BI 411327
Date Extracted: 11/21/14
Date Analyzed: 11/21/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
P07-08.5 411327-02	<50	<250	83
Method Blank 04-2367 MB	<50	<250	86

Analysis For Total Metals By EPA Method 200.8

Client ID:	P07-08.5	Client:	SoundEarth Strategies
Date Received:	11/19/14	Project:	SOU_0987-010-01_20141119, F&BI 411327
Date Extracted:	11/21/14	Lab ID:	411327-02
Date Analyzed:	11/24/14	Data File:	411327-02.032
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	104	60	125
Indium	91	60	125
Holmium	96	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	24.8
Arsenic	4.90
Cadmium	<1
Lead	32.1
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0987-010-01_20141119, F&BI 411327
Date Extracted:	11/21/14	Lab ID:	I4-748 mb
Date Analyzed:	11/24/14	Data File:	I4-748 mb.009
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	100	60	125
Indium	97	60	125
Holmium	99	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Cadmium	<1
Lead	<1
Mercury	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	P07-08.5	Client:	SoundEarth Strategies
Date Received:	11/19/14	Project:	SOU_0987-010-01_20141119, F&BI 411327
Date Extracted:	11/24/14	Lab ID:	411327-02 1/5
Date Analyzed:	11/24/14	Data File:	112409.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	74	50	150
Benzo(a)anthracene-d12	84	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.019
Anthracene	<0.01
Fluoranthene	0.012
Pyrene	0.014
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141119, F&BI 411327
Date Extracted:	11/24/14	Lab ID:	04-2373 mb 1/5
Date Analyzed:	11/24/14	Data File:	112404.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	69	50	150
Benzo(a)anthracene-d12	81	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 11/26/14
Date Received: 11/19/14
Project: SOU_0987-010-01_20141119, F&BI 411327

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 411234-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	91	69-120
Toluene	mg/kg (ppm)	0.5	95	70-117
Ethylbenzene	mg/kg (ppm)	0.5	94	65-123
Xylenes	mg/kg (ppm)	1.5	93	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 11/26/14
Date Received: 11/19/14
Project: SOU_0987-010-01_20141119, F&BI 411327

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 411378-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	12,000	93 b	47 b	63-146	66 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	91	79-144

Date of Report: 11/26/14
Date Received: 11/19/14
Project: SOU_0987-010-01_20141119, F&BI 411327

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 411378-27 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	5.16	100	99	57-128	1
Arsenic	mg/kg (ppm)	10	<1	94	96	70-118	2
Cadmium	mg/kg (ppm)	10	<1	105	107	83-116	2
Lead	mg/kg (ppm)	50	1.24	107	108	59-148	1
Mercury	mg/kg (ppm	10	<1	101	102	50-150	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	94	78-121
Arsenic	mg/kg (ppm)	10	91	83-113
Cadmium	mg/kg (ppm)	10	97	54-114
Lead	mg/kg (ppm)	50	97	80-120
Mercury	mg/kg (ppm)	10	89	70-130

Date of Report: 11/26/14
Date Received: 11/19/14
Project: SOU_0987-010-01_20141119, F&BI 411327

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 411388-01 (Matrix Spike) 1/5

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	0.034	101	98	44-129	3
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	86	84	52-121	2
Acenaphthene	mg/kg (ppm)	0.17	<0.01	91	91	51-123	0
Fluorene	mg/kg (ppm)	0.17	0.034	96	91	37-137	5
Phenanthrene	mg/kg (ppm)	0.17	0.043	91 b	85 b	45-124	7 b
Anthracene	mg/kg (ppm)	0.17	<0.01	88	87	32-124	1
Fluoranthene	mg/kg (ppm)	0.17	<0.01	87	85	50-125	2
Pyrene	mg/kg (ppm)	0.17	0.014	98	92	41-135	6
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	90	88	23-144	2
Chrysene	mg/kg (ppm)	0.17	<0.01	88	86	45-122	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	97	94	31-144	3
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	106	102	45-130	4
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	94	93	39-128	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	94	93	28-146	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	94	93	46-129	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	92	92	37-133	0

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	84	58-121
Acenaphthylene	mg/kg (ppm)	0.17	85	54-121
Acenaphthene	mg/kg (ppm)	0.17	86	54-123
Fluorene	mg/kg (ppm)	0.17	88	56-127
Phenanthrene	mg/kg (ppm)	0.17	87	55-122
Anthracene	mg/kg (ppm)	0.17	81	50-120
Fluoranthene	mg/kg (ppm)	0.17	86	54-129
Pyrene	mg/kg (ppm)	0.17	91	53-127
Benz(a)anthracene	mg/kg (ppm)	0.17	88	51-115
Chrysene	mg/kg (ppm)	0.17	90	55-129
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	95	56-123
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	104	54-131
Benzo(a)pyrene	mg/kg (ppm)	0.17	87	51-118
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	96	49-148
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	97	50-141
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	96	52-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

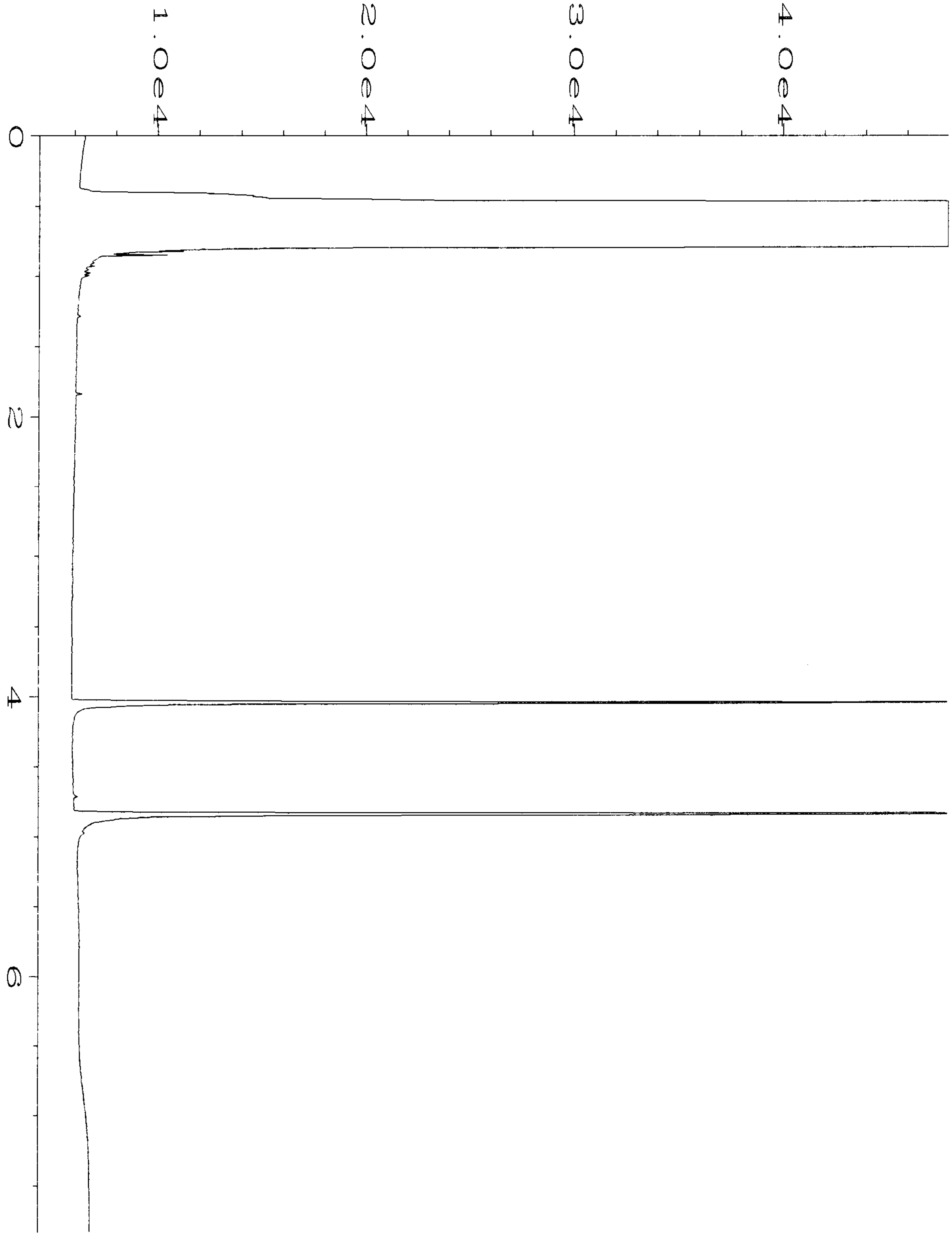
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

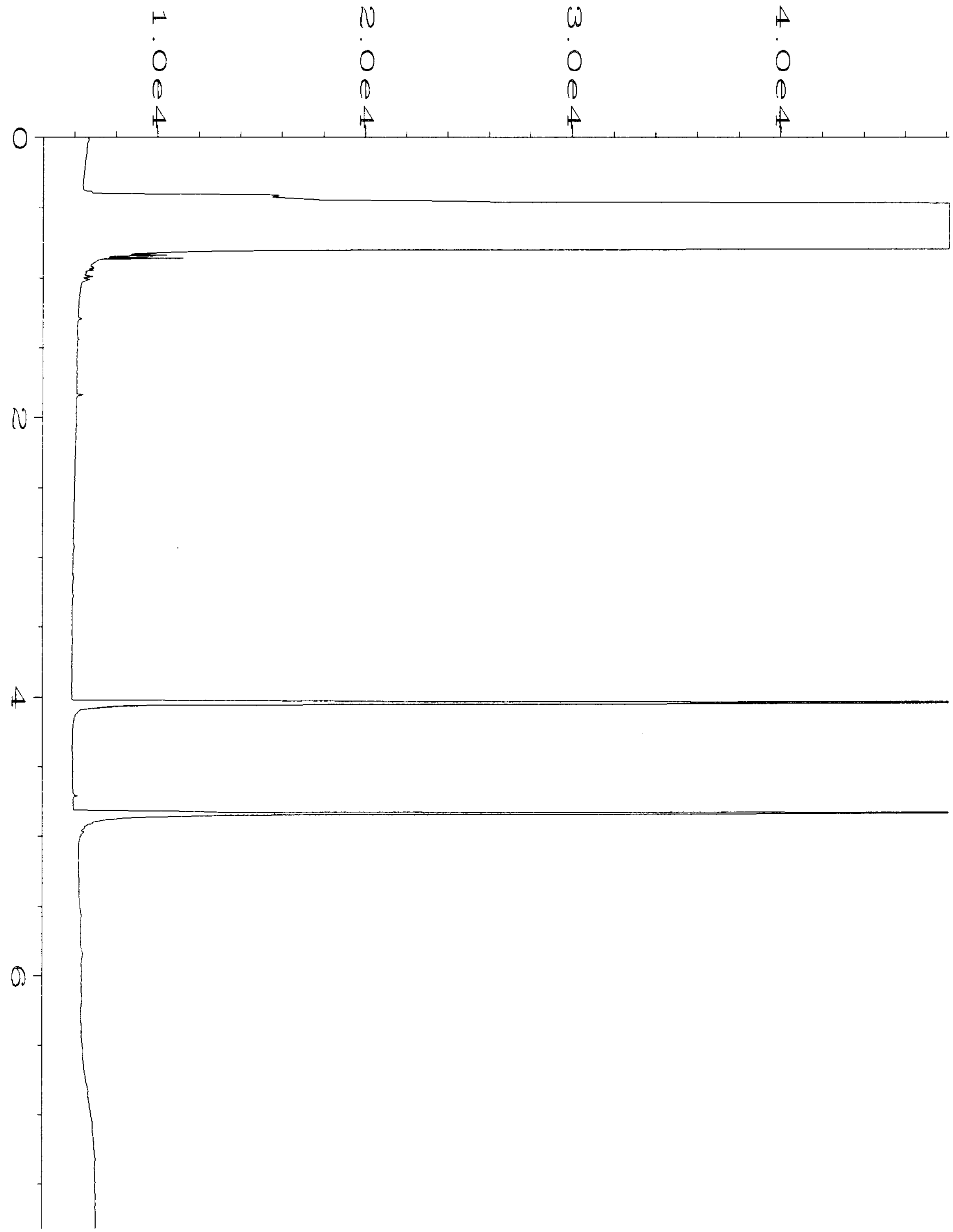
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

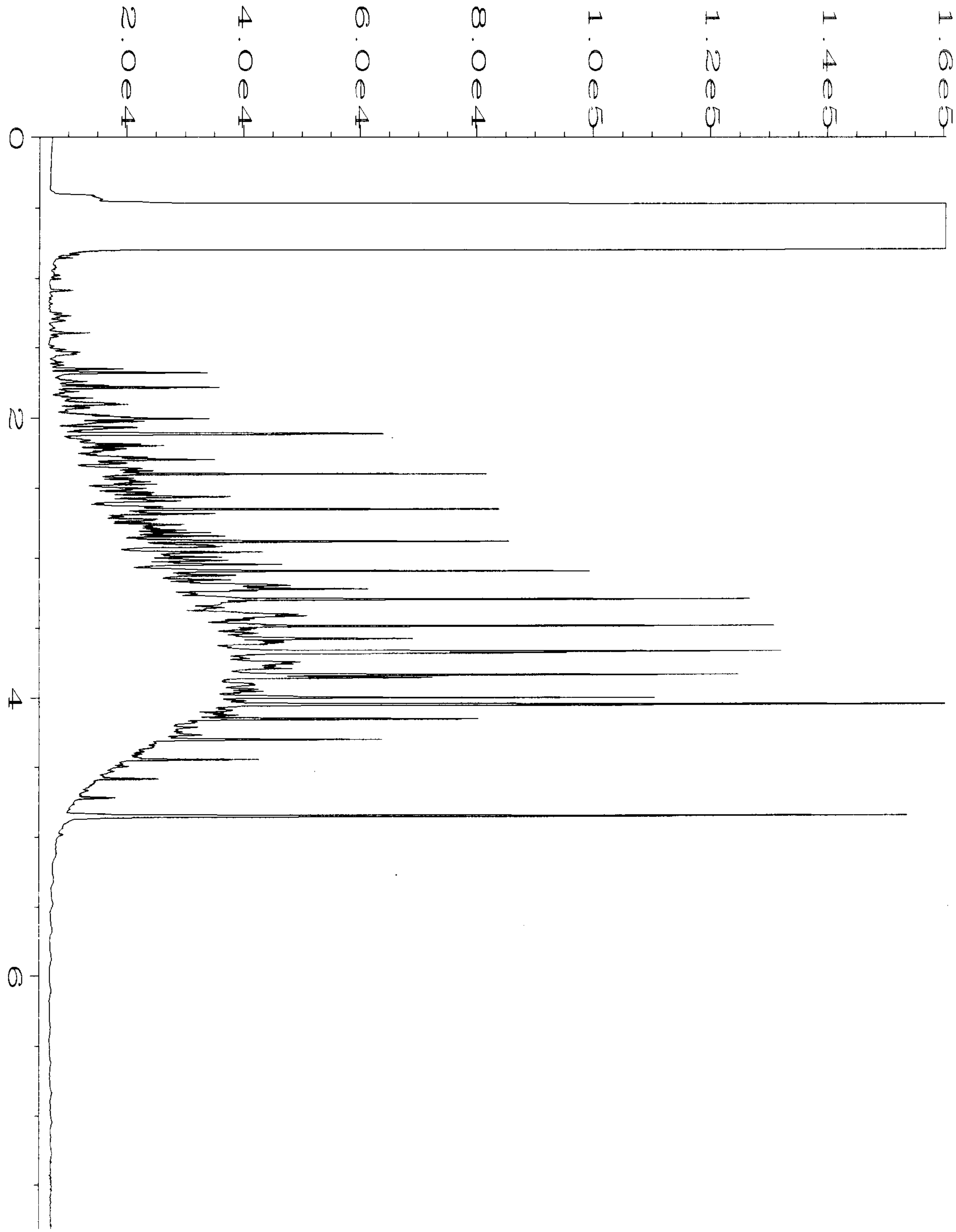


Data File Name	: C:\HPCHEM\1\DATA\11-21-14\058F0901.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 58
Sample Name	: 411327-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 21 Nov 14 09:34 PM	Instrument Method:	DX.MTH
Report Created on:	24 Nov 14 11:15 AM	Analysis Method	: END.MTH



Data File Name   : C:\HPCHEM\1\DATA\11-21-14\050F0901.D
Operator   : mwdl
Instrument   : GC1
Sample Name   : 04-2367 mb
Run Time Bar Code:
Acquired on   : 21 Nov 14 07:51 PM
Report Created on: 24 Nov 14 11:15 AM

Page Number   : 1
Vial Number   : 50
Injection Number : 1
Sequence Line   : 9
Instrument Method: DX.MTH
Analysis Method   : END.MTH



Data File Name	: C:\HPCHEM\1\DATA\11-21-14\003F0201.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 3
Sample Name	: 500 Dx 43-199B	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 21 Nov 14 09:12 AM	Instrument Method:	DX.MTH
Report Created on:	24 Nov 14 11:15 AM	Analysis Method	: END.MTH

(411327

SAMPLE CHA( )OF CUSTODY

MG 11-19-14

VS/

Page # 1 of 1 DOA

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (*signature*)	
PROJECT NAME/NO. Myers Way Property	PO # 0987-010-01
REMARKS	

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix (NP 11/19)	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 Metals	PAHs		Notes
P07-04	P07	04	01 A-B	11/18/14	1500	Soil ~~H2O~~	2									X-per AF
P07-08.5	P07	08.5	02 A-F	11/18/14	1510	Soil ~~H2O~~	6	X	X	X			X	X		11/20/14
P07-15	P07	15	03 A-B	11/18/14	1515	Soil ~~H2O~~	2									ME

Samples received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Chris Cass	SoundEarth Strategies, Inc.	11/19/14	
Received by:	[signature]	Deborah Sams	Fedex SDC	11/19	9:30
Relinquished by:					
Received by:	[signature]	Nhan Phan	FeBI	11/19/14	1030

FORMS\COC\COC.DOC

Friedman & Bruya, Inc. #411354

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 26, 2014

Audrey Hackett, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Hackett:

Included are the results from the testing of material submitted on November 20, 2014 from the SOU_0987-010_20141120, F&BI 411354 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SOU1126R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 20, 2014 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010_20141120, F&BI 411354 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
411354 -01	PGG1-20141119

The samples were filtered at Friedman and Bruya on November 20, 2014 at 11:30 AM. The data were flagged accordingly.

All quality control requirements were acceptable.

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	PGG1-20141119 f	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010_20141120, F&BI 411354
Date Extracted:	11/20/14	Lab ID:	411354-01
Date Analyzed:	11/20/14	Data File:	411354-01.065
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	93	60	125
Holmium	97	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	2.14
Arsenic	<1
Cadmium	<1
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010_20141120, F&BI 411354
Date Extracted:	11/20/14	Lab ID:	I4-738 mb2
Date Analyzed:	11/20/14	Data File:	I4-738 mb2.064
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	101	60	125
Indium	97	60	125
Holmium	100	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	<1
Cadmium	<1
Lead	<1

Date of Report: 11/26/14
Date Received: 11/20/14
Project: SOU_0987-010_20141120, F&BI 411354
Date Extracted: 11/20/14
Date Analyzed: 11/21/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED MERCURY
USING EPA METHOD 1631E
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Dissolved Mercury
PGG1-20141119 f 411354-01	<0.1
Method Blank	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	PGG1-20141119	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010_20141120, F&BI 411354
Date Extracted:	11/20/14	Lab ID:	411354-01 1/2
Date Analyzed:	11/21/14	Data File:	112111.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	101	50	150
Benzo(a)anthracene-d12	110	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	0.17
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010_20141120, F&BI 411354
Date Extracted:	11/20/14	Lab ID:	04-2363 mb 1/2
Date Analyzed:	11/21/14	Data File:	112105.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	103	50	150
Benzo(a)anthracene-d12	116	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Date of Report: 11/26/14
Date Received: 11/20/14
Project: SOU_0987-010_20141120, F&BI 411354

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 411326-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	ug/L (ppb)	20	<1	103	101	64-132	2
Arsenic	ug/L (ppb)	10	<1	104	101	60-150	3
Cadmium	ug/L (ppb)	5	<1	101	99	83-116	2
Lead	ug/L (ppb)	10	<1	105	104	79-121	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	100	80-119
Arsenic	ug/L (ppb)	10	95	80-111
Cadmium	ug/L (ppb)	5	96	83-113
Lead	ug/L (ppb)	10	105	83-115

Date of Report: 11/26/14
Date Received: 11/20/14
Project: SOU_0987-010_20141120, F&BI 411354

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
DISSOLVED MERCURY
USING EPA METHOD 1631E

Laboratory Code: 411326-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	ug/L (ppb)	0.5	<0.1	94	95	71-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.5	92	88-113

Date of Report: 11/26/14
Date Received: 11/20/14
Project: SOU_0987-010_20141120, F&BI 411354

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	98	92	67-116	6
Acenaphthylene	ug/L (ppb)	1	103	97	65-119	6
Acenaphthene	ug/L (ppb)	1	99	93	66-118	6
Fluorene	ug/L (ppb)	1	102	95	64-125	7
Phenanthrene	ug/L (ppb)	1	100	94	67-120	6
Anthracene	ug/L (ppb)	1	105	98	65-122	7
Fluoranthene	ug/L (ppb)	1	104	97	65-127	7
Pyrene	ug/L (ppb)	1	108	102	62-130	6
Benz(a)anthracene	ug/L (ppb)	1	109	103	60-118	6
Chrysene	ug/L (ppb)	1	106	103	66-125	3
Benzo(b)fluoranthene	ug/L (ppb)	1	126	111	55-135	13
Benzo(k)fluoranthene	ug/L (ppb)	1	111	111	62-125	0
Benzo(a)pyrene	ug/L (ppb)	1	121	113	58-127	7
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	114	111	36-142	3
Dibenz(a,h)anthracene	ug/L (ppb)	1	106	109	37-133	3
Benzo(g,h,i)perylene	ug/L (ppb)	1	107	108	34-135	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

411354

SAMPLE CHAIN OF CUSTODY

ME 11-20-14 ~~[illegible]~~ A1/4

Page # 1 of 1

Send Report To Audrey Hackett

Company SoundEarth Strategies

Address 2811 Fairview Ave E

City, State, ZIP Seattle WA 98102

Phone # 206 306 1900 Fax #

SAMPLERS (signature)	
PROJECT NAME/NO. Myers Way Property 0987-010	PO # 0987-010-01
REMARKS Lab filter prior to dissolved MTCA 5 analysis	GEMS Y / N

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOC's by 8260	SVOC's by 8270	RCRA-8 Metals	MTCA 5 (dissolved) metals 200.8	PAHS 8270C	Notes
PGG1-291119	PGG1	28'	01 A-B	11/19/14	12:15	W	2							X	X	Lab filter prior to analysis

KS 11/19/2014

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Kristine Sommer	SoundEarth	11/19/14	[illegible]
Received by:					
Relinquished by:					
Received by:	[signature]	Nhan Phan	FeBI	11/20/14	1018

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 4 °C

Friedman & Bruya, Inc. #411355 and additional

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 26, 2014

Audrey Hackett, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Hackett:

Included are the results from the testing of material submitted on November 20, 2014 from the SOU_0987-010-01_20141120, F&BI 411355 project. There are 23 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SOU1126R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 20, 2014 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-01_20141120, F&BI 411355 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
411355-01	P08-04
411355-02	P08-07
411355-03	P08-15
411355-04	P09-04
411355-05	P09-06
411355-06	P09-15
411355-07	P10-04
411355-08	P10-05.5
411355-09	P10-15
411355-10	P11-04
411355-11	P11-10
411355-12	P11-13
411355-13	P12-05
411355-14	P12-10
411355-15	P12-15
411355-16	P12-20
411355-17	P13-05
411355-18	P13-08
411355-19	P13-15
411355-20	P14-05
411355-21	P14-08.5
411355-22	P14-10.5

All quality control requirements were acceptable.

Date of Report: 11/26/14
Date Received: 11/20/14
Project: SOU_0987-010-01_20141120, F&BI 411355
Date Extracted: 11/21/14
Date Analyzed: 11/21/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
P08-15 411355-03	<0.02	<0.02	<0.02	<0.06	<2	88
Method Blank 04-2339 MB	<0.02	<0.02	<0.02	<0.06	<2	87

Date of Report: 11/26/14
Date Received: 11/20/14
Project: SOU_0987-010-01_20141120, F&BI 411355
Date Extracted: 11/21/14
Date Analyzed: 11/21/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
P08-15 411355-03	<50	<250	102
Method Blank 04-2369 MB	<50	<250	98

Analysis For Total Metals By EPA Method 200.8

Client ID:	P08-04	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-01
Date Analyzed:	11/24/14	Data File:	411355-01.063
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	101	60	125
Indium	91	60	125
Holmium	96	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	19.0
Arsenic	3.35
Cadmium	<1
Lead	13.2
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P08-15	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-03
Date Analyzed:	11/24/14	Data File:	411355-03.064
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	103	60	125
Indium	93	60	125
Holmium	97	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	8.13
Arsenic	<1
Cadmium	<1
Lead	1.65
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P09-04	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-04
Date Analyzed:	11/24/14	Data File:	411355-04.066
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	102	60	125
Indium	93	60	125
Holmium	98	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	12.8
Arsenic	1.71
Cadmium	<1
Lead	3.76
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P09-06	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-05
Date Analyzed:	11/24/14	Data File:	411355-05.067
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	106	60	125
Indium	95	60	125
Holmium	101	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	12.5
Arsenic	1.58
Cadmium	<1
Lead	3.28
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P10-05.5	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-08
Date Analyzed:	11/24/14	Data File:	411355-08.068
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	104	60	125
Indium	96	60	125
Holmium	101	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	8.49
Arsenic	1.23
Cadmium	<1
Lead	2.18
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	P11-10	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-11
Date Analyzed:	11/24/14	Data File:	411355-11.069
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	107	60	125
Indium	96	60	125
Holmium	103	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	14.0
Arsenic	2.03
Cadmium	<1
Lead	10.7
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P12-05	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-13
Date Analyzed:	11/24/14	Data File:	411355-13.070
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	103	60	125
Indium	92	60	125
Holmium	97	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	11.1
Arsenic	1.75
Cadmium	<1
Lead	3.71
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P13-08	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-18
Date Analyzed:	11/24/14	Data File:	411355-18.071
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	104	60	125
Indium	96	60	125
Holmium	96	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	16.4
Arsenic	16.7
Cadmium	<1
Lead	106
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P13-15	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-19
Date Analyzed:	11/24/14	Data File:	411355-19.072
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	110	60	125
Indium	94	60	125
Holmium	98	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	23.9
Arsenic	5.22
Cadmium	<1
Lead	59.0
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P14-08.5	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-21
Date Analyzed:	11/24/14	Data File:	411355-21.057
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	101	60	125
Indium	94	60	125
Holmium	97	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	13.4
Arsenic	4.63
Cadmium	<1
Lead	52.7
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	I4-753 mb
Date Analyzed:	11/24/14	Data File:	I4-753 mb.055
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	91	60	125
Indium	92	60	125
Holmium	94	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Cadmium	<1
Lead	<1
Mercury	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	P08-04	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-01 1/5
Date Analyzed:	11/24/14	Data File:	112420.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	79	50	150
Benzo(a)anthracene-d12	91	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.011
Anthracene	<0.01
Fluoranthene	0.014
Pyrene	0.015
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	0.010
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	P08-15	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-03 1/5
Date Analyzed:	11/24/14	Data File:	112414.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	70	50	150
Benzo(a)anthracene-d12	87	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	P14-08.5	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	411355-21 1/5
Date Analyzed:	11/24/14	Data File:	112421.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	50	150
Benzo(a)anthracene-d12	90	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.012
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.028
Anthracene	<0.01
Fluoranthene	0.042
Pyrene	0.049
Benz(a)anthracene	0.023
Chrysene	0.028
Benzo(a)pyrene	0.024
Benzo(b)fluoranthene	0.029
Benzo(k)fluoranthene	0.010
Indeno(1,2,3-cd)pyrene	0.017
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	0.020

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	11/24/14	Lab ID:	04-2373 mb 1/5
Date Analyzed:	11/24/14	Data File:	112404.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	69	50	150
Benzo(a)anthracene-d12	81	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 11/26/14
Date Received: 11/20/14
Project: SOU_0987-010-01_20141120, F&BI 411355

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 411234-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	91	69-120
Toluene	mg/kg (ppm)	0.5	95	70-117
Ethylbenzene	mg/kg (ppm)	0.5	94	65-123
Xylenes	mg/kg (ppm)	1.5	93	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 11/26/14
Date Received: 11/20/14
Project: SOU_0987-010-01_20141120, F&BI 411355

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 411288-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	94	96	63-146	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	95	79-144

Date of Report: 11/26/14
Date Received: 11/20/14
Project: SOU_0987-010-01_20141120, F&BI 411355

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 411355-21 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	12.2	90 b	97 b	57-128	7 b
Arsenic	mg/kg (ppm)	10	4.21	92 b	94 b	70-118	2 b
Cadmium	mg/kg (ppm)	10	<1	104	108	83-116	4
Lead	mg/kg (ppm)	50	48.0	97 b	108 b	59-148	11 b
Mercury	mg/kg (ppm	10	<1	97	99	50-150	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	102	78-121
Arsenic	mg/kg (ppm)	10	96	83-113
Cadmium	mg/kg (ppm)	10	106	54-114
Lead	mg/kg (ppm)	50	107	80-120
Mercury	mg/kg (ppm)	10	99	70-130

Date of Report: 11/26/14
Date Received: 11/20/14
Project: SOU_0987-010-01_20141120, F&BI 411355

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 411388-01 (Matrix Spike) 1/5

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	0.034	101	98	44-129	3
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	86	84	52-121	2
Acenaphthene	mg/kg (ppm)	0.17	<0.01	91	91	51-123	0
Fluorene	mg/kg (ppm)	0.17	0.034	96	91	37-137	5
Phenanthrene	mg/kg (ppm)	0.17	0.043	91 b	85 b	45-124	7 b
Anthracene	mg/kg (ppm)	0.17	<0.01	88	87	32-124	1
Fluoranthene	mg/kg (ppm)	0.17	<0.01	87	85	50-125	2
Pyrene	mg/kg (ppm)	0.17	0.014	98	92	41-135	6
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	90	88	23-144	2
Chrysene	mg/kg (ppm)	0.17	<0.01	88	86	45-122	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	97	94	31-144	3
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	106	102	45-130	4
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	94	93	39-128	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	94	93	28-146	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	94	93	46-129	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	92	92	37-133	0

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	84	58-121
Acenaphthylene	mg/kg (ppm)	0.17	85	54-121
Acenaphthene	mg/kg (ppm)	0.17	86	54-123
Fluorene	mg/kg (ppm)	0.17	88	56-127
Phenanthrene	mg/kg (ppm)	0.17	87	55-122
Anthracene	mg/kg (ppm)	0.17	81	50-120
Fluoranthene	mg/kg (ppm)	0.17	86	54-129
Pyrene	mg/kg (ppm)	0.17	91	53-127
Benz(a)anthracene	mg/kg (ppm)	0.17	88	51-115
Chrysene	mg/kg (ppm)	0.17	90	55-129
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	95	56-123
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	104	54-131
Benzo(a)pyrene	mg/kg (ppm)	0.17	87	51-118
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	96	49-148
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	97	50-141
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	96	52-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

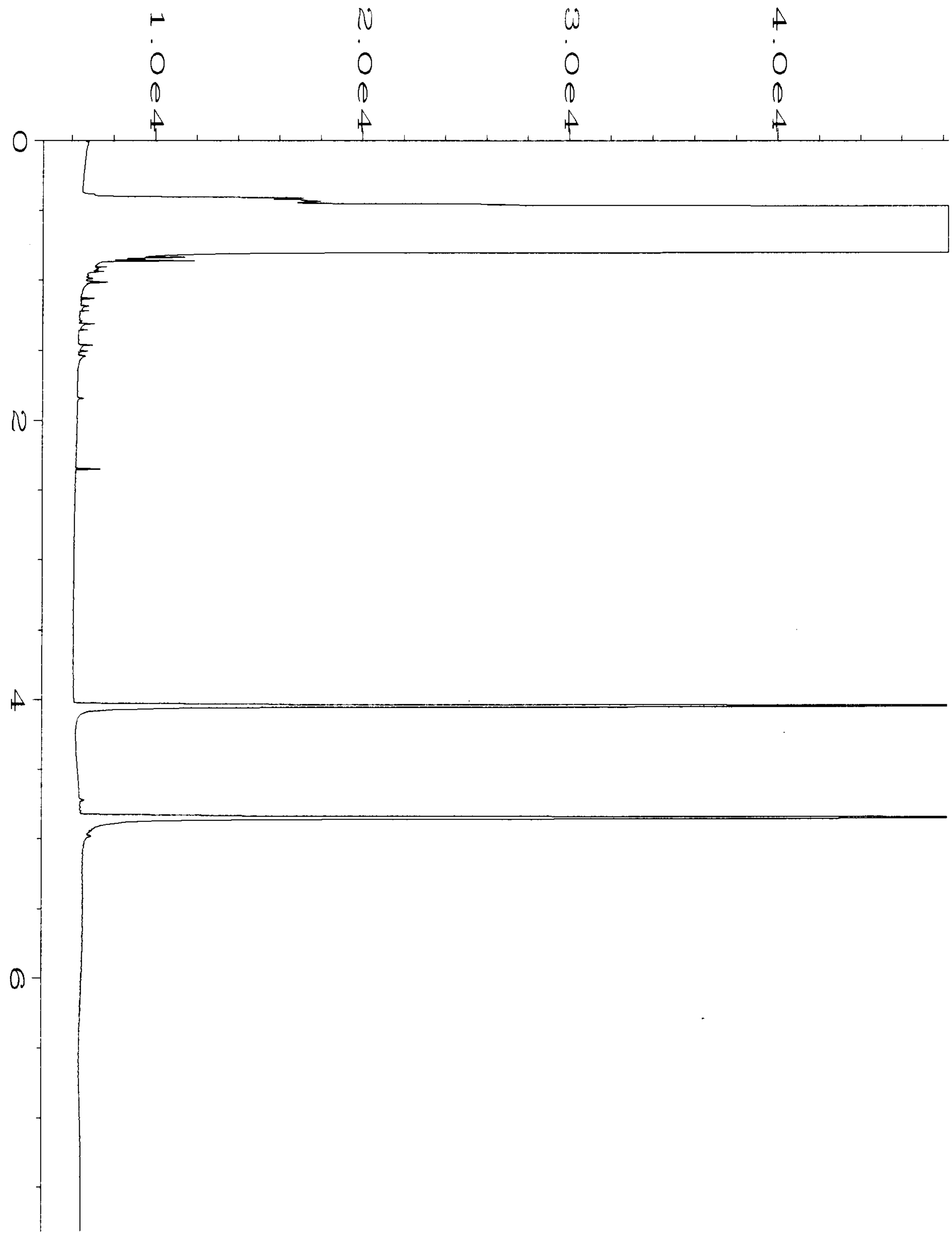
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

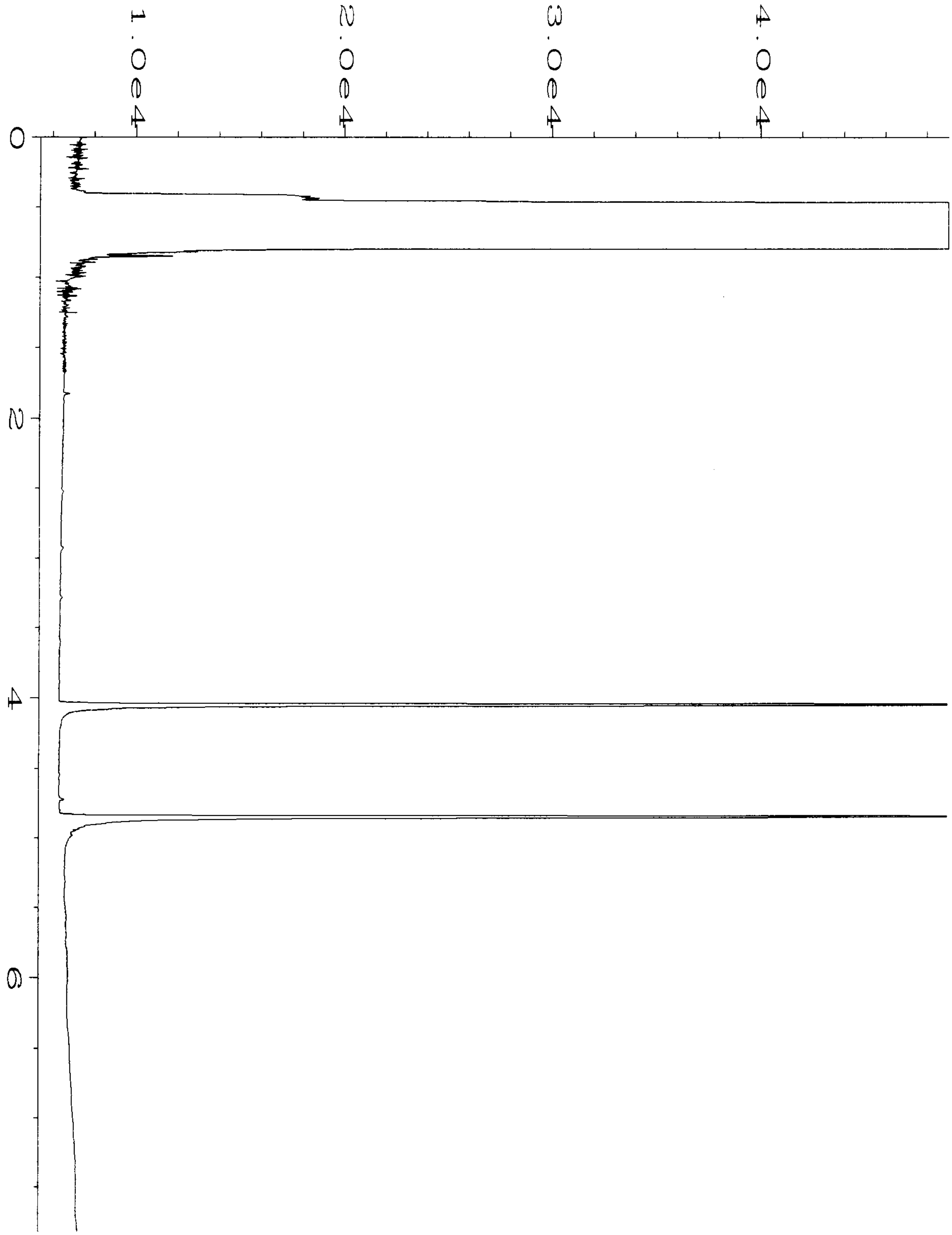
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

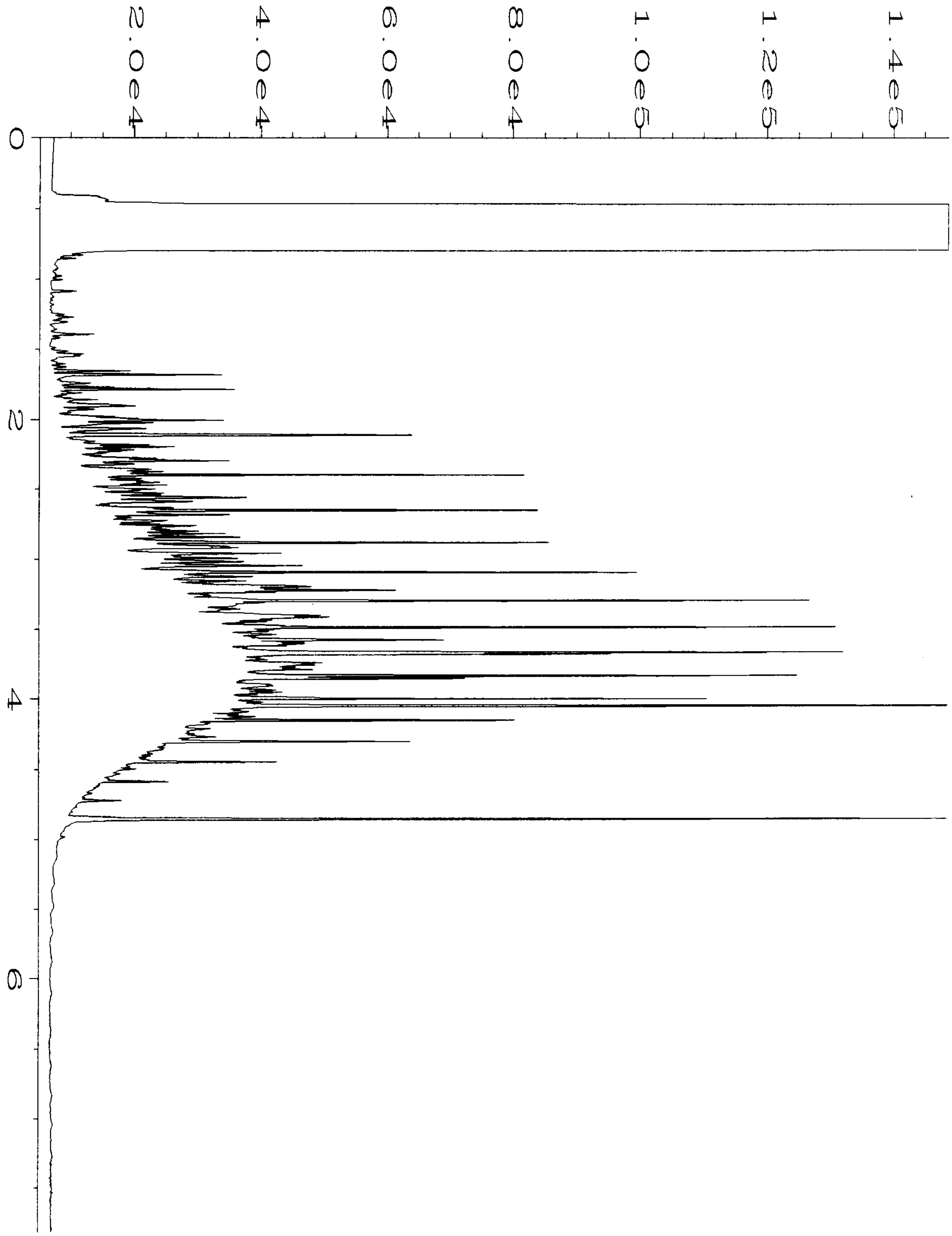
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



Data File Name	: C:\HPCHEM\1\DATA\11-21-14\019F0301.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 19
Sample Name	: 411355-03	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 21 Nov 14 12:10 PM	Instrument Method:	DX.MTH
Report Created on:	21 Nov 14 12:49 PM	Analysis Method	: END.MTH



Data File Name	: C:\HPCHEM\1\DATA\11-21-14\006F0301.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 6
Sample Name	: 04-2369 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 21 Nov 14 09:33 AM	Instrument Method:	DX.MTH
Report Created on:	21 Nov 14 12:48 PM	Analysis Method	: END.MTH



Data File Name : C:\HPCHEM\1\DATA\11-21-14\003F0201.D
Operator : mwdl
Instrument : GC1
Sample Name : 500 Dx 43-199B
Run Time Bar Code:
Acquired on : 21 Nov 14 09:12 AM
Report Created on: 21 Nov 14 12:48 PM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : END.MTH

411355

SAMPLE CHAIN OF CUSTODY

ME 11-20-14

D04/

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (*signature*) [illegible]

PROJECT NAME/NO.	PO #
Myers Way Property	0987-010-01

REMARKS ~~Hold~~

Page # 1 of 3

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 METALS	PAHs		Notes
P08-04	P08	04	01 A-B	11/19/14	0920	Soil	2						X	X		
P08-07		07	02 T		0925		2									
P08-15		15	03 A-F		0930		6	X	X	X			X	X		
P09-04	P09	04	04 A-B		1010		2						X			
P09-06		06	05 A-F		1015		6						X			
P09-15		15	06 A-B		1025		2									
P10-04	P10	04	07 T		1110		2									
P10-05.5		05.5	08 A-F		1115		6						X			
P10-15		15	09 A-B		1120		2									
P11-04		04	10 T		1230		2									

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [illegible]	Chris Cass	SoundEarth Strategies, Inc.	11/20/14	1018
Received by: [illegible]	Nhan Phan	FEB I	11/20/14	1018
Relinquished by:				
Received by:		Samples received at 4 °C		

FORMS\COC\COC.DOC

411355

SAMPLE CHA OF CUSTODY ME 11-20-14

004/v

Page # 2 of 3

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)	
PROJECT NAME/NO. Myers Way Property	PO # 0987-010-01
REMARKS ~~Hold~~	

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 Metals	PAHs		Notes
P11-10	P11	10	11 A-F	11/19/14	1235	Soil	6						X			
P11-13	↓	13	12 A-B		1240	↓	2									
P12-05	P12	05	13 T		1335		2						X			
P12-10		10	14 A-F		1340		6									
P12-15		15	15 A-B		1345		2									
P12-20	↓	20	16 T		1350		2									
P13-05	P13	05	17 A-F		1410		6									
P13-08		08	18 A-B		1415		2						X			
P13-15	↓	15	19 T		1420		2						X			
P14-05	P14	05	20	↓	1505	↓	2									

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Chris Cass	SoundEarth Strategies, Inc.	11/20/14	1018
Received by:	Nhan Phan	FeBI	11/20/14	1018
Relinquished by:				
Received by:		Samples received at 4 °C		

FORMS\COC\COC.DOC

411355

SAMPLE CHA OF CUSTODY

ME 11-20-14

Page # 3 of 3

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)	
PROJECT NAME/NO. Myers Way Property	PO # 0987-010-01
REMARKS ~~Hold~~	

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:
SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 METALS	PAHs		Notes
								ANALYSES REQUESTED								
P14-08.5	P14	08.5	21A-B	11/19/14	1515	Soil	2						X	X		
P14-10.5	↓	10.5	22A-F	↓	1520	↓	6									

CC 11/19/14

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Chad Cass	SoundEarth Strategies, Inc.	11/20/14	1018
Received by:	Nhan Phan	FCBI	11/20/14	1018
Relinquished by:				
Received by:		Samples received at 4 °C		

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 30, 2014

Audrey Hackett, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Hackett:

Included are the additional results from the testing of material submitted on November 20, 2014 from the SOU_0987-010-01_20141120, F&BI 411355 project. There are 5 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SOU1230R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 20, 2014 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-01_20141120, F&BI 411355 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
411355-01	P08-04
411355-02	P08-07
411355-03	P08-15
411355-04	P09-04
411355-05	P09-06
411355-06	P09-15
411355-07	P10-04
411355-08	P10-05.5
411355-09	P10-15
411355-10	P11-04
411355-11	P11-10
411355-12	P11-13
411355-13	P12-05
411355-14	P12-10
411355-15	P12-15
411355-16	P12-20
411355-17	P13-05
411355-18	P13-08
411355-19	P13-15
411355-20	P14-05
411355-21	P14-08.5
411355-22	P14-10.5

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	P13-08	Client:	SoundEarth Strategies
Date Received:	11/20/14	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	12/19/14	Lab ID:	411355-18
Date Analyzed:	12/19/14	Data File:	411355-18.023
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	99	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141120, F&BI 411355
Date Extracted:	12/19/14	Lab ID:	I4-812 mb
Date Analyzed:	12/19/14	Data File:	I4-812 mb.013
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	98	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

Date of Report: 12/30/14
Date Received: 11/20/14
Project: SOU_0987-010-01_20141120, F&BI 411355

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TCLP METALS USING
EPA METHOD 200.8 AND 40 CFR PART 261**

Laboratory Code: 411304-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/L (ppm)	1.0	<1	106	97	50-150	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/L (ppm)	1.0	106	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

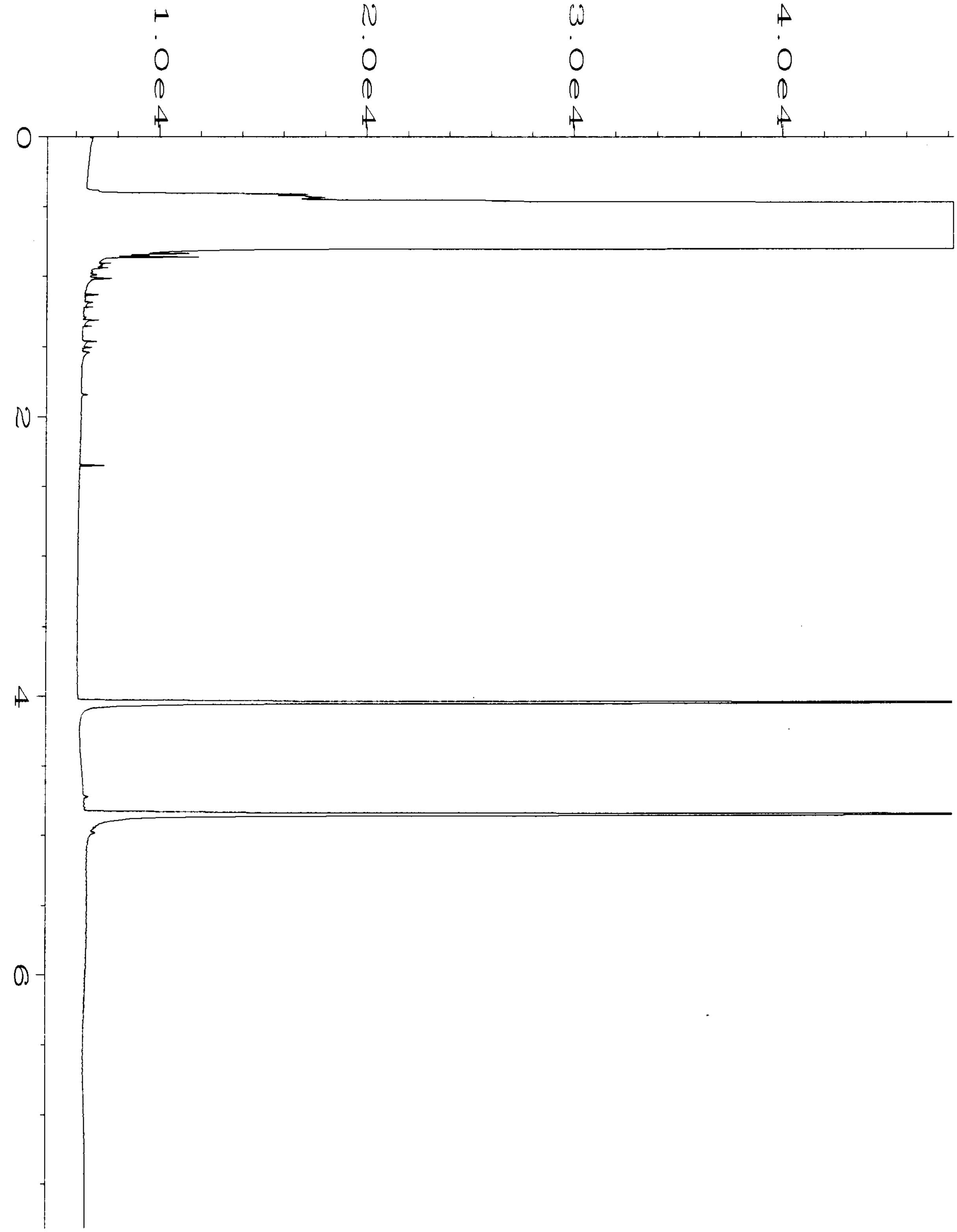
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



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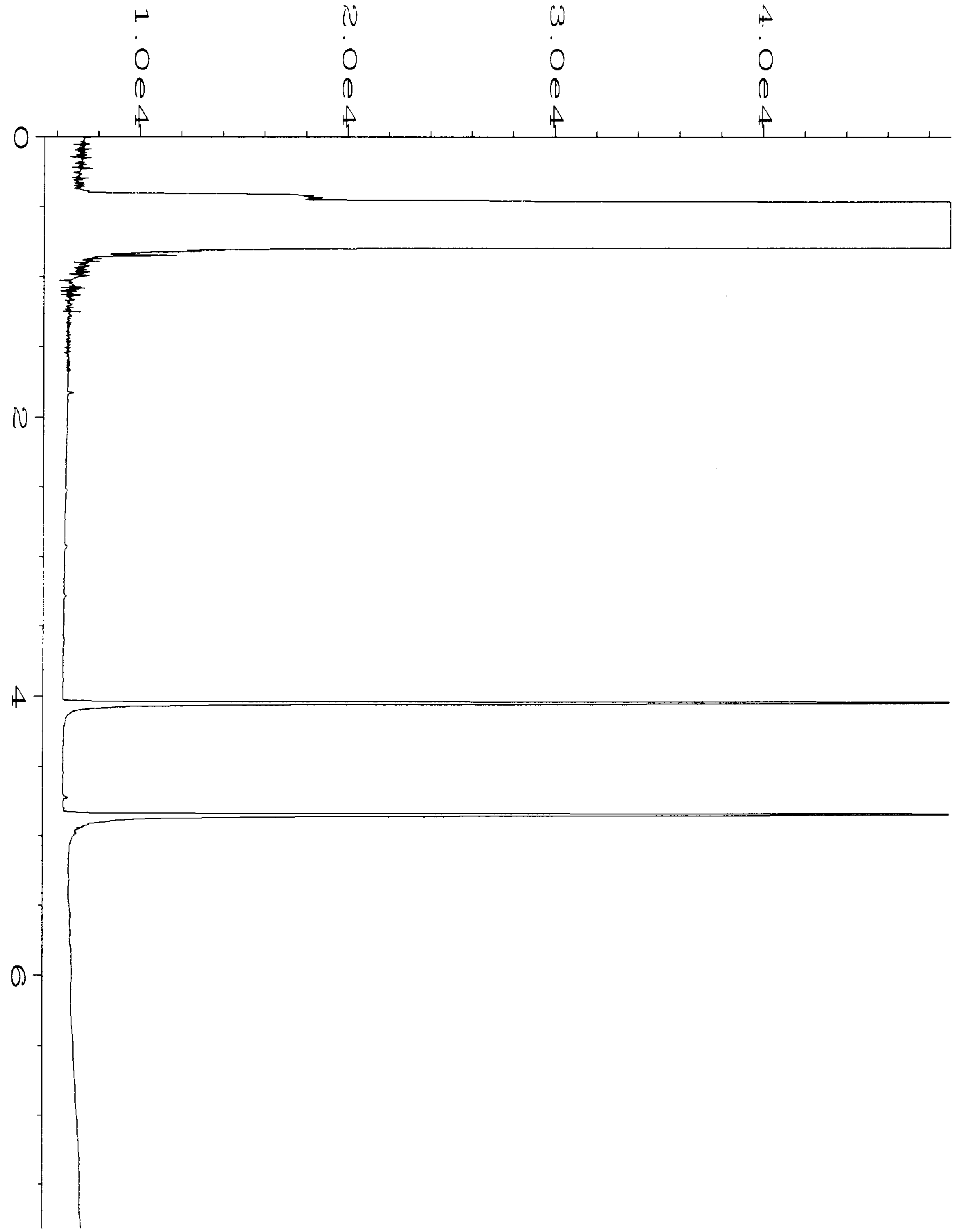
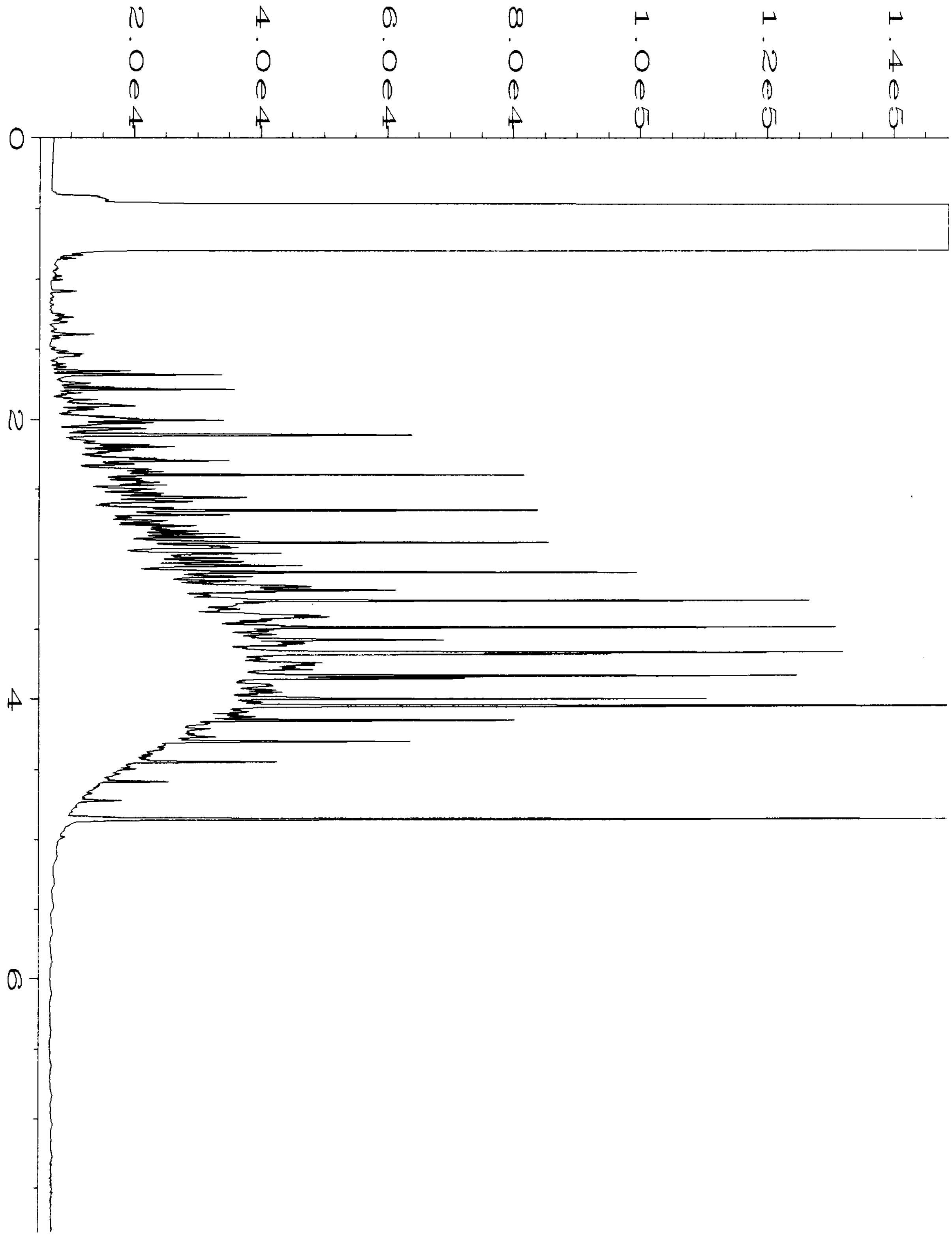
Operator : mwdl
Instrument : GC1
Sample Name : 411355-03
Run Time Bar Code:
Acquired on : 21 Nov 14 12:10 PM
Report Created on: 21 Nov 14 12:49 PM

Page Number : 1
Vial Number : 19
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : END.MTH



Data File Name	: C:\HPCHEM\1\DATA\11-21-14\006F0301.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 6
Sample Name	: 04-2369 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 21 Nov 14 09:33 AM	Instrument Method	: DX.MTH
Report Created on:	21 Nov 14 12:48 PM	Analysis Method	: END.MTH

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Data File Name    : C:\HPCHEM\1\DATA\11-21-14\003F0201.D
Operator          : mwdl                            Page Number       : 1
Instrument        : GC1                             Vial Number       : 3
Sample Name       : 500 Dx 43-199B                  Injection Number  : 1
Run Time Bar Code:                                  Sequence Line     : 2
Acquired on       : 21 Nov 14  09:12 AM             Instrument Method: DX.MTH
Report Created on: 21 Nov 14  12:48 PM              Analysis Method   : END.MTH
```

411355

SAMPLE CHAIN OF CUSTODY

ME 11-20-14

D04/[illegible]

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) [signature]

PROJECT NAME/NO.	PO #
Myers Way Property	0987-010-01

REMARKS ~~Hold~~

Page # 1 of 3

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 METALS	PAHs		Notes
								ANALYSES REQUESTED								
P08-04	P08	04	01A-B	11/19/14	0920	Soil	2						X	X		
P08-07		07	02 T		0925		2									
P08-15		15	03A-F		0930		6	X	X	X			X	X		
P09-04	P09	04	04A-B		1010		2						X			
P09-06		06	05A-F		1015		6						X			
P09-15		15	06A-B		1025		2									
P10-04	P10	04	07 T		1110		2									
P10-05.5		05.5	08A-F		1115		6						X			
P10-15		15	09A-B		1120		2									
P11-04		04	10 T		1230		2									

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Chris Cass	SoundEarth Strategies, Inc.	11/20/14	1018
Received by: [signature]	Nhan Phan	FEBI	11/20/14	1018
Relinquished by:				
Received by:		Samples received at 4 °C		

411355

SAMPLE CHA OF CUSTODY ME 11-20-14

004/

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E. Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (*signature*)

PROJECT NAME/NO.	PO #
Myers Way Property	0987-010-01

REMARKS Hold

Page # 2 of 3

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 Metals	PAHs	TCLP Lead	Notes
								ANALYSES REQUESTED								
P11-10	P11	10	11 A-F	11/19/14	1235	Soil	6						X			O-per AH
P11-13	↓	13	12 A-B		1240	↓	2									12/17/14
P12-05	P12	05	13 T		1335		2						X			MG
P12-10		10	14 A-F		1340		6									
P12-15		15	15 A-B		1345		2									
P12-20	↓	20	16 T		1350		2									
P13-05	P13	05	17 A-F		1410		6									
P13-08		08	18 A-B		1415		2						X		O	
P13-15	↓	15	19 T		1420		2						X			
P14-05	P14	05	20	↓	1505	↓	2									

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Chris Cass	Chris Cass	SoundEarth Strategies, Inc.	11/20/14	1018
Received by: Nhan Phan	Nhan Phan	FeBI	11/20/14	1018
Relinquished by:				
Received by:		Samples received at 4 °C		

FORMS\COC\COC.DOC

411365

SAMPLE CHAIN OF CUSTODY ME 11-20-14

Page # 3 of 3

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO.	PO #
Myers Way Property	0987-010-01

REMARKS ~~Hold~~

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 METALS	PAHs		Notes
P14-08.5	P14	~~11/19/14~~ 08.5	21 A-B	11/19/14	1515	Soil	2						X	X		
P14-10.5	↓	10.5	22 A-F	↓	1520	↓	6									

CC 11/19/14

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Chad Cass	SoundEarth Strategies, Inc.	11/20/14	1018
Received by:	Nhan Phan	FeBT	11/20/14	1018
Relinquished by:				
Received by:				

Samples received at 4 °C

Friedman & Bruya, Inc. #411415

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 5, 2014

Audrey Hackett, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Hackett:

Included are the results from the testing of material submitted on November 25, 2014 from the SOU_0987-010-01_20141125, F&BI 411415 project. There are 30 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SOU1205R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 25, 2014 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-01_20141125, F&BI 411415 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
411415 -01	MW01_20141124
411415 -02	MW02_20141124
411415 -03	MW03_20141124
411415 -04	MW04_20141124
411415 -05	MW05_20141124
411415 -06	MW06_20141124
411415 -07	MW08_20141124

A 200.8 internal standard was out of control limits for several samples. Compounds in the sample matrix interfered with quantitation of the internal standard. The samples were diluted and reanalyzed.

The dissolved MTCA metals analysis could not be performed. The samples were submitted with nitric acid preservation.

The 8270D laboratory control sample and laboratory control sample duplicate failed the relative percent difference for dibenz(a,h)anthracene. The analyte was not detected therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411415
Date Extracted: 11/25/14
Date Analyzed: 11/25/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW08_20141124 411415-07	<1	<1	<1	<3	<100	79
Method Blank 04-2391 MB	<1	<1	<1	<3	<100	77

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411415
Date Extracted: 11/25/14
Date Analyzed: 11/25/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW08_20141124 411415-07	<50	<250	100
Method Blank 04-2374 MB2	<50	<250	101

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW01_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-01
Date Analyzed:	12/01/14	Data File:	411415-01.024
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	80	60	125
Indium	77	60	125
Holmium	84	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	3.03
Cadmium	<1
Chromium	1.15
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW02_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-02
Date Analyzed:	11/26/14	Data File:	411415-02.023
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	73	60	125
Indium	88	60	125
Holmium	99	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	9.78
Cadmium	<1
Chromium	2.03 ca
Lead	4.30
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW02_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-02 x10
Date Analyzed:	12/01/14	Data File:	411415-02 x10.029
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	105	60	125
Indium	99	60	125
Holmium	102	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	11.2
Cadmium	<10
Chromium	<10
Lead	<10
Mercury	<10

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW03_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-03
Date Analyzed:	11/26/14	Data File:	411415-03.024
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	62	60	125
Indium	80	60	125
Holmium	100	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	2.25
Cadmium	<1
Chromium	1.61 ca
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW03_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-03 x10
Date Analyzed:	12/01/14	Data File:	411415-03 x10.030
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	101	60	125
Indium	98	60	125
Holmium	100	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<10
Cadmium	<10
Chromium	<10
Lead	<10
Mercury	<10

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW04_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-04
Date Analyzed:	11/26/14	Data File:	411415-04.025
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	75	60	125
Indium	96	60	125
Holmium	106	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1 ca
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW04_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-04 x10
Date Analyzed:	12/01/14	Data File:	411415-04 x10.031
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	103	60	125
Indium	101	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<10
Cadmium	<10
Chromium	<10
Lead	<10
Mercury	<10

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW05_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-05
Date Analyzed:	11/26/14	Data File:	411415-05.026
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	51 vo	60	125
Indium	59 vo	60	125
Holmium	88	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	6.36 J
Cadmium	<1 J
Chromium	2.15 J ca
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW05_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-05 x10
Date Analyzed:	12/01/14	Data File:	411415-05 x10.032
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	104	60	125
Indium	99	60	125
Holmium	104	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<10
Cadmium	<10
Chromium	<10
Lead	<10
Mercury	<10

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW06_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-06
Date Analyzed:	11/26/14	Data File:	411415-06.027
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	48 vo	60	125
Indium	48 vo	60	125
Holmium	81	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	32.8 J
Cadmium	<1 J
Chromium	2.54 J ca
Lead	1.25
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW06_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-06 x10
Date Analyzed:	12/01/14	Data File:	411415-06 x10.033
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	102	60	125
Indium	99	60	125
Holmium	103	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	34.0
Cadmium	<10
Chromium	<10
Lead	<10
Mercury	<10

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW08_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-07
Date Analyzed:	11/26/14	Data File:	411415-07.016
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125
Indium	92	60	125
Holmium	94	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	1.53
Cadmium	<1
Chromium	2.00
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	I4-757 mb
Date Analyzed:	11/26/14	Data File:	I4-757 mb.018
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	97	60	125
Holmium	98	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1 ca
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	I4-757 mb
Date Analyzed:	12/01/14	Data File:	I4-757 mb.022
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	86	60	125
Indium	86	60	125
Holmium	88	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW01_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-01 1/2
Date Analyzed:	11/25/14	Data File:	112511.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	101	50	150
Benzo(a)anthracene-d12	116	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW02_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-02 1/2
Date Analyzed:	11/25/14	Data File:	112512.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	103	50	150
Benzo(a)anthracene-d12	113	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW03_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-03 1/2
Date Analyzed:	11/25/14	Data File:	112513.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	105	50	150
Benzo(a)anthracene-d12	118	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW04_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-04 1/2
Date Analyzed:	11/25/14	Data File:	112514.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	99	50	150
Benzo(a)anthracene-d12	108	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW05_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-05 1/2
Date Analyzed:	11/25/14	Data File:	112515.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	106	50	150
Benzo(a)anthracene-d12	110	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	0.15
Fluorene	0.18
Phenanthrene	0.38
Anthracene	<0.1
Fluoranthene	0.21
Pyrene	0.14
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW06_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-06 1/2
Date Analyzed:	11/25/14	Data File:	112516.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	101	50	150
Benzo(a)anthracene-d12	109	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW08_20141124	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	411415-07 1/2
Date Analyzed:	11/25/14	Data File:	112517.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	101	50	150
Benzo(a)anthracene-d12	114	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141125, F&BI 411415
Date Extracted:	11/25/14	Lab ID:	04-2387 mb2
Date Analyzed:	11/25/14	Data File:	112510.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	106	50	150
Benzo(a)anthracene-d12	131 vo	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411415

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 411425-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	93	65-118
Toluene	ug/L (ppb)	50	91	72-122
Ethylbenzene	ug/L (ppb)	50	93	73-126
Xylenes	ug/L (ppb)	150	88	74-118
Gasoline	ug/L (ppb)	1,000	94	69-134

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411415

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	98	92	63-142	6

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411415

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 411415-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	3.03	98 b	102 b	60-150	4 b
Cadmium	ug/L (ppb)	5	<1	93	92	83-116	1
Chromium	ug/L (ppb)	20	1.15	98	98	64-132	0
Lead	ug/L (ppb)	10	<1	102	99	79-121	3
Mercury	ug/L (ppb)	10	<1	95	93	50-150	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	100	80-111
Cadmium	ug/L (ppb)	5	104	83-113
Chromium	ug/L (ppb)	20	105	80-119
Lead	ug/L (ppb)	10	110	83-115
Mercury	ug/L (ppb)	10	104	70-130

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411415

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	88	90	67-116	2
Acenaphthylene	ug/L (ppb)	1	90	93	65-119	3
Acenaphthene	ug/L (ppb)	1	88	90	66-118	2
Fluorene	ug/L (ppb)	1	90	92	64-125	2
Phenanthrene	ug/L (ppb)	1	90	93	67-120	3
Anthracene	ug/L (ppb)	1	90	90	65-122	0
Fluoranthene	ug/L (ppb)	1	90	92	65-127	2
Pyrene	ug/L (ppb)	1	91	94	62-130	3
Benz(a)anthracene	ug/L (ppb)	1	95	97	60-118	2
Chrysene	ug/L (ppb)	1	91	93	66-125	2
Benzo(b)fluoranthene	ug/L (ppb)	1	100	105	55-135	5
Benzo(k)fluoranthene	ug/L (ppb)	1	104	105	62-125	1
Benzo(a)pyrene	ug/L (ppb)	1	103	108	58-127	5
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	96	104	36-142	8
Dibenz(a,h)anthracene	ug/L (ppb)	1	79	100	37-133	23 vo
Benzo(g,h,i)perylene	ug/L (ppb)	1	85	100	34-135	16

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

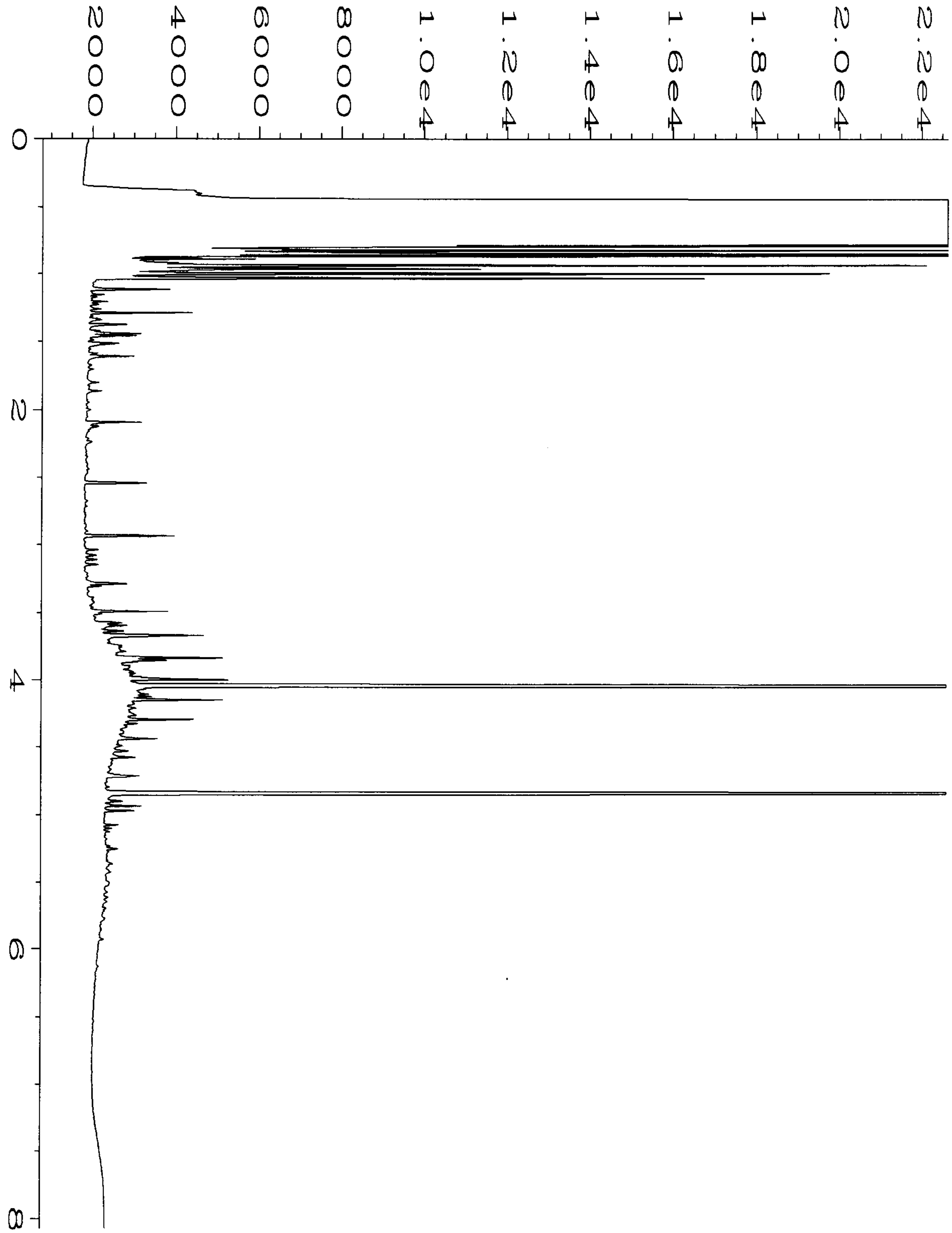
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

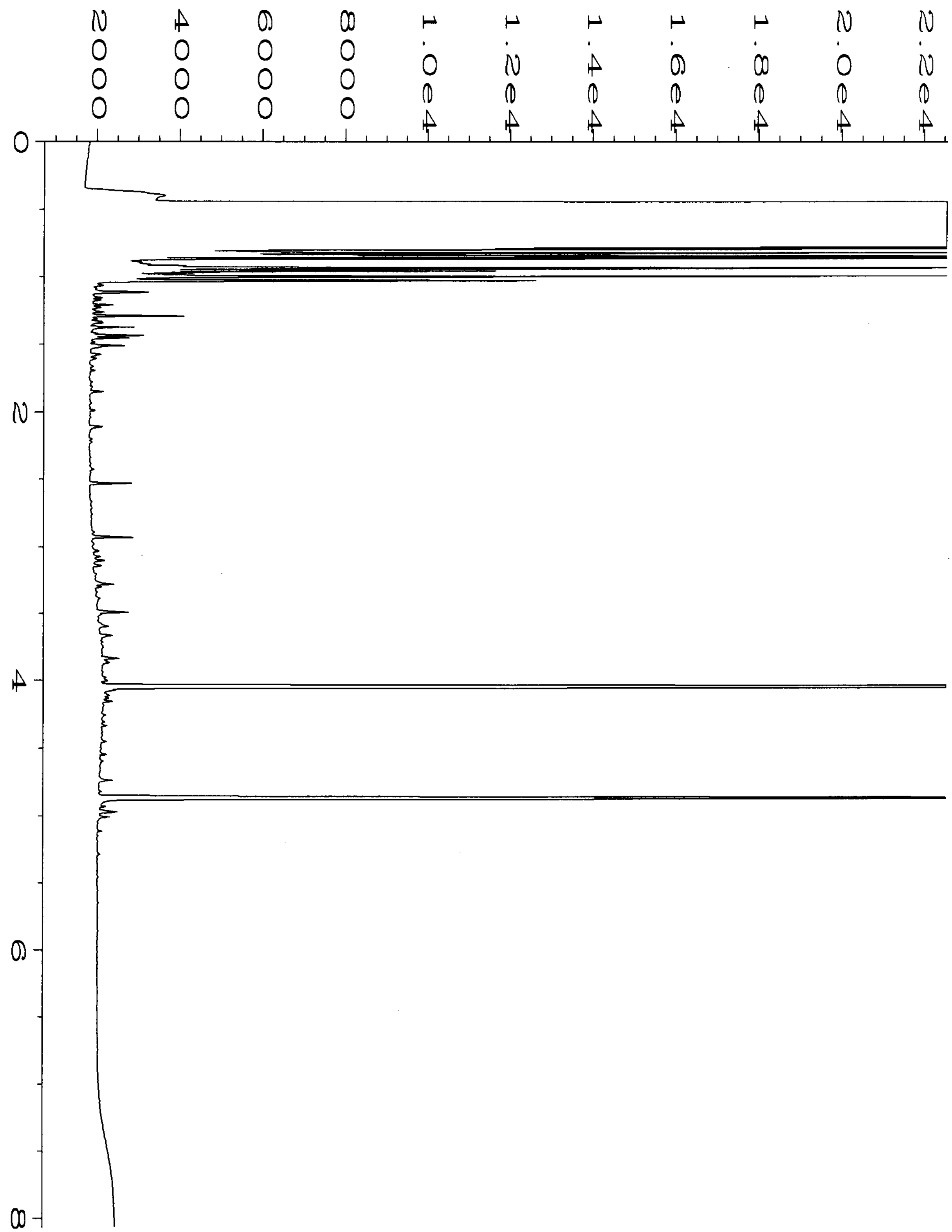
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

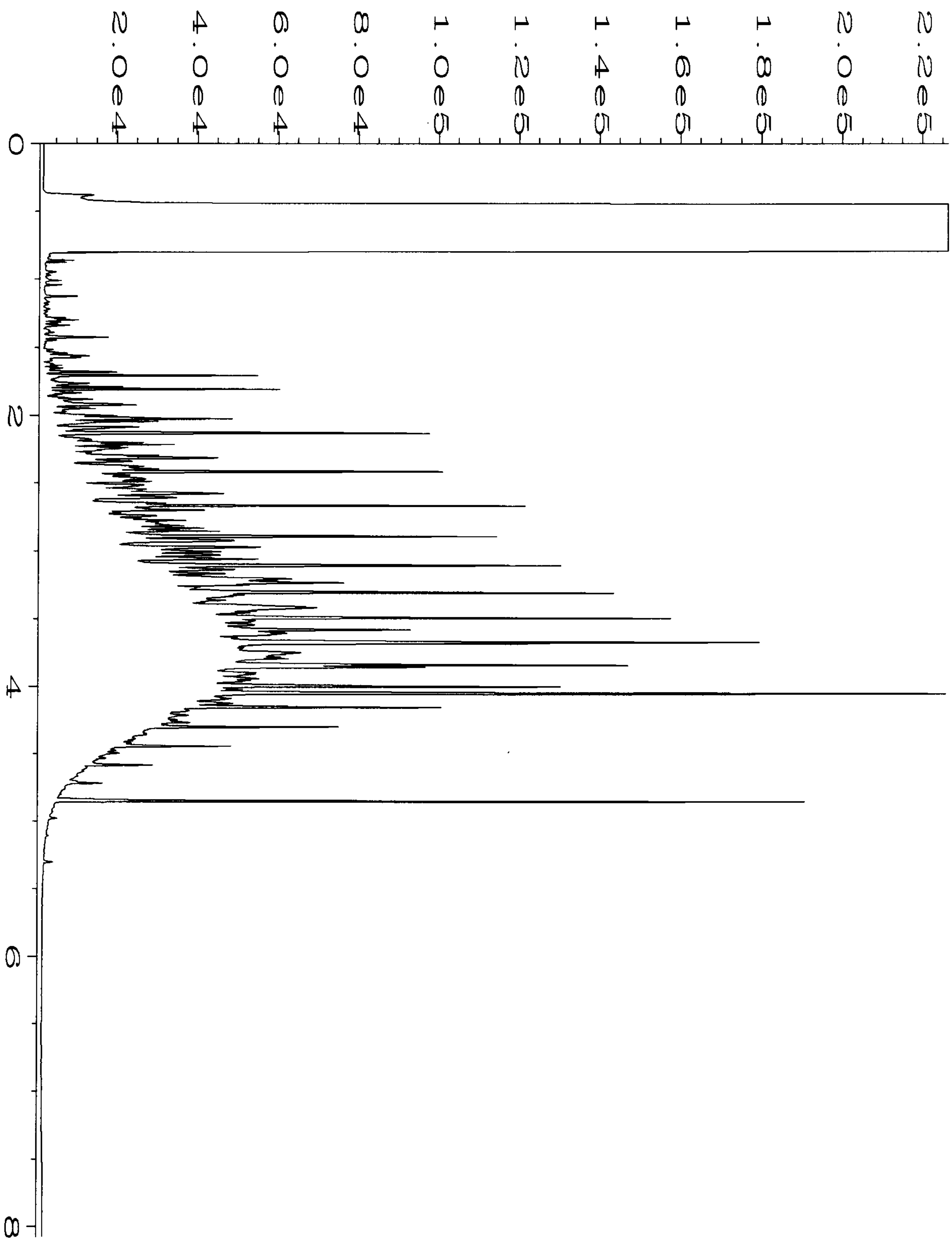


Data File Name	: C:\HPCHEM\4\DATA\11-25-14\013F0301.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 13
Sample Name	: 411415-07	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 25 Nov 14 02:25 PM	Instrument Method:	DX.MTH
Report Created on:	26 Nov 14 08:42 AM	Analysis Method	: DX.MTH



Data File Name : C:\HPCHEM\4\DATA\11-25-14\012F0301.D
Operator : mwdl
Instrument : GC#4
Sample Name : 04-2374 mb2
Run Time Bar Code:
Acquired on : 25 Nov 14 02:14 PM
Report Created on: 26 Nov 14 08:42 AM

Page Number : 1
Vial Number : 12
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DX.MTH



Data File Name : C:\HPCHEM\4\DATA\11-25-14\003F0201.D
Operator : mwdl
Instrument : GC#4
Sample Name : 500 Dx 43-199B
Run Time Bar Code:
Acquired on : 25 Nov 14 09:06 AM
Report Created on: 26 Nov 14 08:42 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DX.MTH

411415

SAMPLE CHAIN OF CUSTODY ME 11/25/14

A115 / V1

Page # 1 of 1 D04

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)	
PROJECT NAME/NO. Myers Way Property	PO # 0987-010-01
REMARKS *lab will need to filter prior to metal analysis.	

TURNAROUND TIME
Standard (2 Weeks)
x RUSH Need 12/1/14
Rush charges authorized by:
SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	PAHs 8270C	Ni Cd Metals 200.8		Notes
MW01-20141124	MW01		01 A-B	11/24	1005	W	2						X	X		O-per AH
MW02-20141127	MW02		02	11/24	1102	W	2						X	X		11/25/14
MW03-20141124	MW03		03	11/24	1203	W	2						X	X		ME
MW04-20141124	MW04		04	11/24	0954	W	2						X	X		
MW05-20141124	MW05		05	11/24	1126	W	2						X	X		
MW06-20141124	MW06		06	11/24	1258	W	2						X	X		
MW08-20141124	MW08		07 A-F	11/24	1258	W	6	X	X	O			X	X		

11/24/2014

Samples received at 2 °C

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Audrey Hackett	SoundEarth Str[redacted] Inc.	12/24/14	845
Received by:		Eric ...	F + B	12/24/14	845
Relinquished by:					
Received by:					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

Friedman & Bruya, Inc. #411435

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 5, 2014

Audrey Hackett, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Hackett:

Included are the results from the testing of material submitted on November 25, 2014 from the SOU_0987-010-01_20141125, F&BI 411435 project. There are 34 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SOU1205R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 25, 2014 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-01_20141125, F&BI 411435 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
411435 -01	MW07_20141125
411435 -02	MW09_20141125
411435 -03	MW10_20141125
411435 -04	MW11_20141125
411435 -05	MW12_20141125
411435 -06	MW13_20141125

The 200.8 metals samples were filtered from glass 500 mL amber containers at Friedman and Bruya on November 26, 2014 at 8:30 AM.

An 8270D internal standard failed the acceptance criteria for the method blank. The data were flagged accordingly.

Several NWTPH-Gx and 8021B samples were received with headspace present in the samples. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435
Date Extracted: 11/26/14
Date Analyzed: 11/26/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW07_20141125 hs 411435-01	<1	<1	<1	<3	<100	79
MW09_20141125 hs 411435-02	<1	<1	<1	<3	<100	80
MW10_20141125 411435-03	<1	<1	<1	<3	<100	79
MW11_20141125 cf 411435-04	<1	<1	<1	<3	<100	81
MW12_20141125 hs 411435-05	<1	<1	<1	<3	<100	80
MW13_20141125 411435-06	<1	<1	<1	<3	<100	79
Method Blank 04-2391 MB	<1	<1	<1	<3	<100	77

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435
Date Extracted: 12/01/14
Date Analyzed: 12/01/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW07_20141125 411435-01 1/1.2	520 x	<300	86
MW09_20141125 411435-02 1/1.2	<60	<300	92
MW10_20141125 411435-03 1/1.2	<60	<300	91
MW11_20141125 411435-04	380 x	400 x	67
MW12_20141125 411435-05 1/1.2	310 x	320 x	81
MW13_20141125 411435-06	370 x	290 x	88
Method Blank 04-2404 MB	<50	<250	92

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW07_20141125 f pc	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/04/14	Lab ID:	411435-01
Date Analyzed:	12/04/14	Data File:	411435-01.023
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	87	60	125
Indium	86	60	125
Holmium	92	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	1.06
Arsenic	4.69
Cadmium	<1
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW09_20141125 f pc	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/04/14	Lab ID:	411435-02
Date Analyzed:	12/04/14	Data File:	411435-02.024
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125
Indium	93	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	1.39
Cadmium	<1
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW10_20141125 f pc	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/04/14	Lab ID:	411435-03
Date Analyzed:	12/04/14	Data File:	411435-03.025
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	94	60	125
Indium	93	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	1.09
Cadmium	<1
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW11_20141125 f pc	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/04/14	Lab ID:	411435-04 x5
Date Analyzed:	12/04/14	Data File:	411435-04 x5.026
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	93	60	125
Holmium	100	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	16.3
Arsenic	21.0
Cadmium	<5
Lead	12.9

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW12_20141125 f pc	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/04/14	Lab ID:	411435-05
Date Analyzed:	12/04/14	Data File:	411435-05.027
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	94	60	125
Indium	92	60	125
Holmium	100	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	5.12
Cadmium	<1
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW13_20141125 f pc	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/04/14	Lab ID:	411435-06
Date Analyzed:	12/04/14	Data File:	411435-06.028
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	86	60	125
Indium	87	60	125
Holmium	92	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	29.7
Cadmium	<1
Lead	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/04/14	Lab ID:	I4-775 mb
Date Analyzed:	12/04/14	Data File:	I4-775 mb.020
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	107	60	125
Indium	104	60	125
Holmium	107	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	<1
Cadmium	<1
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW07_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/01/14	Lab ID:	411435-01
Date Analyzed:	12/01/14 14:17:24	Data File:	411435-01.053
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	90	60	125
Holmium	97	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	4.11
Cadmium	<1
Chromium	1.23
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW09_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/01/14	Lab ID:	411435-02
Date Analyzed:	12/01/14 14:21:08	Data File:	411435-02.054
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	102	60	125
Indium	96	60	125
Holmium	102	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	1.45
Cadmium	<1
Chromium	<1
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW10_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/01/14	Lab ID:	411435-03
Date Analyzed:	12/01/14 14:24:50	Data File:	411435-03.055
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	100	60	125
Indium	95	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	1.30
Cadmium	<1
Chromium	<1
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW11_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/01/14	Lab ID:	411435-04
Date Analyzed:	12/01/14 14:44:03	Data File:	411435-04.060
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	119	60	125
Indium	94	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	20.3
Cadmium	1.27
Chromium	33.3
Lead	71.6

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW12_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/01/14	Lab ID:	411435-05
Date Analyzed:	12/01/14 14:32:15	Data File:	411435-05.057
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	100	60	125
Indium	97	60	125
Holmium	100	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	4.98
Cadmium	<1
Chromium	<1
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW13_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/01/14	Lab ID:	411435-06
Date Analyzed:	12/01/14 14:35:58	Data File:	411435-06.058
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	93	60	125
Holmium	99	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	32.7
Cadmium	<1
Chromium	1.94
Lead	<1

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Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0987-010-01_20141125, F&BI 411435
Date Extracted:	12/01/14	Lab ID:	I4-765 mb
Date Analyzed:	12/01/14 13:06:19	Data File:	I4-765 mb.035
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	103	60	125
Indium	102	60	125
Holmium	104	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435
Date Extracted: 12/04/14
Date Analyzed: 12/05/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED MERCURY
USING EPA METHOD 1631E
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Dissolved Mercury
MW07_20141125 f 411435-01	<0.1
MW09_20141125 f 411435-02	<0.1
MW10_20141125 f 411435-03	<0.1
MW11_20141125 f 411435-04	<0.1
MW12_20141125 f 411435-05	<0.1
MW13_20141125 f 411435-06	<0.1
Method Blank	<0.1

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435
Date Extracted: 12/04/14
Date Analyzed: 12/05/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Total Mercury
MW07_20141125 411435-01	<0.1
MW09_20141125 411435-02	<0.1
MW10_20141125 411435-03	<0.1
MW11_20141125 411435-04	0.51
MW12_20141125 411435-05	<0.1
MW13_20141125 411435-06	<0.1
Method Blank	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW07_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125
Date Extracted:	12/01/14	Lab ID:	411435-01 1/2
Date Analyzed:	12/02/14	Data File:	120217.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	86	50	150
Benzo(a)anthracene-d12	87	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

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ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW09_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125
Date Extracted:	12/01/14	Lab ID:	411435-02 1/2
Date Analyzed:	12/02/14	Data File:	120218.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	50	150
Benzo(a)anthracene-d12	90	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW10_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125
Date Extracted:	12/01/14	Lab ID:	411435-03 1/2
Date Analyzed:	12/02/14	Data File:	120219.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	50	150
Benzo(a)anthracene-d12	87	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW11_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125
Date Extracted:	12/01/14	Lab ID:	411435-04 1/2
Date Analyzed:	12/02/14	Data File:	120220.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	86	50	150
Benzo(a)anthracene-d12	93	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW12_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125
Date Extracted:	12/01/14	Lab ID:	411435-05 1/2
Date Analyzed:	12/02/14	Data File:	120221.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	92	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

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Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW13_20141125	Client:	SoundEarth Strategies
Date Received:	11/25/14	Project:	SOU_0987-010-01_20141125
Date Extracted:	12/01/14	Lab ID:	411435-06 1/2
Date Analyzed:	12/02/14	Data File:	120222.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	50	150
Benzo(a)anthracene-d12	94	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-01_20141125
Date Extracted:	12/01/14	Lab ID:	04-2406 mb
Date Analyzed:	12/02/14	Data File:	120215.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	50	150
Benzo(a)anthracene-d12	91	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	<0.05
Anthracene	<0.05
Fluoranthene	<0.05
Pyrene	<0.05
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05 J
Benzo(b)fluoranthene	<0.05 J
Benzo(k)fluoranthene	<0.05 J
Indeno(1,2,3-cd)pyrene	<0.05 J
Dibenz(a,h)anthracene	<0.05 J
Benzo(g,h,i)perylene	<0.05 J

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 411425-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	93	65-118
Toluene	ug/L (ppb)	50	91	72-122
Ethylbenzene	ug/L (ppb)	50	93	73-126
Xylenes	ug/L (ppb)	150	88	74-118
Gasoline	ug/L (ppb)	1,000	94	69-134

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	97	106	63-142	9

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chromium	ug/L (ppb)	20	102	104	80-119	2
Arsenic	ug/L (ppb)	10	100	100	80-111	0
Cadmium	ug/L (ppb)	5	103	103	83-113	0
Lead	ug/L (ppb)	10	105	105	83-115	0

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 411452-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	100	102	60-150	2
Cadmium	ug/L (ppb)	5	<1	101	100	83-116	1
Chromium	ug/L (ppb)	20	<1	102	104	64-132	2
Lead	ug/L (ppb)	10	<1	101	104	79-121	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	91	80-111
Cadmium	ug/L (ppb)	5	96	83-113
Chromium	ug/L (ppb)	20	98	80-119
Lead	ug/L (ppb)	10	94	83-115

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
TOTAL MERCURY
USING EPA METHOD 1631E

Laboratory Code: 411435-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	ug/L (ppb)	0.5	<0.1	100	108	71-125	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.5	104	88-113

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
DISSOLVED MERCURY
USING EPA METHOD 1631E**

Laboratory Code: 411435-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	ug/L (ppb)	0.5	<0.1	92	91	71-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.5	97	88-113

Date of Report: 12/05/14
Date Received: 11/25/14
Project: SOU_0987-010-01_20141125, F&BI 411435

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	90	91	67-116	1
Acenaphthylene	ug/L (ppb)	1	91	93	65-119	2
Acenaphthene	ug/L (ppb)	1	90	92	66-118	2
Fluorene	ug/L (ppb)	1	94	95	64-125	1
Phenanthrene	ug/L (ppb)	1	88	90	67-120	2
Anthracene	ug/L (ppb)	1	93	93	65-122	0
Fluoranthene	ug/L (ppb)	1	93	94	65-127	1
Pyrene	ug/L (ppb)	1	92	95	62-130	3
Benz(a)anthracene	ug/L (ppb)	1	97	99	60-118	2
Chrysene	ug/L (ppb)	1	95	96	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	91	89	55-135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	89	99	62-125	11
Benzo(a)pyrene	ug/L (ppb)	1	89	91	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	83	83	36-142	0
Dibenz(a,h)anthracene	ug/L (ppb)	1	73	76	37-133	4
Benzo(g,h,i)perylene	ug/L (ppb)	1	79	82	34-135	4

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

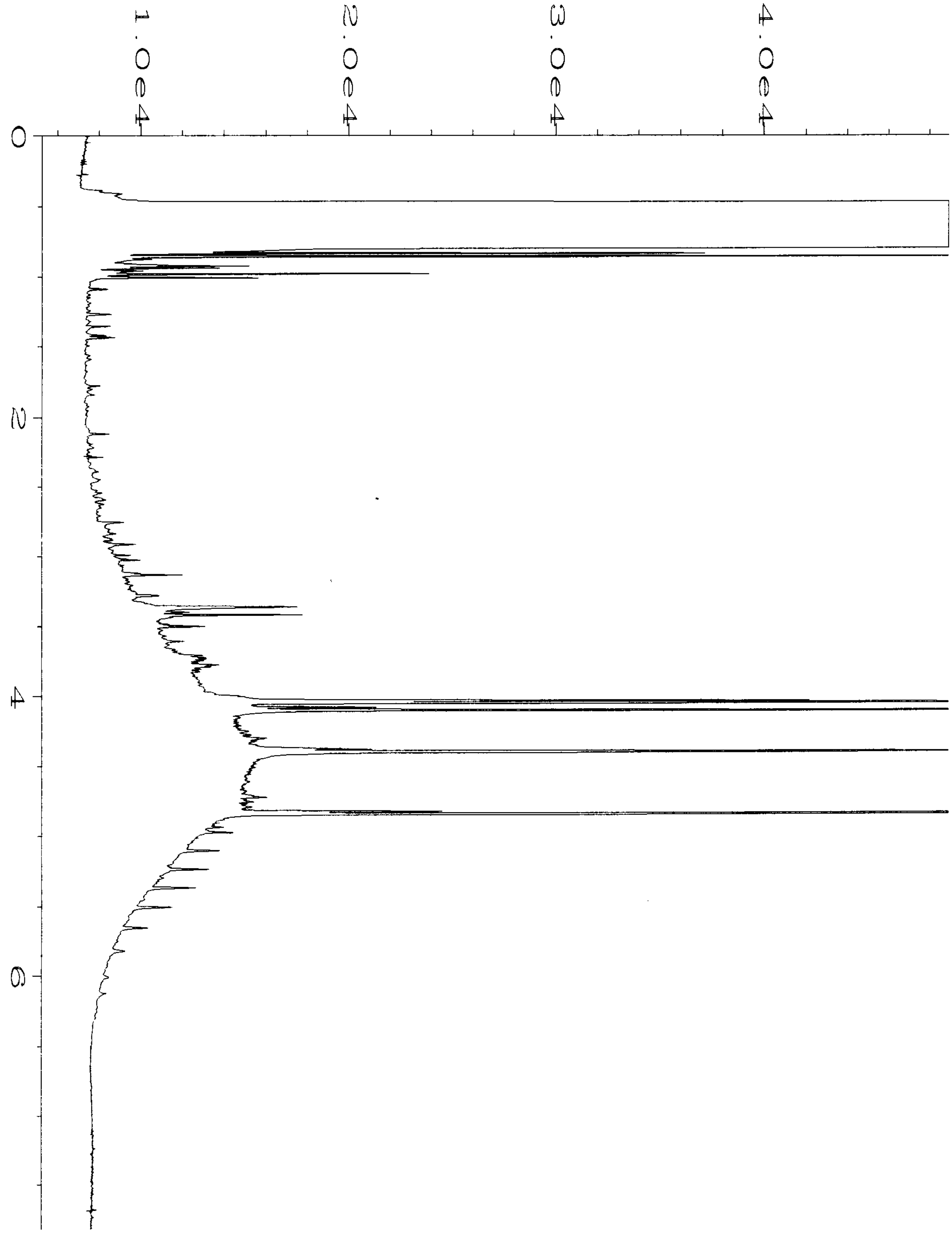
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

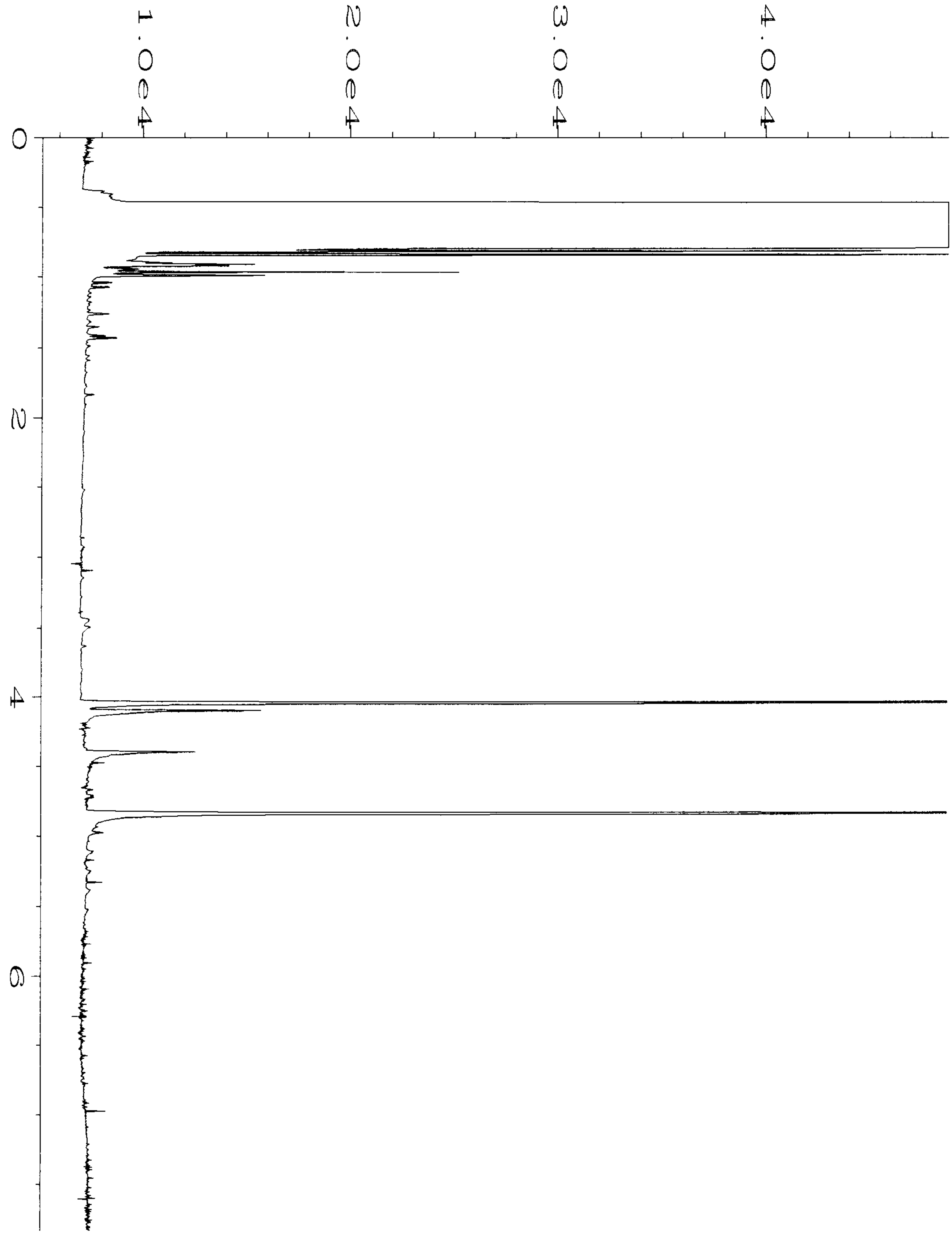
vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



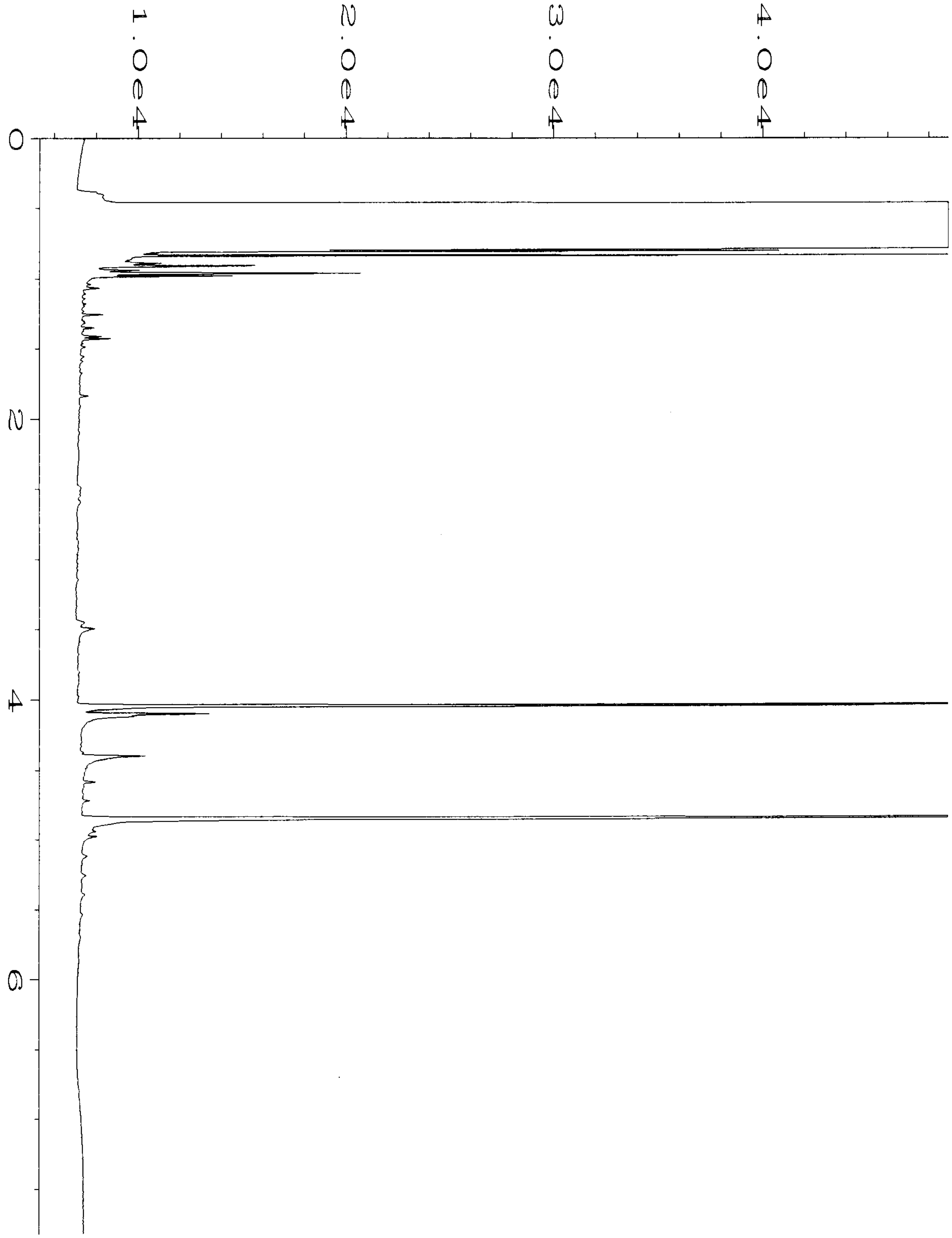
Data File Name   : C:\HPCHEM\1\DATA\12-01-14\024F0701.D
Operator   : mwdl
Instrument   : GC1
Sample Name   : 411435-01
Run Time Bar Code:
Acquired on   : 01 Dec 14   03:55 PM
Report Created on: 02 Dec 14   10:15 AM

Page Number   : 1
Vial Number   : 24
Injection Number : 1
Sequence Line   : 7
Instrument Method: DX.MTH
Analysis Method   : DX.MTH



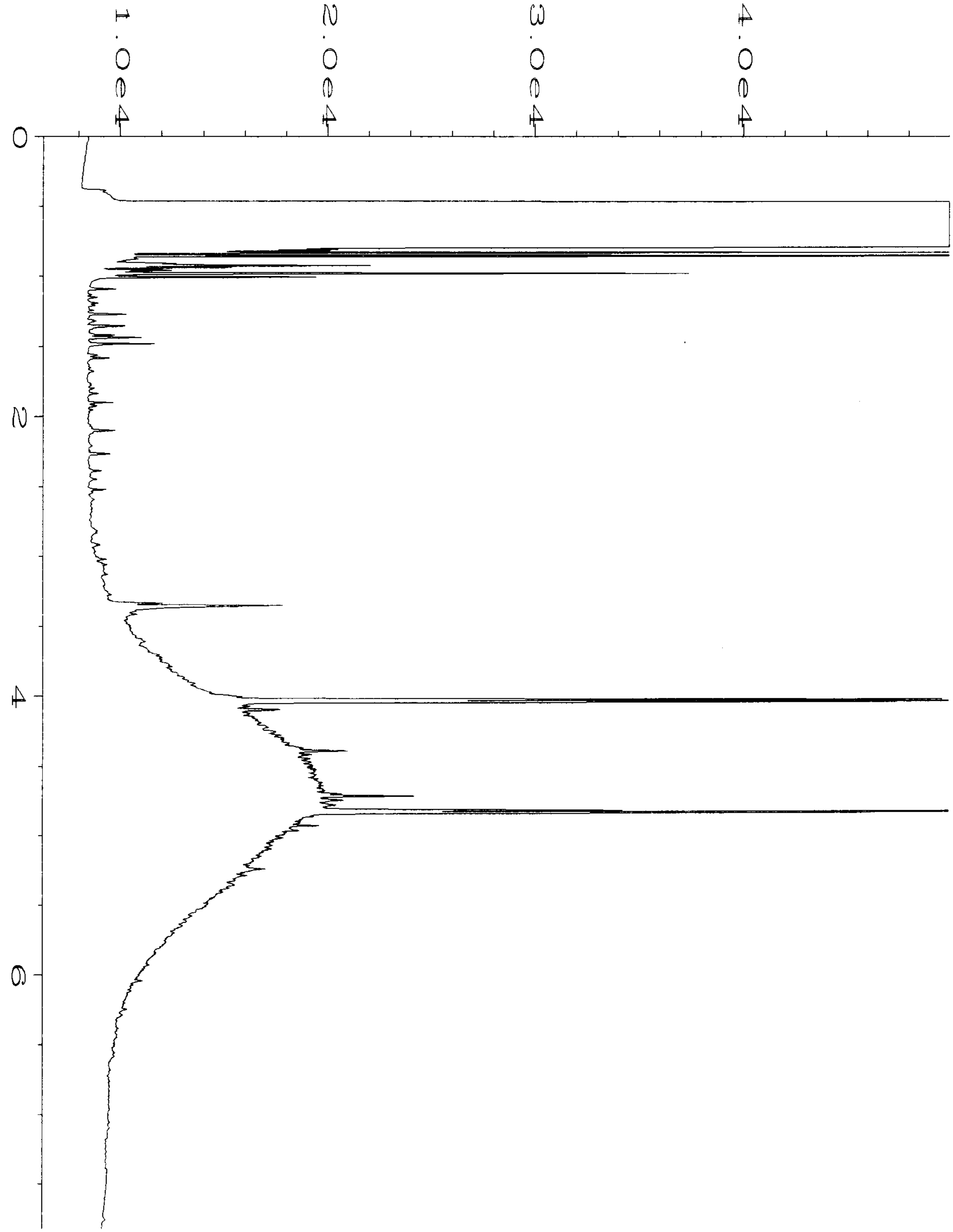
Data File Name : C:\HPCHEM\1\DATA\12-01-14\025F0701.D
Operator : mwdl
Instrument : GC1
Sample Name : 411435-02
Run Time Bar Code:
Acquired on : 01 Dec 14 04:07 PM
Report Created on: 02 Dec 14 10:15 AM

Page Number : 1
Vial Number : 25
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DX.MTH



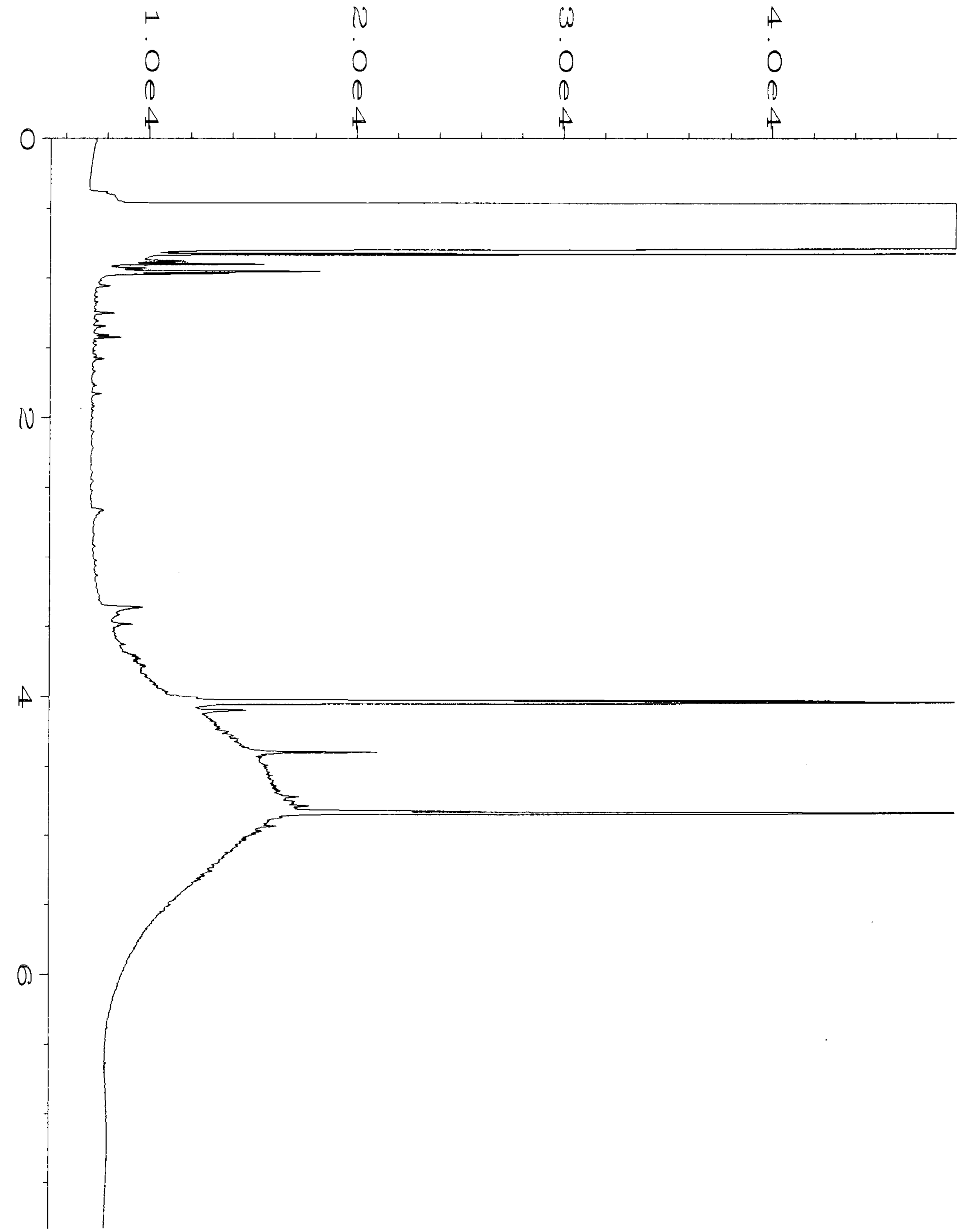
Data File Name : C:\HPCHEM\1\DATA\12-01-14\026F0701.D
Operator : mwdl
Instrument : GC1
Sample Name : 411435-03
Run Time Bar Code:
Acquired on : 01 Dec 14 04:19 PM
Report Created on: 02 Dec 14 10:15 AM

Page Number : 1
Vial Number : 26
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DX.MTH

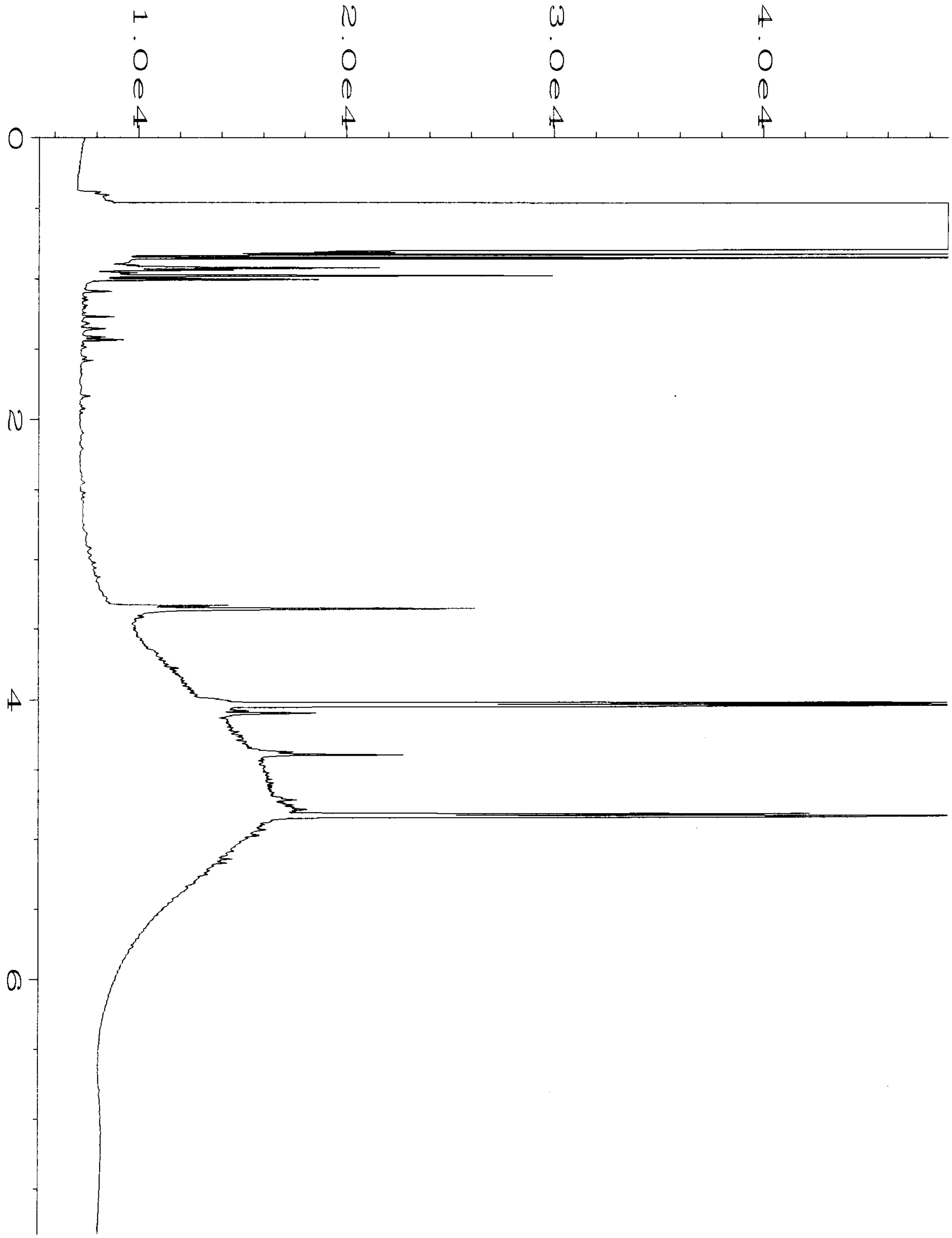


Data File Name   : C:\HPCHEM\1\DATA\12-01-14\027F0801.D
Operator   : mwdl
Instrument   : GC1
Sample Name   : 411435-04
Run Time Bar Code:
Acquired on   : 01 Dec 14   06:45 PM
Report Created on: 02 Dec 14   10:15 AM

Page Number   : 1
Vial Number   : 27
Injection Number : 1
Sequence Line   : 8
Instrument Method: DX.MTH
Analysis Method   : DX.MTH

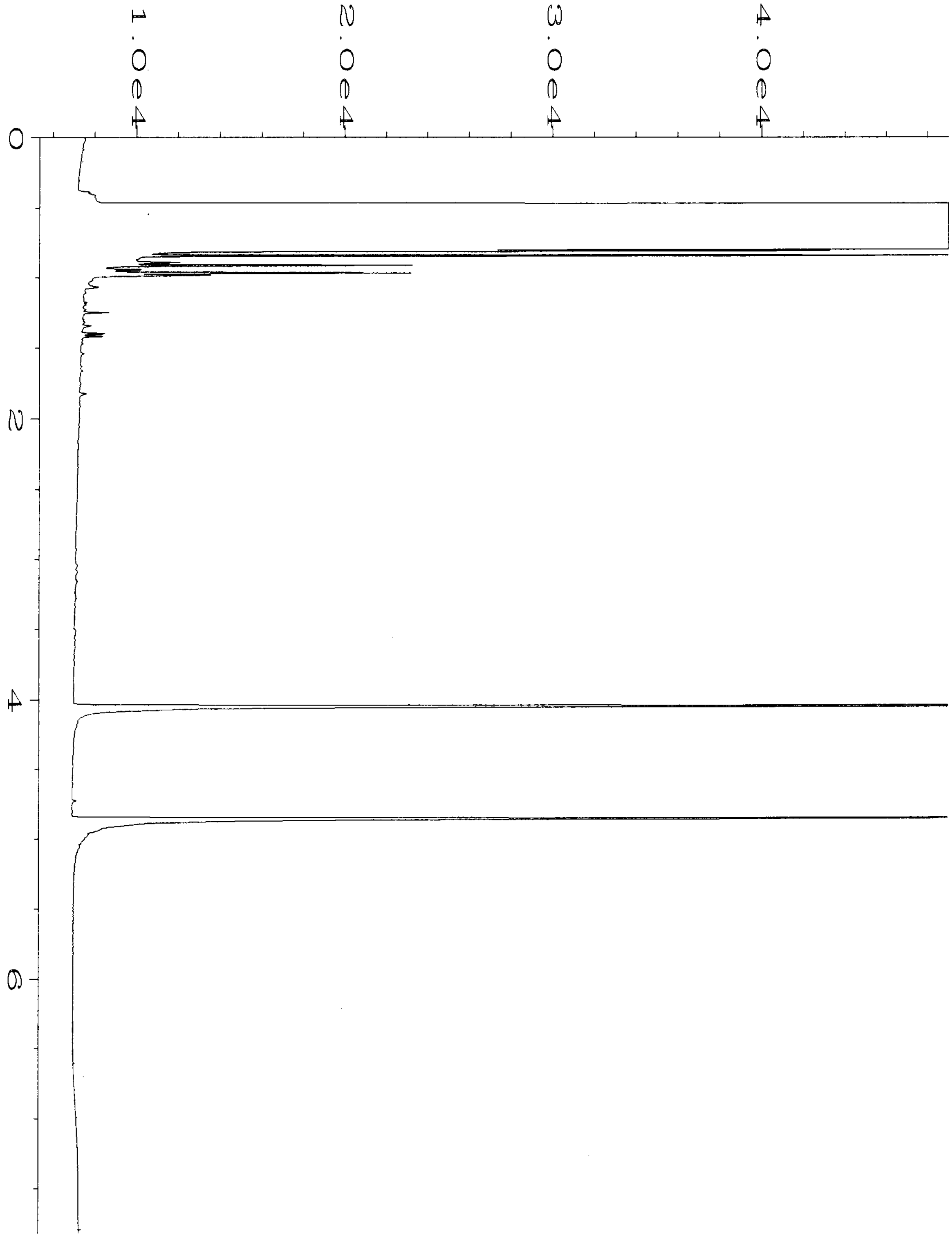


Data File Name	: C:\HPCHEM\1\DATA\12-01-14\028F0701.D			
Operator	: mwdl		Page Number	: 1
Instrument	: GC1		Vial Number	: 28
Sample Name	: 411435-05		Injection Number	: 1
Run Time Bar Code:			Sequence Line	: 7
Acquired on	: 01 Dec 14	04:43 PM	Instrument Method:	DX.MTH
Report Created on:	02 Dec 14	10:15 AM	Analysis Method	: DX.MTH

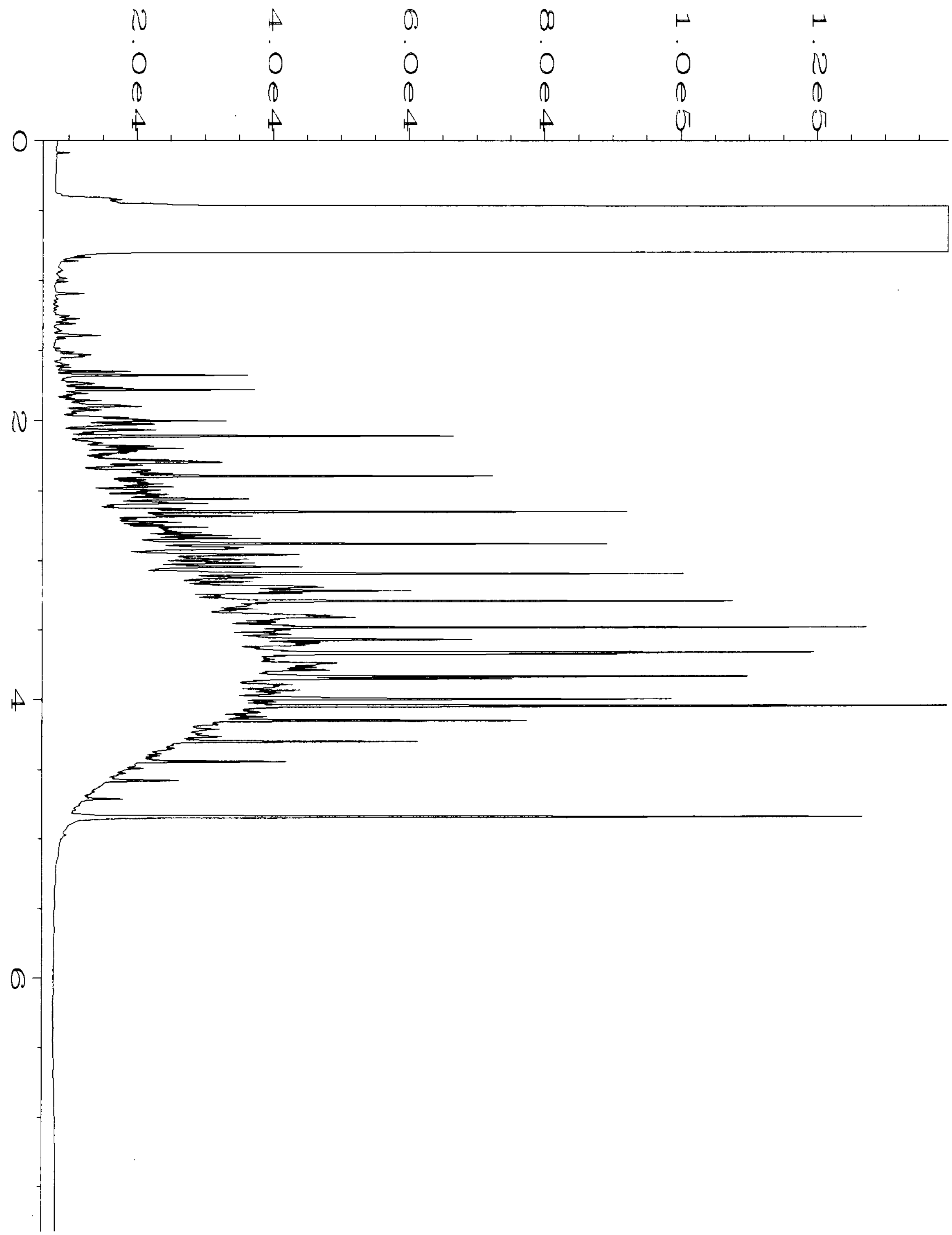


Data File Name : C:\HPCHEM\1\DATA\12-01-14\029F0701.D
Operator : mwdl
Instrument : GC1
Sample Name : 411435-06
Run Time Bar Code:
Acquired on : 01 Dec 14 04:55 PM
Report Created on: 02 Dec 14 10:15 AM

Page Number : 1
Vial Number : 29
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DX.MTH



Data File Name	: C:\HPCHEM\1\DATA\12-01-14\019F0501.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 19
Sample Name	: 04-2404 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 01 Dec 14 02:33 PM	Instrument Method:	DX.MTH
Report Created on:	02 Dec 14 10:14 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\1\DATA\12-01-14\003F0201.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 3
Sample Name	: 500 Dx 43-199B	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 01 Dec 14 08:57 AM	Instrument Method:	DX.MTH
Report Created on:	02 Dec 14 10:14 AM	Analysis Method	: DX.MTH

411435

SAMPLE CHA[IN] OF CUSTODY

ME 11-25-14

Day/12/AES

Send Report to Audrey Hackett

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. Myers Way Property

PO # 0987-010-01

REMARKS *
* lab must filter samples prior to MTCA 5 Metals.

Page # 1 of 1

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx DRPH ORPH	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA5 Metals 200.8 *	PAHS 8270C		Notes
MW07-20141125	MW07		01 A-F	11/25/14	1353	W	6	X	X	X			X	X		
MW09_20141125	MW09		02	11/25/14	1017	W	6	X	X	X			X	X		
MW10-20141125	MW10		03	11/25/14	1003	W	6	X	X	X			X	X		
MW11_20141125	MW11		04	11/25/14	1105	W	6	X	X	X			X	X		
MW12_20141125	MW12		05	11/25/14	1153	W	6	X	X	X			X	X		
MW13_20141125	MW13		06	11/25/14	1227	W	6	X	X	X			X	X		

11/25/2014 KO

Samples received at 3 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kristine Sommer	SoundEarth Strategies, Inc.	11/25/14	
Received by:	Phillip Collins	Fed ex Office	11/25/14	4:13
Relinquished by:				
Received by:	Jon Shimazu	FBI	11/25/14	17:10

Friedman & Bruya, Inc. #506071

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

June 11, 2015

Beau Johnson, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Johnson:

Included are the results from the testing of material submitted on June 3, 2015 from the SOU_0987-010-02_20150603, F&BI 506071 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Rob Roberts, Ryan Bixby, Courtney Porter
SOU0611R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 3, 2015 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-02_20150603, F&BI 506071 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
506071 -01	MW04-20150603
506071 -02	MW08-20150603
506071 -03	MW03-20150603
506071 -04	MW01-20150603

All quality control requirements were acceptable.

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW04-20150603	Client:	SoundEarth Strategies
Date Received:	06/03/15	Project:	SOU_0987-010-02_20150603
Date Extracted:	06/08/15	Lab ID:	506071-01
Date Analyzed:	06/08/15	Data File:	506071-01.012
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	94	60	125
Holmium	96	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	1.00
Cadmium	<1
Chromium	1.37
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW08-20150603	Client:	SoundEarth Strategies
Date Received:	06/03/15	Project:	SOU_0987-010-02_20150603
Date Extracted:	06/08/15	Lab ID:	506071-02
Date Analyzed:	06/08/15	Data File:	506071-02.013
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125
Indium	93	60	125
Holmium	97	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	1.70
Cadmium	<1
Chromium	1.42
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW03-20150603	Client:	SoundEarth Strategies
Date Received:	06/03/15	Project:	SOU_0987-010-02_20150603
Date Extracted:	06/08/15	Lab ID:	506071-03
Date Analyzed:	06/08/15	Data File:	506071-03.014
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	102	60	125
Indium	93	60	125
Holmium	95	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	15.4
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW01-20150603	Client:	SoundEarth Strategies
Date Received:	06/03/15	Project:	SOU_0987-010-02_20150603
Date Extracted:	06/08/15	Lab ID:	506071-04
Date Analyzed:	06/08/15	Data File:	506071-04.015
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	92	60	125
Indium	91	60	125
Holmium	94	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	14.4
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-02_20150603
Date Extracted:	06/08/15	Lab ID:	I5-341 mb
Date Analyzed:	06/08/15	Data File:	I5-341 mb.011
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	99	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Date of Report: 06/11/15
Date Received: 06/03/15
Project: SOU_0987-010-02_20150603, F&BI 506071

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 505492-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	4.26	110	95	60-150	15
Cadmium	ug/L (ppb)	5	1.07	102	88	80-124	15
Chromium	ug/L (ppb)	20	2.75	102	95	64-132	7
Lead	ug/L (ppb)	10	<1	94	83	79-121	12
Mercury	ug/L (ppb)	10	<1	96	88	50-150	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	100	80-111
Cadmium	ug/L (ppb)	5	101	83-113
Chromium	ug/L (ppb)	20	107	80-119
Lead	ug/L (ppb)	10	96	83-115
Mercury	ug/L (ppb)	10	96	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

506071

SAMPLE CHAIN OF CUSTODY

ME 06/03/15

A73

Send Report to Beau Johnson; Rob Roberts; Ryan Bixby; Courtney Porter

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) Alison Sienkiewicz

PROJECT NAME/NO. Myers Way Property / 0987-010

PO # 0987-010-02

REMARKS Hold metals (total) samples

*Samples collected for dissolved metals analysis filtered in the field with 0.45 micron inline filter.

Page # ______ of ______

TURNAROUND TIME
Standard (2 Weeks)
RUSH ______
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	Dissolved Metals: As, Cd, Cr, Pb, Hg (~~200.8~~/1631E)*	Total Metals: As, Cd, Cr, Pb, Hg (200.8/1631E)				Notes
MW04-20150603	MW04		01 A-B	6/3/15	1129	H_2O	2				X					Hold total metals samples
MW08-20150603	MW08		02	6/3/15	1219	H_2O	2				X					
MW03-20150603	MW03		03	6/3/15	1340	H_2O	2				X					
MW01-20150603	MW01		04	6/3/15	1453	H_2O	2				X					

ALS 6/3/15

Samples received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Alison Sienkiewicz	Alison Sienkiewicz	SoundEarth Strategies, Inc.	6/3/15	1559
Received by: [illegible]	Nhan Phan	FeBI	6/3/15	1559
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Friedman & Bruya, Inc. #506072

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

June 11, 2015

Beau Johnson, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Johnson:

Included are the results from the testing of material submitted on June 3, 2015 from the SOU_0987-010-02_20150603, F&BI 506072 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Rob Roberts, Ryan Bixby, Courtney Porter
SOU0611R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 3, 2015 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-02_20150603, F&BI 506072 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
506072 -01	PGG-1-20150603
506072 -02	PGG-2-20150603
506072 -03	PGG-3-20150603

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	PGG-1-20150603	Client:	SoundEarth Strategies
Date Received:	06/03/15	Project:	SOU_0987-010-02_20150603
Date Extracted:	06/08/15	Lab ID:	506072-01
Date Analyzed:	06/08/15	Data File:	506072-01.016
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	98	60	125
Holmium	103	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	2.49
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	PGG-2-20150603	Client:	SoundEarth Strategies
Date Received:	06/03/15	Project:	SOU_0987-010-02_20150603
Date Extracted:	06/08/15	Lab ID:	506072-02
Date Analyzed:	06/08/15	Data File:	506072-02.017
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	97	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	PGG-3-20150603	Client:	SoundEarth Strategies
Date Received:	06/03/15	Project:	SOU_0987-010-02_20150603
Date Extracted:	06/08/15	Lab ID:	506072-03
Date Analyzed:	06/08/15	Data File:	506072-03.018
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	60	125
Indium	95	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-02_20150603
Date Extracted:	06/08/15	Lab ID:	I5-341 mb
Date Analyzed:	06/08/15	Data File:	I5-341 mb.011
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	99	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Date of Report: 06/11/15
Date Received: 06/03/15
Project: SOU_0987-010-02_20150603, F&BI 506072

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 505492-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	4.26	110	95	60-150	15
Cadmium	ug/L (ppb)	5	1.07	102	88	80-124	15
Chromium	ug/L (ppb)	20	2.75	102	95	64-132	7
Lead	ug/L (ppb)	10	<1	94	83	79-121	12
Mercury	ug/L (ppb)	10	<1	96	88	50-150	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	100	80-111
Cadmium	ug/L (ppb)	5	101	83-113
Chromium	ug/L (ppb)	20	107	80-119
Lead	ug/L (ppb)	10	96	83-115
Mercury	ug/L (ppb)	10	96	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

506072

SAMPLE CHAIN OF CUSTODY ME 06/03/15

AI3

Send Report to Beau Johnson; Rob Roberts; Ryan Bixby; Courtney Porter

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. Myers Way Property / 0987-010

PO # 0987-010-02

REMARKS

*Samples collected for dissolved metals analysis filtered in the field with 0.45 micron inline filter.

Page # 1 of 1

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	Dissolved Metals: As, Cd, Cr, Pb, Hg (200.8 or 1631E)*	Total Metals (As, Cd, Cr, Pb, Hg) 200.8/1631E				Notes
																Hold total Metals samples
PGG-1-20150603	PGG-1	28.5	01 A-B	6/3/15	1204	Water	2				X					
PGG-2-20150603	PGG-2	25.0	02	6/3/15	1323	Water	2				X					
PGG-3-20150603	PGG-3	12.0	03	6/3/15	1451	Water	2				X					

CCC 06/03/15

Samples received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Chris Cass	SoundEarth Strategies, Inc.	06/03/15	1559
Received by:		Nhan Phan	FEBI	6/3/15	1559
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

Friedman & Bruya, Inc. #506106

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

June 11, 2015

Beau Johnson, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Johnson:

Included are the results from the testing of material submitted on June 4, 2015 from the SOU_0987-010-02_20150604, F&BI 506106 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Rob Roberts, Ryan Bixby, Courtney Porter
SOU0611R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 4, 2015 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-02_20150604, F&BI 506106 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
506106 -01	MW05-20150604
506106 -02	MW02-20150604
506106 -03	MW06-20150604
506106 -04	MW07-20150604

All quality control requirements were acceptable.

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW05-20150604	Client:	SoundEarth Strategies
Date Received:	06/04/15	Project:	SOU_0987-010-02_20150604
Date Extracted:	06/08/15	Lab ID:	506106-01
Date Analyzed:	06/08/15	Data File:	506106-01.019
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	90	60	125
Indium	80	60	125
Holmium	81	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	19.5
Cadmium	<1
Chromium	1.87
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW02-20150604	Client:	SoundEarth Strategies
Date Received:	06/04/15	Project:	SOU_0987-010-02_20150604
Date Extracted:	06/05/15	Lab ID:	506106-02
Date Analyzed:	06/08/15	Data File:	506106-02.020
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	112	60	125
Indium	93	60	125
Holmium	93	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	15.6
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW06-20150604	Client:	SoundEarth Strategies
Date Received:	06/04/15	Project:	SOU_0987-010-02_20150604
Date Extracted:	06/05/15	Lab ID:	506106-03
Date Analyzed:	06/08/15	Data File:	506106-03.024
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	60	125
Indium	87	60	125
Holmium	89	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	79.6
Cadmium	<1
Chromium	4.92
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW07-20150604	Client:	SoundEarth Strategies
Date Received:	06/04/15	Project:	SOU_0987-010-02_20150604
Date Extracted:	06/05/15	Lab ID:	506106-04
Date Analyzed:	06/08/15	Data File:	506106-04.025
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125
Indium	91	60	125
Holmium	93	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	4.51
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-02_20150604
Date Extracted:	06/05/15	Lab ID:	I5-341 mb
Date Analyzed:	06/08/15	Data File:	I5-341 mb.011
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	99	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Date of Report: 06/11/15
Date Received: 06/04/15
Project: SOU_0987-010-02_20150604, F&BI 506106

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 505492-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	4.26	110	95	60-150	15
Cadmium	ug/L (ppb)	5	1.07	102	88	80-124	15
Chromium	ug/L (ppb)	20	2.75	102	95	64-132	7
Lead	ug/L (ppb)	10	<1	94	83	79-121	12
Mercury	ug/L (ppb)	10	<1	96	88	50-150	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	100	80-111
Cadmium	ug/L (ppb)	5	101	83-113
Chromium	ug/L (ppb)	20	107	80-119
Lead	ug/L (ppb)	10	96	83-115
Mercury	ug/L (ppb)	10	96	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

506106

SAMPLE CHAIN OF CUSTODY

ME 06/04/15

Page # 1 of 1

Send Report to Beau Johnson; Rob Roberts; Ryan Bixby; Courtney Porter

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) Alison Sienkiewicz

PROJECT NAME/NO. Myers Way Property / 0987-010

PO # 0987-010-02

REMARKS

*Samples collected for dissolved metals analysis filtered in the field with 0.45 micron inline filter.

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	Dissolved Metals: As, Cd, Cr, Pb, Hg (200.8/1631E)*	Total Metals As, Cd, Cr, Pb, Hg (200.8/1631E)			Notes
MW05-20150604			01 A-B	6/4/15	1015	H_2O	2				X	AS			Hold total metals samples
MW02-20150604			02	6/4/15	1147	H_2O	2				X				"
MW06-20150604			03	6/4/15	1304	H_2O	2				X				"
MW07-20150604			04	6/4/15	1359	H_2O	2				X				"

ALS 6/4/15

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Alison Sienkiewicz	Alison Sienkiewicz	SoundEarth Strategies, Inc.	6/4/15	1513
Received by: Dao	Dao	FeBI	"	15:13
Relinquished by:				
Received by:				

Samples received at 5 °C

FORMS\COC\COC.DOC

Friedman & Bruya, Inc. #506107

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

June 11, 2015

Beau Johnson, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Johnson:

Included are the results from the testing of material submitted on June 4, 2015 from the SOU_0987-010-02_20150604, F&BI 506107 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: c: Rob Roberts, Ryan Bixby, Courtney Porter
SOU0611R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 4, 2015 by Friedman & Bruya, Inc. from the SoundEarth Strategies 0987-010-02 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
506107 -01	MW10-20150604
506107 -02	MW09-20150604
506107 -03	MW13-20150604
506107 -04	MW12-20150604
506107 -05	MW11-20150604
506107 -06	MW99-20150604

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW10-20150604	Client:	SoundEarth Strategies
Date Received:	06/04/15	Project:	SOU_0987-010-02_20150604, F&BI 506107
Date Extracted:	06/05/15	Lab ID:	506107-01
Date Analyzed:	06/08/15	Data File:	506107-01.026
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	95	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW09-20150604	Client:	SoundEarth Strategies
Date Received:	06/04/15	Project:	SOU_0987-010-02_20150604, F&BI 506107
Date Extracted:	06/05/15	Lab ID:	506107-02
Date Analyzed:	06/08/15	Data File:	506107-02.027
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	95	60	125
Holmium	99	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	4.35
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW13-20150604	Client:	SoundEarth Strategies
Date Received:	06/04/15	Project:	SOU_0987-010-02_20150604, F&BI 506107
Date Extracted:	06/05/15	Lab ID:	506107-03
Date Analyzed:	06/08/15	Data File:	506107-03.028
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	94	60	125
Indium	90	60	125
Holmium	92	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	19.5
Cadmium	<1
Chromium	2.04
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW12-20150604	Client:	SoundEarth Strategies
Date Received:	06/04/15	Project:	SOU_0987-010-02_20150604, F&BI 506107
Date Extracted:	06/05/15	Lab ID:	506107-04
Date Analyzed:	06/08/15	Data File:	506107-04.029
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	102	60	125
Indium	95	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	8.20
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW11-20150604	Client:	SoundEarth Strategies
Date Received:	06/04/15	Project:	SOU_0987-010-02_20150604, F&BI 506107
Date Extracted:	06/05/15	Lab ID:	506107-05
Date Analyzed:	06/08/15	Data File:	506107-05.030
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	93	60	125
Indium	92	60	125
Holmium	94	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	3.27
Cadmium	<1
Chromium	1.06
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW99-20150604	Client:	SoundEarth Strategies
Date Received:	06/04/15	Project:	SOU_0987-010-02_20150604, F&BI 506107
Date Extracted:	06/05/15	Lab ID:	506107-06
Date Analyzed:	06/08/15	Data File:	506107-06.031
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	93	60	125
Indium	91	60	125
Holmium	94	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	3.59
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-02_20150604, F&BI 506107
Date Extracted:	06/05/15	Lab ID:	I5-341 mb
Date Analyzed:	06/08/15	Data File:	I5-341 mb.011
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	99	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Date of Report: 06/11/15
Date Received: 06/04/15
Project: SOU_0987-010-02_20150604, F&BI 506107

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 505492-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	4.26	110	95	60-150	15
Cadmium	ug/L (ppb)	5	1.07	102	88	80-124	15
Chromium	ug/L (ppb)	20	2.75	102	95	64-132	7
Lead	ug/L (ppb)	10	<1	94	83	79-121	12
Mercury	ug/L (ppb)	10	<1	96	88	50-150	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	100	80-111
Cadmium	ug/L (ppb)	5	101	83-113
Chromium	ug/L (ppb)	20	107	80-119
Lead	ug/L (ppb)	10	96	83-115
Mercury	ug/L (ppb)	10	96	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

506107

SAMPLE CHAI OF CUSTODY ME 06-04-15

Page # 1 of 1 BE4

Send Report to Beau Johnson; Rob Roberts; Ryan Bixby; Courtney Porter

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) Chris Cass

PROJECT NAME/NO.	PO#
Myers Way Property / 0987-010	0987-010-02

REMARKS

*Samples collected for dissolved metals analysis filtered in the field with 0.45 micron inline filter.

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	Dissolved Metals: As, Cd, Cr, Pb, Hg (~~200.8~~ Dis. 200.8/ 1631E)*	Total MTCA 5 Metals (200.8/1631E)				Notes
MW10-20150604	MW10	8.0	01 A-B	6/4/15	1007	Water	2				X					Hold total metals samples
MW09-20150604	MW09	10.0	02	6/4/15	1059	Water	2				X					
MW13-20150604	MW13	11.6	03	6/4/15	1157	Water	2				X					
MW12-20150604	MW12	7.5	04	6/4/15	1245	Water	2				X					
MW11-20150604 (MW11 CC)	MW11	12.0	05	6/4/15	1342	Water	2				X					
MW99-20150604	MW99	—	06	6/4/15	0900	Water	2				X					

CCC 06/04/15

[redacted] received at 5 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Chris Cass	Chris Cass	SoundEarth Strategies, Inc.	6/4/15	1513
Received by: Dao	Dd VO	F&BI	"	15:13
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Friedman & Bruya, Inc. #601018

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 11, 2016

Beau Johnson, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Johnson:

Included are the results from the testing of material submitted on January 5, 2016 from the SOU_0987-010_ 20160105, F&BI 601018 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Grayson Fish
SOU0111R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 5, 2015 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010_ 20160105, F&BI 601018 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
601018 -01	P17-05
601018 -02	P17-07.5
601018 -03	P17-10
601018 -04	P17-15
601018 -05	P17-20
601018 -06	P17-25
601018 -07	P17-30
601018 -08	P17-35
601018 -09	P17-40
601018 -10	P18-05
601018 -11	P18-07.5
601018 -12	P18-10
601018 -13	P18-15
601018 -14	P16-05
601018 -15	P16-07.5
601018 -16	P16-10
601018 -17	P16-15
601018 -18	P15-05
601018 -19	P15-07.5
601018 -20	P15-10
601018 -21	P15-15

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	P17-07.5	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-02
Date Analyzed:	01/07/16	Data File:	601018-02.019
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	116	60	125
Indium	100	60	125
Holmium	114	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	73.0
Cadmium	1.13
Chromium	19.5
Lead	301
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P17-10	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-03
Date Analyzed:	01/07/16	Data File:	601018-03.020
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	112	60	125
Indium	96	60	125
Holmium	108	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	70.6
Cadmium	1.34
Chromium	22.2
Lead	268
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P17-20	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-05
Date Analyzed:	01/07/16	Data File:	601018-05.021
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	107	60	125
Indium	95	60	125
Holmium	108	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	6.95
Lead	1.19
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	P18-05	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-10
Date Analyzed:	01/07/16	Data File:	601018-10.022
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	116	60	125
Indium	93	60	125
Holmium	117	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.37
Cadmium	<1
Chromium	10.7
Lead	6.65
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P18-07.5	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-11
Date Analyzed:	01/06/16	Data File:	601018-11.051
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	118	60	125
Indium	86	60	125
Holmium	117	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.32
Cadmium	<1
Chromium	9.23
Lead	1.14
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P18-15	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-13
Date Analyzed:	01/07/16	Data File:	601018-13.023
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	111	60	125
Indium	94	60	125
Holmium	115	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	6.71
Lead	1.02
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P16-05	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-14
Date Analyzed:	01/07/16	Data File:	601018-14.024
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	113	60	125
Indium	94	60	125
Holmium	118	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.99
Cadmium	<1
Chromium	12.3
Lead	3.59
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P16-10	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-16
Date Analyzed:	01/07/16	Data File:	601018-16.025
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	117	60	125
Indium	95	60	125
Holmium	119	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.86
Cadmium	<1
Chromium	9.67
Lead	1.88
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	P16-15	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-17
Date Analyzed:	01/07/16	Data File:	601018-17.026
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	122	60	125
Indium	98	60	125
Holmium	124	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.78
Cadmium	<1
Chromium	8.41
Lead	1.66
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P15-05	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-18
Date Analyzed:	01/07/16	Data File:	601018-18.028
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	122	60	125
Indium	99	60	125
Holmium	122	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.78
Cadmium	<1
Chromium	11.0
Lead	4.52
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P15-07.5	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-19
Date Analyzed:	01/07/16	Data File:	601018-19.029
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	123	60	125
Indium	100	60	125
Holmium	124	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.55
Cadmium	<1
Chromium	7.46
Lead	1.17
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	P15-15	Client:	SoundEarth Strategies
Date Received:	01/05/16	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	601018-21
Date Analyzed:	01/07/16	Data File:	601018-21.030
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	118	60	125
Indium	97	60	125
Holmium	121	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.03
Cadmium	<1
Chromium	8.10
Lead	2.15
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010_ 20160105, F&BI 601018
Date Extracted:	01/06/16	Lab ID:	I6-11 mb
Date Analyzed:	01/06/16	Data File:	I6-11 mb.041
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	114	60	125
Indium	94	60	125
Holmium	119	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<5
Lead	<1
Mercury	<1

Date of Report: 01/11/16
Date Received: 01/05/16
Project: SOU_0987-010_ 20160105, F&BI 601018

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 601018-11 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.13	122	112	70-130	9
Cadmium	mg/kg (ppm)	10	<1	105	100	70-130	5
Chromium	mg/kg (ppm)	50	7.94	94	91	70-130	3
Lead	mg/kg (ppm)	50	<1	90	87	70-130	3
Mercury	mg/kg (ppm	10	<1	86	84	70-130	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	115	85-115
Cadmium	mg/kg (ppm)	10	101	85-115
Chromium	mg/kg (ppm)	50	107	85-115
Lead	mg/kg (ppm)	50	92	85-115
Mercury	mg/kg (ppm)	10	85	85-115

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

601018

SAMPLE CHAIN OF CUSTODY

ME 01-05-16

BI4

Send Report to Bear Johnson/Grayton Fish

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. 0987-010

PO #

REMARKS

Page # 1 of 3

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5, 200.8			Notes (X - std TAT per G-F 1/6/16)
P17-05	P17	5	01	1/4/16	0850	Soil	1									~~HOLD~~
P17-07.5		7.5	02		0900								X			
P17-10		10	03		0910								X			
P17-15		15	04		0915											
P17-20		20	05		0925								X			
P17-25		25	06		0935											
P17-30		30	07		1005											
P17-35		35	08		1025											
P17-40		40	09		1045											
P18-05	P18		10		1420								X			

Samples received at 3 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Grayton Fish	SES	1/5/13	1525
Received by:	Nhan Phan	FeBI	1/5/13	1530
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

601018

SAMPLE CHAIN OF CUSTODY ME01-05-16

BI4

Page # 2 of 3

Send Report to Beau Johnson, Grayson Fish

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E. Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. 0987-010

PO #

REMARKS ~~HOLD ALL~~

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5			Notes
P18-07.5	P18	7.5	11	1/4/15	1430	Soil	1						X			~~HOLD~~
P18-10		10	12		1435		1									
P18-15		15	13		1440		1						X			
P16-05	P16	5	14	1/5/15	0845	Soil	1						X			
P16-07.5		7.5	15		0900		1									
P16-10		10	16		0905		1						X			
P16-15		15	17		0915		1						X			
P15-05	P15	5	18		1105		1						X			
P15-07.5		7.5	19		1115		1						X			
P15-10		10	20		1120		1									

Samples received at 3 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Grayson Fish	SoundEarth	1/5/16	1530
Received by:		Nhan Phan	FeBI	1/5/16	1530
Relinquished by:					
Received by:					

601018

SAMPLE CHAIN OF CUSTODY

ME01-05-16

BI4

Send Report to Beau Johnson, Grayson Fish

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E. Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) [signature]

PROJECT NAME/NO. 0987-010

PO #

REMARKS ~~HOLD ALL~~

Page # 3 of 3

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5			Notes
P15-15	P15	15	21	1/5/15	1130	Soil	1						X			~~HOLD~~

GCF 1/5/15

~~Samples received at~~ 3 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Grayson Fish	SoundEarth	1/5/16	1530
Received by:	[signature]	Nhan Phan	FEBI	1/5/16	V
Relinquished by:					
Received by:					

Friedman & Bruya, Inc. #601115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 19, 2016

Beau Johnson, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Johnson:

Included are the results from the testing of material submitted on January 12, 2016 from the SOU_0987-010_ 20160112, F&BI 601115 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Logan Schumacher
SOU0119R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 12, 2016 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010_ 20160112, F&BI 601115 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
601115 -01	MW15-20160112
601115 -02	MW14-20160112
601115 -03	MW16-20160112

Samples were filtered by the laboratory on 01/14/16 at 09:10 AM. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW15-20160112 f	Client:	SoundEarth Strategies
Date Received:	01/12/16	Project:	F&BI 601115
Date Extracted:	01/15/16	Lab ID:	601115-01
Date Analyzed:	01/15/16	Data File:	601115-01.047
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	100	60	125
Indium	99	60	125
Holmium	105	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW14-20160112 f	Client:	SoundEarth Strategies
Date Received:	01/12/16	Project:	F&BI 601115
Date Extracted:	01/15/16	Lab ID:	601115-02
Date Analyzed:	01/15/16	Data File:	601115-02.054
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	100	60	125
Indium	98	60	125
Holmium	108	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	2.20
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW16-20160112 f	Client:	SoundEarth Strategies
Date Received:	01/12/16	Project:	F&BI 601115
Date Extracted:	01/15/16	Lab ID:	601115-03
Date Analyzed:	01/15/16	Data File:	601115-03.055
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	95	60	125
Holmium	105	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	1.55
Cadmium	<1
Chromium	1.71
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank f	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	F&BI 601115
Date Extracted:	01/15/16	Lab ID:	I6-38 mb
Date Analyzed:	01/15/16	Data File:	I6-38 mb.024
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	92	60	125
Indium	92	60	125
Holmium	96	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Date of Report: 01/19/16
Date Received: 01/12/16
Project: SOU_0987-010_ 20160112, F&BI 601115

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 601115-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	99	102	70-130	3
Cadmium	ug/L (ppb)	5	<1	102	105	70-130	3
Chromium	ug/L (ppb)	20	<1	109	112	70-130	3
Lead	ug/L (ppb)	10	<1	94	95	70-130	1
Mercury	ug/L (ppb)	10	<1	89	89	70-130	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	101	85-115
Cadmium	ug/L (ppb)	5	109	85-115
Chromium	ug/L (ppb)	20	104	85-115
Lead	ug/L (ppb)	10	106	85-115
Mercury	ug/L (ppb)	10	104	85-115

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

601115

SAMPLE CHAIN OF CUSTODY

ME 01-12-16

AI3

Page # 1 of 1

Send Report to Ben Johnson, W. L. Schumacher

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. Myers Way

PO # 0937-010

REMARKS Standard turn, Filter Prior to analysis

TURNAROUND TIME
✓ Standard (~~2 Weeks~~)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
✓ Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	MTCA 5 Metals			Notes
MW15-20160112	MW15	/	01	1/12/16	0923	H_2O	1						X			Filter before Analysis
MW14-20160112	MW14	/	02	↓	1011	↓	↓						X			↓
MW16-20160112	MW16	/	03	↓	1115	↓	↓						X			↓

LAS 1/12/16

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Logan Schumacher	SES	1/12/16	16:10
Received by:	VINH	FBI	1/12/16	1610
Relinquished by:				
Received by:		Samples received at 15 °C		

FORMS\COC\COC.DOC

Friedman & Bruya, Inc. #603580

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

April 12, 2016

Beau Johnson, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Johnson:

Included are the results from the testing of material submitted on March 31, 2016 from the SOU_0987-010-04_ 20160331, F&BI 603580 project. There are 14 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Logan Schumacher
SOU0412R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 31, 2016 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010-04_ 20160331, F&BI 603580 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
603580 -01	MW12-20160331
603580 -02	MW16-20160331
603580 -03	PGG3-20160331
603580 -04	PGG2-20160331
603580 -05	MW07-20160331
603580 -06	MW14-20160331
603580 -07	PGG1-20160331
603580 -08	MW06-20160331
603580 -09	MW99-20160331
603580 -10	MW15-20160331

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW12-20160331	Client:	SoundEarth Strategies
Date Received:	03/31/16	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	603580-01
Date Analyzed:	04/07/16	Data File:	603580-01.048
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.14
Cadmium	<1
Chromium	5.71
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW16-20160331	Client:	SoundEarth Strategies
Date Received:	03/31/16	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	603580-02
Date Analyzed:	04/07/16	Data File:	603580-02.051
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.55
Cadmium	<1
Chromium	1.33
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	PGG3-20160331	Client:	SoundEarth Strategies
Date Received:	03/31/16	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	603580-03
Date Analyzed:	04/07/16	Data File:	603580-03.053
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	1.01
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	PGG2-20160331	Client:	SoundEarth Strategies
Date Received:	03/31/16	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	603580-04
Date Analyzed:	04/07/16	Data File:	603580-04.054
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW07-20160331	Client:	SoundEarth Strategies
Date Received:	03/31/16	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	603580-05
Date Analyzed:	04/07/16	Data File:	603580-05.055
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	10.9
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW14-20160331	Client:	SoundEarth Strategies
Date Received:	03/31/16	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	603580-06
Date Analyzed:	04/07/16	Data File:	603580-06.056
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	5.27
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	PGG1-20160331	Client:	SoundEarth Strategies
Date Received:	03/31/16	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	603580-07
Date Analyzed:	04/07/16	Data File:	603580-07.057
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	2.35
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW06-20160331	Client:	SoundEarth Strategies
Date Received:	03/31/16	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	603580-08
Date Analyzed:	04/07/16	Data File:	603580-08.058
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	119
Cadmium	<1
Chromium	2.18
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW99-20160331	Client:	SoundEarth Strategies
Date Received:	03/31/16	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	603580-09
Date Analyzed:	04/07/16	Data File:	603580-09.059
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	120
Cadmium	<1
Chromium	2.38
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW15-20160331	Client:	SoundEarth Strategies
Date Received:	03/31/16	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	603580-10
Date Analyzed:	04/07/16	Data File:	603580-10.060
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.60
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010-04_ 20160331
Date Extracted:	04/07/16	Lab ID:	I6-198 mb
Date Analyzed:	04/07/16	Data File:	I6-198 mb.046
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Date of Report: 04/12/16
Date Received: 03/31/16
Project: SOU_0987-010-04_ 20160331, F&BI 603580

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8**

Laboratory Code: 603580-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	4.14	108	108	70-130	0
Cadmium	ug/L (ppb)	5	<1	110	111	70-130	1
Chromium	ug/L (ppb)	20	5.71	74	74	70-130	0
Lead	ug/L (ppb)	10	<1	95	95	70-130	0
Mercury	ug/L (ppb)	10	<1	96	97	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	103	85-115
Cadmium	ug/L (ppb)	5	109	85-115
Chromium	ug/L (ppb)	20	105	85-115
Lead	ug/L (ppb)	10	103	85-115
Mercury	ug/L (ppb)	10	102	85-115

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

603580

SAMPLE CHAIN OF CUSTODY

ME 03/31/16 AI4

Page # 1 of 1

Send Report to Beau Johnson, cc. Logan Schumacher

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. Myers Way / 0987-010-04

PO # 0987-010-04

REMARKS

Analyze for dissolved arsenic, cadmium, chromium, lead and mercury by EPA method 200.8/1631E.

TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: Dissolved Metals EPA 200.8/1631E								Notes
MW12-20160331	MW12	—	01	03-31-16	1040	H2O	1	X								
MW16-20160331	MW16	—	02		1050											
PGG3-20160331	PGG3	—	03		1133											
PGG2-20160331	PGG2	—	04		1236											
MW07-20160331	MW07	—	05		1250											
MW14-20160331	MW14	—	06		1140											
~~MW~~ PGG1-20160331	PGG1	—	07		1328											
MW06-20160331	MW06	—	08		1405											
MW99-20160331	MW99	—	09		1410											
MW15-20160331	MW15	—	10		1412											Samples received at 6 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Ade Hamilton	Sound Earth	03-31-16	1521
Received by:	Nhan Phan	FeBI	3-31-16	1521
Relinquished by:				
Received by:				

Friedman & Bruya, Inc. #604294

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

April 26, 2016

Beau Johnson, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Johnson:

Included are the results from the testing of material submitted on April 15, 2016 from the SOU_0987-010_ 20160415, F&BI 604294 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Ryan Bixby
SOU0426R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on April 15, 2016 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010_ 20160415, F&BI 604294 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
604294 -01	MW17-05
604294 -02	MW17-07.5
604294 -03	MW17-09.5
604294 -04	MW17-11
604294 -05	MW17-12.5
604294 -06	MW17-16

A 200.8 internal standard failed the acceptance criteria for samples MW17-09.5, MW17-11, and MW17-12.5 due to matrix interferences. The data were flagged accordingly. The sample was diluted and reanalyzed.

All other quality control requirements were acceptable.

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW17-09.5	Client:	SoundEarth Strategies
Date Received:	04/15/16	Project:	SOU_0987-010_ 20160415
Date Extracted:	04/21/16	Lab ID:	604294-03
Date Analyzed:	04/22/16	Data File:	604294-03.065
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	8.28
Cadmium	<1
Chromium	22.9 J
Lead	30.2
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW17-09.5	Client:	SoundEarth Strategies
Date Received:	04/15/16	Project:	SOU_0987-010_ 20160415
Date Extracted:	04/21/16	Lab ID:	604294-03 x2
Date Analyzed:	04/22/16	Data File:	604294-03 x2.074
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	8.93
Cadmium	<2
Chromium	24.9
Lead	31.3
Mercury	<2

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW17-11	Client:	SoundEarth Strategies
Date Received:	04/15/16	Project:	SOU_0987-010_ 20160415
Date Extracted:	04/21/16	Lab ID:	604294-04
Date Analyzed:	04/22/16	Data File:	604294-04.066
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.22
Cadmium	1.06
Chromium	22.0 J
Lead	31.8
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW17-11	Client:	SoundEarth Strategies
Date Received:	04/15/16	Project:	SOU_0987-010_ 20160415
Date Extracted:	04/21/16	Lab ID:	604294-04 x2
Date Analyzed:	04/22/16	Data File:	604294-04 x2.075
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.90
Cadmium	<2
Chromium	22.8
Lead	33.8
Mercury	<2

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW17-12.5	Client:	SoundEarth Strategies
Date Received:	04/15/16	Project:	SOU_0987-010_ 20160415
Date Extracted:	04/21/16	Lab ID:	604294-05
Date Analyzed:	04/22/16	Data File:	604294-05.067
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.24
Cadmium	<1
Chromium	18.1 J
Lead	10.9
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW17-12.5	Client:	SoundEarth Strategies
Date Received:	04/15/16	Project:	SOU_0987-010_ 20160415
Date Extracted:	04/21/16	Lab ID:	604294-05 x2
Date Analyzed:	04/22/16	Data File:	604294-05 x2.076
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.49
Cadmium	<2
Chromium	18.5
Lead	11.4
Mercury	<2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010_ 20160415
Date Extracted:	04/21/16	Lab ID:	I6-220 mb
Date Analyzed:	04/21/16	Data File:	I6-220 mb.026
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<5
Lead	<1
Mercury	<1

Date of Report: 04/26/16
Date Received: 04/15/16
Project: SOU_0987-010_ 20160415, F&BI 604294

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 604204-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<10	79	87	70-130	10
Cadmium	mg/kg (ppm)	10	<10	90	95	70-130	5
Chromium	mg/kg (ppm)	50	<50	83	87	70-130	5
Lead	mg/kg (ppm)	50	<10	86	89	70-130	3
Mercury	mg/kg (ppm	10	<10	84	87	70-130	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	103	85-115
Cadmium	mg/kg (ppm)	10	103	85-115
Chromium	mg/kg (ppm)	50	105	85-115
Lead	mg/kg (ppm)	50	99	85-115
Mercury	mg/kg (ppm)	10	94	85-115

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

604294

SAMPLE CHAI OF CUSTODY ME 04-15-16

Page # 1 of 1 A05

Send Report to Beau Johnson /Ryan Bixby

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)		
PROJECT NAME/NO. Myers Way Property		PO # 0987-010
REMARKS ~~Hold - sample analysis selection to be made by PM.~~		

TURNAROUND TIME
Standard ~~(2 Weeks)~~
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	Chlorinated VOCs by 8260C	MTCA 5 Metals (Cd, Cr, Pb, Hg, As)				Notes
MW17-05	MW17	05	01	04/15/16	0915	Soil	1									X-per
MW17-07.5	↓	07.5	02	↓	0920		1									CC 4/15/16
MW17-09.5		09.5	03		0925		1					X				
MW17-11		11	04		0935		1					X				
MW17-12.5		12.5	05		1000		1					X				
MW17-16		16	06		1005		1									

CC 04/15/16

Samples received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Chris Cass	SoundEarth Strategies, Inc.	04/15/16	1423
Received by:	Dd Vo	F+B1	4-15-16	14:23
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Friedman & Bruya, Inc. #604375

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

May 5, 2016

Beau Johnson, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Johnson:

Included are the results from the testing of material submitted on April 21, 2016 from the SOU_0987-010_ 20160421, F&BI 604375 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SOU0505R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 21, 2016 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0987-010_ 20160421, F&BI 604375 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
604375 -01	MW17-20160421

All quality control requirements were acceptable.

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW17-20160421	Client:	SoundEarth Strategies
Date Received:	04/21/16	Project:	SOU_0987-010_ 20160421, F&BI 604375
Date Extracted:	04/28/16	Lab ID:	604375-01
Date Analyzed:	05/02/16	Data File:	604375-01.028
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.23
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0987-010_ 20160421, F&BI 604375
Date Extracted:	04/28/16	Lab ID:	I6-236 mb
Date Analyzed:	05/02/16	Data File:	I6-236 mb.026
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Date of Report: 05/05/16
Date Received: 04/21/16
Project: SOU_0987-010_ 20160421, F&BI 604375

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8**

Laboratory Code: 604375-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	11.6	113	103	70-130	9
Cadmium	ug/L (ppb)	5	<10	116	115	70-130	1
Chromium	ug/L (ppb)	20	<10	109	105	70-130	4
Lead	ug/L (ppb)	10	<10	98	98	70-130	0
Mercury	ug/L (ppb)	10	<10	101	104	70-130	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	98	85-115
Cadmium	ug/L (ppb)	5	111	85-115
Chromium	ug/L (ppb)	20	105	85-115
Lead	ug/L (ppb)	10	102	85-115
Mercury	ug/L (ppb)	10	104	85-115

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

604375

SAMPLE CHAIN OF CUSTODY

ME 04/21/16

Page # 1 of 1

Send Report to Beau Johnson

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) Chris Cass

PROJECT NAME/NO.	PO #
Myers Way Property	0987-010

REMARKS
*Sample was filtered during sampling using a 0.45 micron in-line filter

TURNAROUND TIME
Standard ~~(2 Weeks)~~
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	Chlorinated VOCs by 8260C	Dissolved MTCA 5 Metals (Cd, Cr, Pb, Hg, As)				Notes
MW17-20160421	MW17	13	01	04/21/16	1100	Water	1					X				*Field-Filtered

COC 04/21/16

Samples received at 5 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Chris Cass	Chris Cass	SoundEarth Strategies, Inc.	04/21/16	1201
Received by:	Elizabeth Radford	Elizabeth Radford	F&B	✓	✓
Relinquished by:					
Received by:					

APPENDIX E
SITE-SPECIFIC TERRESTRIAL ECOLOGICAL EVALUATION

SoundEarth Strategies

SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102

October 12, 2016

Mr. Daniel Bretzke
City of Seattle
Department of Finance and Administrative Services
700 Fifth Avenue
Seattle, Washington 98124

SUBJECT: SITE-SPECIFIC TERRESTRIAL ECOLOGICAL EVALUATION
Myers Way Property
9501 Myers Way South, Seattle, Washington
Project Number: 0987-010

Dear Mr. Bretzke:

SoundEarth Strategies, Inc. (SoundEarth) has prepared this Site-Specific Terrestrial Ecological Evaluation (TEE) in accordance with chapter 173-340-7493 of the Washington Administrative Code (WAC 173-340-7493) for the Myers Way Property located at 9501 Myers Way South in Seattle, Washington (the Property). The purpose of this TEE is to determine whether a release of hazardous substances to soil may pose a threat to the terrestrial environment, to characterize existing or potential threats to terrestrial plants or animals exposed to hazardous substances in soil, and to establish site-specific cleanup standards for the protection of terrestrial plants and animals.

SITE DESCRIPTION AND BACKGROUND

The Property consists of two irregularly shaped tax parcels (King County Parcel Nos. 0523049012 and 0523049013) with a total of 7.8 acres (339,768 square feet).

The Property is currently unoccupied, with no buildings constructed on the Property and no identified on-site utilities. The Property includes a gravel parking area comprising the eastern portion, with partially vegetated fields to the west and south, and a gravel road running east–west along the Property boundary, bisecting the two parcels. A chain link fence with padlocked gate runs along the eastern Property boundary, adjacent to Myers Way South. Vertical relief across the Property ranges from approximately 245 feet above mean sea level (North American Vertical Datum of 1988) along the eastern Property boundary, up to approximately 255 feet along the western Property boundary. The Property lies approximately 1.2 miles west of the Duwamish River, upon a north–south-trending hillside above the Duwamish River Valley.

Historical mining, grading, and filling activities occurred on and around the Property between 1936 and 2011. Based on the results of historical research, mining activities were conducted in various locations throughout the Property starting in 1936 to 1943 and continuing sporadically until sometime in the early 2000s.

The majority of the filling activities at the Property occurred in the 1980s as part of mine restoration activities. Garbage was reportedly fly-dumped on the Property in the early 1980s. Around 1984, approximately 36,000 cubic yards of additional fill material was added to the southern portion of the Property to fill a 50-foot-deep ravine during restoration activities. Other localized areas of fill were reported throughout the Property. The source of the fill material was not identified in the available records.

Land use in the vicinity of the Property is primarily residential. The Property is bounded to the north, south, and west by undeveloped and partially vegetated parcels. The land farther to the south and west is developed with residential neighborhoods. The land farther to the north is developed with the Seattle Fire Department and Seattle Public Utilities joint training facility. Meyers Way South forms the eastern Property boundary, the opposite of which lies primarily undeveloped forested land, with a church to the northeast.

REGULATORY FRAMEWORK

The site was evaluated for the potential to pose a threat to terrestrial ecological receptors. To qualify for exclusion from a TEE, the site must meet one of the following four criteria in WAC 173-340-7491:

- All soil contaminated with hazardous substances, is, or will be, located below the point of compliance established under WAC 173-340-7490(4).
- All soil contaminated with hazardous substances is, or will be, covered by buildings, paved roads, pavement, or other physical barriers that will prevent plants or wildlife from being exposed to the soil contamination.
- Where the site conditions are related or connected to undeveloped land: there is less than 1.5 acres of contiguous undeveloped land on the site or within 500 feet of any area of the site, and for sites contaminated with chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor or heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene, there is less than1/4 acre of contiguous undeveloped land on or within 500 feet of any area of the site affected by these hazardous substances.
- Concentrations of hazardous substances in soil do not exceed natural background levels, as determined under WAC 173-340-709.

The site does not meet any of the exclusion criteria, as shown below:

- The impacted soil is located above the point of compliance (site surface extending to 15 feet below ground surface [bgs]).
- All impacted soil at the site is not covered by a physical barrier that prevents potential ecological exposure.
- There are more than 1.5 acres of contiguous undeveloped land within 500 feet of the site.
- Concentrations in the soil are not below natural background levels.

Because the site does not qualify for exclusion from a TEE, further evaluation for the potential threat to terrestrial ecological receptors is required. WAC 173-340-7491 requires a site-specific TEE if any of the following criteria apply:

- The site is located on, or directly adjacent to, an area where management or land use plan will maintain or restore native or seminative vegetation, such as a greenbelt or other natural habitat.
- The site is used by a special status species.
- The site is located on a property that contains at least 10 acres of native vegetation within 500 feet of the site.

Based on these criteria, the site qualifies for a site-specific TEE. The site-specific TEE consists of the following: completing the problem formulation step to determine if terrestrial ecological receptors are exposed to impacted soil at the site, and selecting appropriate ecological evaluation methods, if warranted.

CHEMICALS OF ECOLOGICAL CONCERN

Previous reports by SoundEarth and others describe the fill as loose to slightly dense, gray and brown silty sands intermixed with silts and clays with locally observed fragments of asphalt, brick, concrete, metal, and wood fill material in the upper 10 to 13 feet. Cement kiln dust (CKD)—a fine-grained, chalk-like, gray stratified material—was observed beneath the eastern and central portions of the Property at depths between 5 and 10 feet bgs, within the fill and saturated zone (e.g., in direct contact with groundwater).

The results of the historical research and investigations conducted at the Property established that the impacts confirmed in soil and groundwater are the result of fill activities throughout the Property. The highest concentrations of chemicals of concern (COCs) in soil and groundwater are located beneath the central and eastern portion of the Property and are related to the CKD material observed in the fill. The CKD was observed at depths ranging between 5 and 10 feet bgs, primarily within the saturated zone.

Based on the findings of the historical research and previous investigations, the COCs at the Property are arsenic, cadmium, chromium, and lead.

Soil and groundwater have been confirmed as affected media at the Property. With the exception of a single sample collected from a seep, surface water at the Property has not been analyzed. Although the results of that sampling event did not reveal elevated concentrations of COCs, surface water is considered to be a potential medium of concern.

CURRENT AND FUTURE EXPOSURE PATHWAYS

The CKD deposits at the Property are generally present at depths of 5 to 10 feet bgs, which limits the current potential risk of transport via stormwater or as wind-borne dust. However, isolated areas of CKD may be at or near the surface, so these pathways are considered complete. Groundwater has been impacted by metals leaching from soil, and it is possible that surface water has also been impacted, where present. Direct contact with CKD and with groundwater or surface water potentially contaminated by CKD is also possible, although SoundEarth has not encountered surface water during our reconnaissance of the Property. Potential exposure pathways for the impacts beneath the Property include:

- Direct contact with impacted soil, groundwater, and surface water.
- Ingestion of impacted media or plants and animals that have ingested impacted media.

The parking area located on the eastern edge of the site is covered in gravel; therefore wildlife is not likely to come into direct contact with impacted soil beneath this area, and the soil exposure pathway is eliminated in this area.

TERRESTRIAL ECOLOGICAL RECEPTORS OF CONCERN

According to the City of Seattle Zoning Map, the Property is zoned Commercial 2, which is used for primarily non-retail commercial area, characterized by larger lots, parking, and a wide range of commercial uses. The Property is currently vacant, with gravel parking area, gravel roads, and power transmission lines. The Property is under consideration for sale and future development for commercial or industrial purposes. For commercial and industrial sites, potential exposure to soil contamination is evaluated for terrestrial wildlife protection, according to WAC 173-340-7493.

The Washington Department of Fish & Wildlife (WDFW) publishes a Priority Habitats and Species (PHS) list. The PHS list is a catalog of habitats and species considered to be priorities for conservation and management. Priority species require protective measures for their survival because of their population status; sensitivity to habitat alteration; and recreational, commercial, or tribal importance. Priority species include State Endangered, Threatened, Sensitive, and Candidate species; animal aggregations (e.g., bat colonies) considered vulnerable; and species of recreational, commercial, or tribal importance that are vulnerable. Priority habitats are habitat types or elements with unique or significant value to a diverse assemblage of species. WDFW's online database was also reviewed for PHS information. According to the online database, the site is mapped as habitat for one priority species—the western pond turtle. The area mapped as western pond turtle habitat is the entire quarter section. The western pond turtle (*Actinemys marmorata*) inhabits slow-moving streams, lakes, ponds, and wetlands.

The site contains the following priority habitat: freshwater emergent wetland, freshwater shrub wetland. A wetland survey conducted at the site in 2008 by Herrera Environmental Consultants indicated there are two wetlands on the site, both evaluated to have a low-level habitat function.

The primary exposure pathway for metals at the site occurs via direct contact. The contact with contaminated soil can directly impact vegetation and soil biota. Indirect impacts can occur when animals feed on affected media, resulting in bioaccumulation of contaminants through the food chain. These secondary receptors could include ground-feeding birds and mammals, and small-mammal predators. Plants exposed to contaminants may directly uptake the contamination from the soil in their roots. Animals may be exposed from direct contact with contaminated soil or by consuming affected plants and/or soil biota.

A Wetland Delineation Report completed by SVR in 2005 indicated that the site is inhabited by a variety of small mammals and birds. Small mammals that may inhabit the site include raccoons, squirrels, field mice, rabbits, shrews, and feral cats. Birds observed during field work include swallows, sparrows, shorebirds, and red winged blackbirds. Other bird species typically found in this type of habitat include downy and hairy woodpeckers, Stellar's jays and hawks. Amphibians and reptiles that are likely to occur within this site include garter snakes.

TOXICOLOGICAL ASSESSMENT

Washington State Department of Ecology (Ecology) Toxics Cleanup Program Table 749-3, Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals, indicates that concentrations not exceeding 7 milligrams per kilogram (mg/kg) of arsenic, 14 mg/kg of cadmium, 67 mg/kg of chromium, and 118 mg/kg of lead are expected to be protective of wildlife.

SITE SPECIFIC CLEANUP STANDARDS

Soil results collected during subsurface investigations were compared to Ecological Indicator Soil Concentrations (mg/kg) for Protection of Terrestrial Plants and Animals provided in Ecology's Table 749-3. According to WAC 173-340-7493, for industrial or commercial land uses, only the wildlife values need to be considered.

Contaminant	Soil Screening Level(1)	Highest Concentration at Site
Arsenic	7	**109**
Cadmium	14	3.2
Chromium	67	**120**
Lead	118	**524**

NOTE:
BOLD denotes concentration exceeds MTCA Method A Cleanup Level for Soil.
(1)Soil Screening Level Washington State Department of Ecology Table 749-3 Ecological Indicator Soil Concentrations (mg/kg) for Protection of Terrestrial Plants and Animals, Wildlife.

The highest concentrations of arsenic, chromium, and lead found at the site were at depths ranging from 7 to 10 feet bgs in the gravel-covered parking area. Levels of these metals from shallower soil samples were not above the Soil Screening Levels. Concentrations exceeding the soil screening levels were found in borings MW02, MW03, MW05, and MW06, at depths greater than 7 feet bgs. These borings are in a gravel parking area, which is not likely to have shallow soils disturbed by wildlife; the soil exposure pathway is eliminated in this area.

Contaminant	Soil Screening Level[(1)]	Highest Concentration at Site, Outside of Gravel-Covered Parking Lot
Arsenic	7	**16.7**
Cadmium	14	<1
Chromium	67	23.9
Lead	118	106

NOTES:
BOLD denotes concentration exceeds MTCA Method A Cleanup Level for Soil.
[(1)]Soil Screening Level Washington State Department of Ecology Table 749-3 Ecological Indicator Soil Concentrations (mg/kg) for Protection of Terrestrial Plants and Animals, Wildlife.
< = not detected at a concentration exceeding the laboratory reporting limit

Arsenic is the only contaminant of concern that is above soil screening levels in the area of the site that is not covered by gravel. The one exceedance of arsenic soil screening level outside of the gravel-covered parking area was found at 8 feet bgs. According to WAC 173-340-7490, the biologically active soil zone is assumed to extend to a depth of 6 feet.

Contaminant	Soil Screening Level[(1)]	Highest Concentration at Site, Outside of Gravel-Covered Parking Lot, Within Biologically Active Soil Zone
Arsenic	7	3.35
Cadmium	14	<1
Chromium	67	19.0
Lead	118	13.2

NOTES:
[(1)]Soil Screening Level Washington State Department of Ecology Table 749-3 Ecological Indicator Soil Concentrations (mg/kg) for Protection of Terrestrial Plants and Animals, Wildlife.
< = not detected at a concentration exceeding the laboratory reporting limit

Arsenic, cadmium, chromium, and lead concentrations of soil outside of the gravel-covered parking lot, within the biologically active soil zone do not exceed soil screening levels.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report are derived, in part, from data gathered by others, and from conditions evaluated when services were performed, and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We do not warrant and are not responsible for the accuracy or validity of work performed by others, nor from the impacts of changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the use of segregated portions of this report.

Respectfully,

SoundEarth Strategies, Inc.

Ada Hamilton
Project Geologist

AFH:rt