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REMEDIAL INVESTIGATION AND FEASIBILITY STUDY REPORT

Property:
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

Prepared for:
Lennar Multifamily Communities, LLC
1325 Fourth Avenue, Suite #1700
Seattle, Washington

Report Date:
June 24, 2014

Remedial Investigation and Feasibility Study Report

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SKS Shell Property
a.k.a. Alaska Street Texaco
3901 Southwest Alaska Street
Seattle, Washington 98116

Project No.: 0914-004

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June 24, 2014

SoundEarth Strategies

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
µg/L	micrograms per liter
Alisto	Alisto Engineering Group, Inc.
ARCADIS	ARCADIS US Inc.
ARAR	applicable or relevant and appropriate requirements
AS	air sparge
asl	above sea level
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CFR	Code of Federal Regulations
cm/s	centimeters per second
COC	chemical of concern
CSM	conceptual site model
CUL	cleanup level
DCA	disproportionate cost analysis
DRPH	diesel-range petroleum hydrocarbons
EAI	Environmental Associates Inc.
ECC Horizon	Environmental Claims Consulting, Horizon
Ecology	Washington State Department of Ecology
EDB	1,2-dibromoethane
EDC	1,2-dichloroethane
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FS	feasibility study

ACRONYMS AND ABBREVIATIONS (CONTINUED)

ft^2/day	square feet per day
G-Logics	G-Logics Inc.
Geotech	Geotech Consultants, Inc.
gpm	gallons per minute
GRPH	gasoline-range petroleum hydrocarbons
LNAPL	light nonaqueous-phase liquid
LSI	LSI Adapt Inc.
mg/kg	milligrams per kilogram
MTBE	methyl tertiary-butyl ether
MTCA	Washington State Model Toxics Control Act
NAVD88	North American Vertical Datum 1988
NCP	National Soil and Hazardous Substances Pollution Contingency Plan
NWTPH	Northwest Total Petroleum Hydrocarbon
O&M	operation and maintenance
OMB	U.S. Office of Management and Budget
ORPH	oil-range petroleum hydrocarbons
PCB	polychlorinated biphenyl
PCS	petroleum contaminated soil
PID	photoionization detector
SKS Shell Property	3901 Southwest Alaska Street, Seattle Washington (also known as Alaska Street Texaco)
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RAO	remedial action objectives

ACRONYMS AND ABBREVIATIONS (CONTINUED)

RCW	Revised Code of Washington
RGI	The Riley Group, Inc.
RI	remedial investigation
RI/FS Report	Remedial Investigation and Feasibility Study Report
ROI	radius of influence
ROW	right-of-way
the Site	soil and groundwater contaminated with gasoline-, diesel-, and oil-range petroleum hydrocarbons, benzene, toluene, ethylbenzene, and/or total xylenes beneath the SKS Shell Property as well as beneath portions of the north-adjoining Southwest Alaska Street and the east-adjoining Fauntleroy Way Southwest rights-of-way
SoundEarth	SoundEarth Strategies, Inc.
SPH	separate-phase hydrocarbon
SPU	Seattle Public Utilities
SVE	soil vapor extraction
TEE	Terrestrial Ecological Evaluation
USC	United States Code
USGS	U.S. Geological Survey
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WAC	Washington Administrative Code

EXECUTIVE SUMMARY

SoundEarth Strategies, Inc. has prepared this Remedial Investigation and Feasibility Study Report (RI/FS Report) for the SKS Shell Property located at 3901 Southwest Alaska Street in Seattle, Washington (the SKS Shell Property), on behalf of Lennar Multifamily Communities, LLC. The SKS Shell Property (also known by its former name Alaska Street Texaco) is currently enrolled in the Washington State Department of Ecology's Voluntary Cleanup Program (Voluntary Cleanup Program Project No. NW2715, Facility/Site No. 39196282). The Site (defined below) is being cleaned up under a Prospective Purchaser Consent Decree lodged on July 29, 2013. This RI/FS Report was developed to meet the requirements of a remedial investigation and feasibility study as defined by the Washington State Model Toxics Control Act Regulation in Parts 350 through 390 of Chapter 340 of Title 173 of the Washington Administrative Code.

The SKS Shell Property is a 0.14-acre parcel (Parcel # 6126600495) that is part of an assemblage of six parcels in the West Seattle Triangle urban neighborhood (the Project property), that will be redeveloped as a residential and retail development. The other properties in the Project property include the former Huling Chevrolet garage and auto body shop (Huling property) and the Howden-Kennedy Funeral Home (Kennedy property). The SKS Shell Property is located on the northeast corner of the development site. The topography of the area slopes to the east and north, with an elevation of approximately 270 feet at the northeast corner above mean sea level (North American Vertical Datum of 1988 [NAVD88]). Puget Sound is located approximately 0.9 miles to the west, and Elliot Bay is located approximately 1.3 miles to the northeast of the Project property.

The SKS Shell Property was initially developed in 1934 with the construction of a Gilmore Red Lion gasoline station. It continued to operate as a gasoline station until July 2013. Land use in the vicinity of the Project property has been primarily commercial since the early 1900s.

The Site is defined by the full lateral and vertical extent of contamination that has resulted from releases of gasoline and diesel at the SKS Shell Property. To the extent that data results for the Huling and Kennedy properties affect consideration of the SKS Shell Property and applicable cleanup alternatives, data for those properties is considered in this RI/FS Report as well.

Based on the results of the investigations summarized in later sections of this report, subsurface soil beneath the Site consists primarily of near-surface anthropogenic fill soil overlying Vashon-age recessional outwash and lacustrine deposits. Groundwater was encountered within the recessional outwash deposits during Site explorations. This water-bearing zone was typically encountered at depths ranging from approximately 23 to 25 feet below ground surface and appeared to extend beyond the maximum depth explored of 55 feet below ground surface.

The results of the remedial investigation indicate that soil and groundwater beneath the SKS Shell Property contain concentrations of gasoline-range petroleum hydrocarbons, diesel-range petroleum hydrocarbons, benzene, toluene, ethylbenzene, and xylenes at concentrations exceeding the applicable cleanup levels. Petroleum contamination originating from the SKS Shell Property extends partially into the Fauntleroy Way Southwest and Southwest Alaska Street rights-of-way (ROW) immediately adjacent to the SKS Shell Property.

Concentrations of petroleum hydrocarbons exceeding applicable soil cleanup levels on the adjoining development properties (Huling and Kennedy properties) are confined to vadose zone soil. Based on soil and groundwater data results, soil contamination beneath the Huling and Kennedy properties does not extend to the SKS Shell Property boundary.

Based on the results of the remedial investigation and completion of a conceptual site model, the feasibility study was conducted to develop and evaluate cleanup action alternatives that would facilitate selection of a final cleanup action for the Site in accordance with Part 350(8) of Chapter 340 of Title 173 of the Washington Administrative Code.

Three cleanup action alternatives were developed through screening all applicable remedial technologies for the Site conditions and the development scenario for the SKS Shell Property, and each alternative was evaluated in the course of the feasibility study:

- Cleanup Action Alternative 1, Excavation of Soil with ROW Dewatering and Chemical Oxidation
- Cleanup Action Alternative 2, Excavation of Soil with Biosparging of Groundwater
- Cleanup Action Alternative 3, Excavation of Soil with Air Sparge and Soil Vapor Extraction

Common to all alternatives is the excavation and off-site land disposal of soil exceeding the applicable cleanup levels and dewatering of the ROW during excavations. The alternatives differ only in the type of treatment employed to remediate soil and additional groundwater beneath the ROWs. Due to the nature of the planned development plan, the following elements are common with all three cleanup action alternatives:

Remedial Excavation Area. The entire SKS Shell Property will be excavated from lot-line to lot-line to achieve complete source soil removal. The Remedial Excavation Area is defined as the vertical and horizontal limit of soil exhibiting detectable concentrations of contaminants of concern within the SKS Shell Property boundary.

Demolition. Because the remediation activities will be conducted as part of a larger redevelopment project, the alternatives discussed below assume that the building on the SKS Shell Property will be demolished before beginning shoring and excavation. The demolition of the building is necessary before excavation for remediation, and the costs associated with the pre-demolition hazardous materials surveys and underground storage tank decommissioning activities are included accordingly in the cost estimates provided in this RI/FS Report.

Shoring. Shoring will be required to protect the safety of personnel working in the excavation, as well as the surrounding infrastructure in the ROWs and adjacent properties, from damage due to slope failure. The planned development shoring will enable the removal of soil for the SKS Shell Property redevelopment to an approximate elevation of 247 feet NAVD88 for parking garage floor slab construction. For the purpose of estimating the remedial cost for each alternative, it is assumed that the normal development-related shoring costs are not included in the cost estimates provided in this RI/FS Report. However, the additional shoring costs associated with the remedial over-excavation of contaminated soil to an elevation of 240 feet NAVD88 on the SKS Shell Property are included in the cost estimates.

For illustration purposes, it is anticipated that the shoring will be installed around the entire perimeter of the redevelopment building and parking structure. Footing drains will be completed along the exterior perimeter of the structural foundation to collect any groundwater that may come into contact with the structure.

Excavation. The costs for each alternative include the removal and disposal of all soil within the identified Remedial Excavation Area.

The depth of the Remedial Excavation Area is approximately 25 to 30 feet. The total volume of contaminated soil within the Remediation Excavation Area will be approximately 13,000 tons. Soil will be excavated within the confines of the shoring as designed by the civil engineer and will be directly loaded into trucks for transport to off-Property land disposal at a permitted Subtitle D landfill.

Excavation Trench Dewatering. A dewatering trench will be installed within the limits of the excavation to remove and treat groundwater encountered during excavation activities and any accumulated surface water during the course of the excavation. The excavation dewatering will facilitate soil removal within the water bearing zone. The groundwater will be pumped to a temporary storage tank and removed periodically by vacuum truck service for off-SKS Shell Property treatment and disposal.

Impermeable Vapor and Water Barrier. Each alternative includes the planned construction of a below-ground concrete parking garage structure with an associated venting system. The removal of all soil contamination by excavation, the substantial thickness of the proposed parking slab foundation, and the parking area ventilation system will mitigate the potential for intrusion and/or collection of unsafe levels of contaminant vapors into the parking garage and above-grade building. In addition, an impermeable vapor and water barrier will extend over the majority of the SKS Shell Property to act as a permanent vapor and water barrier to contaminant migration.

Based on the results of the feasibility study, Cleanup Action Alternative 1 is the recommended alternative for the Site because it ranks comparatively high in environmental benefit and is both technically feasible and cost effective. Cleanup Action Alternative 1 satisfies requirements of the Washington State Model Toxics Control Act and significantly reduces risk from contamination to the maximum extent practicable by removal of the source by excavation and source removal/dewatering and by in situ chemical oxidation to address residual soil and groundwater contamination beneath the ROWs.

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 report. A complete description of the project, Site conditions, investigative methods, and investigation results is contained in this report.

1.0 INTRODUCTION

SoundEarth Strategies, Inc. (SoundEarth) has prepared this Remedial Investigation and Feasibility Study Report (RI/FS Report) for the SKS Shell Property (formerly Alaska Street Texaco) located at 3901 Southwest Alaska Street in Seattle, Washington (the SKS Shell Property). The general location of the Property is shown on Figure 1. The Property is also shown in relation to the six parcels that make up the proposed redevelopment on Figure 2 (collectively, the Project property). This RI/FS Report was prepared for the Prospective Purchaser Consent Decree between Lennar Multifamily Communities, LLC and the Washington State Department of Ecology (Ecology). This RI/FS Report was developed to meet the requirements of the Washington State Model Toxics Control Act (MTCA) Regulation Parts 350 through 390 of Chapter 340 of Title 173 of the Washington Administrative Code (WAC 173-340-350).

The Site is defined by the full lateral and vertical extent of contamination exceeding applicable cleanup levels (CUL) that has resulted from releases of gasoline and diesel at the SKS Shell Property. Based on the information gathered to date, the Site includes soil and groundwater contaminated with gasoline-, diesel-, and oil-range petroleum hydrocarbons (GRPH, DRPH, and ORPH, respectively) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) beneath the Property and beneath limited portions of the north-adjoining Southwest Alaska Street right-of-way (ROW) and the east-adjoining Fauntleroy Way Southwest ROW (Figure 2).

The Site was accepted into Ecology's Voluntary Cleanup Program (VCP) on April 22, 2013 (VCP Project No. NW2715). The Site is also known by Ecology as Alaska Street Texaco. The Prospective Purchaser Consent Decree was lodged on July 29, 2013.

1.1 DOCUMENT PURPOSE AND OBJECTIVES

The purpose of the RI/FS Report is to summarize data necessary to adequately characterize the Site to develop and evaluate cleanup action alternatives. This report presents historical information regarding the former use of the SKS Shell Property and surrounding parcels, summarizes the information obtained during the review of historical information, summarizes the scope and findings of each subsurface investigation that has been conducted on the Site, and presents a conceptual site model (CSM) to represent the extent of contamination and identified exposure receptors.

This RI/FS Report is organized into the following sections:

- **Section 2.0, Background.** This section provides a description of the Site features and location; a summary of the current and historical uses of the SKS Shell Property and adjoining properties; and a description of the Site's environmental setting, including the local meteorology, geology, and hydrology.
- **Section 3.0, Previous Investigations.** This section provides a description of the investigations conducted at the Site by others between 1994 and 2011. Included are an outline of the field work performed and a discussion of the findings, conclusions, and identification of remaining data gaps following completion of each phase of the investigation. Also included is a summary of investigations on the adjoining upgradient Huling property.
- **Section 4.0, Remedial Investigation Field Program.** This section provides a description of the remedial investigation (RI) field work program conducted at the Site by SoundEarth between

August and December 2012, including a summary of the pre-field activities, scope of work, results, a data validation review, and a discussion of data gaps based on the findings of the RI. This section also includes a summary of the parallel RI conducted for the adjoining Huling and Kennedy Properties.

- **Section 5.0, Conceptual Site Model.** This section provides a summary of the CSM derived primarily from the results of the historical research and the cumulative investigations performed at the Site. Included is a discussion of the confirmed and suspected source areas, the chemicals and media of concern, the fate and transport characteristics of the release of hazardous substances, and the potential exposure pathways.
- **Section 6.0, Technical Elements.** The section summarizes technical elements of the remedial analysis, including the remedial action objectives (RAO), applicable or relevant and appropriate requirements (ARAR), chemicals of concern (COC), media of concern, and cleanup standards.
- **Section 7.0, Feasibility Study.** The feasibility study (FS) develops and evaluates cleanup alternatives, discusses the screening of remedial technologies, and identifies the recommended cleanup alternative.
- **Section 8.0, Bibliography.** This section lists the information sources used to create this RI/FS Report.
- **Section 9.0, Limitations.** This section discusses document limitations.

2.0 BACKGROUND

This section provides a description of the Site features and location; a summary of historical Site use; and a description of the local geology, hydrology, and land use pertaining to the Site. Historical documentation referenced in this section is provided in Appendix A.

2.1 SITE LOCATION AND DESCRIPTION

The Site is defined by the extent of contamination caused by the releases of hazardous substances at the Property, as discussed in Section 1.0 above.

2.1.1 The SKS Shell Property

The SKS Shell Property is located on a 0.14-acre parcel (King County parcel no. 6126600495) within the West Seattle Triangle urban neighborhood. The SKS Shell Property has been occupied by a gasoline station since 1934 and is surrounded by commercial businesses and parking lots. The SKS Shell Property and the petroleum-impacted adjoining ROWs are described in the following sections and are presented on Figure 2.

Potable water and sewer service are provided to the SKS Shell Property by Seattle Public Utilities. Puget Sound Energy provides natural gas and Seattle City Light provides electricity to the SKS Shell Property. Solid waste disposal and recycling services are provided by Waste Management.

2.1.2 Fauntleroy Way Southwest and Southwest Alaska Street Rights-of-Way

According to City of Seattle's Arterial Classifications Zoning Map, the Fauntleroy Way Southwest ROW is zoned as a principal arterial and the Southwest Alaska Street ROW is zoned as an arterial street. Fauntleroy Way Southwest runs north-south and Southwest Alaska Street runs east-west. The Fauntleroy Way Southwest ROW is comprised of six through lanes and the Southwest Alaska Street ROW is comprised of four through lanes.

2.2 SURROUNDING PARCEL DESCRIPTIONS

This section describes the current use and ownership of each of the parcels located adjoining to and surrounding the Site. The current uses of the adjoining and surrounding parcels are shown on Figures 2 and 3.

2.2.1 West

The west-adjoining parcel (King County Parcel no. 6126600485) is occupied by a 1941-vintage funeral home (Howden-Kennedy Funeral Home; the Kennedy property). The current owner of the Kennedy property is West Seattle Project X LLC. The former owner was Kennedy Properties.

2.2.2 North

The north-adjoining property, located across Southwest Alaska Avenue (King County parcel numbers 0952007175 and 0952007265) is currently vacant and has been excavated to a depth of approximately 30 feet beneath the existing Alaska Avenue Southwest grade. The current owner of the north-adjoining property is 3922 SW Alaska LLC.

2.2.3 Northeast

The northeast-adjoining parcel (King County Parcel no. 0952007430) is located on the northeast corner of the intersection of Fauntleroy Avenue Southwest and Southwest Alaska Street. A Shell-branded retail gasoline service station operates on the parcel. The current owner of the property is Washington Petroleum Inc.

2.2.4 East

Fauntleroy Way Southwest is located on the eastern boundary of the SKS shell Property. The east-adjoining parcel is located across the ROW (King County parcel no. 6126600235). The parcel is developed with a parking lot for a Les Schwab tire shop.

2.2.5 South

The south-adjoining property (King County parcel no. 6126600555) was formerly occupied by a Huling Chevrolet dealership and service garage (the Huling property). The parcel has been vacant since approximately 2008. The former owner was Huling Bros. Prop, LLC. The current owner of the Huling property is West Seattle Project X LLC.

2.3 UNDERGROUND UTILITIES

This section describes underground utilities present beneath the Site based on a site reconnaissance, Seattle side sewer cards, county utility and road maps, building plans, private utility locates, and a survey conducted by Dowl HKM in November 2012. The current and historical utilities within the Site are presented in plain view on Figure 4. A more detailed discussion of the referenced historical Site features and land use is provided in Section 2.5.

2.3.1 The SKS Shell Property

The resources listed above indicated that a sanitary side sewer line enters the SKS Shell Property from the north and connects a 15-inch-diameter side sewer line located beneath Southwest Alaska Street. Water and natural gas lines connect from lines beneath Fauntleroy Way Southwest.

2.3.2 Southwest Alaska Street Right-of-Way

A 15-inch diameter concrete sewer line and a 6-foot-diameter City Light electrical utilidor are located beneath the Southwest Alaska Street ROW.

2.3.3 Fauntleroy Way Southwest Right-of-Way

A 15-inch-diameter concrete sewer line and a water line are located beneath the Fauntleroy Way Southwest ROW. A natural gas line is located beneath the western sidewalk adjoining the Property.

2.4 LAND USE DESIGNATION

The current land use of the Site and surrounding area is a mix of industrial, office, and commercial. According to the City of Seattle's zoning map, the Site is located inside an urban village, labeled as the West Seattle Junction Hub Urban Village. The Site is zoned as Neighborhood Commercial 3 Pedestrian-85 (NC3P-85) and Neighborhood Commercial 3-85 (NC3-85). Zoning for the surrounding properties is Neighborhood Commercial 3-40, 3-65, and 3-85 (NC 3-40, 3-60, and 3-85).

2.5 LAND USE HISTORY OF THE SITE

The historical use of the SKS Shell Property is summarized in this section. Selected aerial photographs are attached to this report (Photographs). Available King County Archived Records, Sanborn Fire insurance maps, and City of Seattle archived building permit files are included in Appendix A of this report. Figure 3 presents current and historical Site features.

This SKS Shell Property was developed as a gasoline station and an automotive repair facility in 1934. Successive oil companies retailing gasoline products at the SKS Shell Property include Gilmore Red Lion in the 1930s, Mobil Oil in the 1940s, Texaco in the 1950s, Atlantic Richfield in the 1960s, Arco from 1975 to 1995, Texaco from approximately 1998 to 2004, and Shell from 2004 to the present.

In 1950, the original 1934 gasoline fueling equipment was removed and two 4,000-gallon underground storage tanks (UST) were installed. The pump island and service station office were removed in 1961 and replaced with a new and relocated pump island. An additional 8,000-gallon UST was installed in 1974. The 1950-vintage USTs were removed in 1984 and replaced with one 10,000-gallon UST and two 12,000 gallon USTs. The 1984-vintage USTs are still active. Over time, leaded and unleaded gasoline and diesel fuel have been used and stored in various USTs at the SKS Shell Property.

In July 2013, the gasoline station closed and remaining fuel was removed from the USTs. The four USTs and associated piping and dispensers were removed in December 2013. The USTs appeared to be in good condition, with no holes or other obvious indications of a recent release observed. SoundEarth prepared and submitted a UST removal report to Ecology in January 2014 (2014). No excavation of petroleum-impacted soil was conducted at that time. However, approximately 172 tons of petroleum-impacted auger cuttings drilled from the adjacent Fauntleroy Way Southwest ROW were transported and disposed of off site. The augers were required for installation of a shoring system for the UST excavation as well as the future development excavation. Shoring installation also required the decommissioning of monitoring well MW-2.

2.6 HISTORICAL LAND USE OF SURROUNDING PARCELS

This section presents a summary of the historical land use on parcels adjoining and surrounding the Site (Figure 3).

2.6.1 West

A funeral home has operated on the Kennedy property since 1941. The existing building was initially heated by a stove and was later converted to an oil-burning furnace. The building has been occupied by the Howden-Kennedy Funeral Home since at least 1966. Embalming took place on the property until approximately January 2012. An operational heating oil UST of unknown capacity is located on the southern portion of the property.

2.6.2 North

The north-adjoining property was initially developed in 1929 with an automotive sales facility and repair garage. The building was initially heated by steam heat using an oil-burning furnace. A retail gasoline service station and automotive repair garage was constructed east of the automotive sales facility in 1936. The service station was equipped with three fuel-dispensing pumps, three 3,000-gallon USTs, and a 1,000-gallon UST. In 1957, the service station was demolished and the automotive sales facility was converted to a grocery store. An asphalt-paved parking lot was constructed east of the grocery store. The building was occupied by a grocery store and a bakery until approximately 1972 and by Hancock Fabrics between approximately 1976 and 2007. Schuck's Auto Supply also operated on the north-adjoining property between at least 1986 and 2007. The north-adjoining property was excavated to a depth of approximately 30 feet in the late 2000's as part of an abandoned redevelopment project.

2.6.3 Northeast

A retail gasoline service station and grease shed were constructed northeast of the SKS Shell Property in 1925. A hydraulic lift and an air compressor were located in the grease shed and the service station was equipped with three fuel dispensing pumps. A 2,000-gallon UST was installed on the northeast-adjoining property in 1950. Both buildings were demolished in 1952 and a new service station building was constructed on the northeast adjoining property. Tax records indicate the presence of a hydraulic hoist, two 4,000-gallon USTs, and eight fuel-dispensing pumps. A second hydraulic hoist and a 6,000-gallon UST were added to the northeast-adjoining property between 1966 and 1967. The service station was occupied by Mobil between 1937 and 1976, by RSC Marketers in 1986, by Flajole Brothers between 1990 and 2005, and by Unocal/76 between 2007 and 2012.

2.6.4 East

A retail gasoline service station was present on east-adjoining property in 1951. Three 1,000-gallon gasoline USTs, one 500-gallon waste oil UST, two gasoline-dispensing pumps, and a hydraulic hoist were located at the service station. The service station operated on the east-adjoining property until at least 1961. The building was demolished by 1965. An office for a used car lot was constructed south of the service station in 1958.

The residence located south of the service station was moved off the east-adjoining property in 1959 and an automotive sales and repair facility was constructed on the vacated land. Additional automotive repair shops were added to the facility in 1961 and 1967. The east-adjoining property was occupied by West Seattle Dodge in 1966, Kubota Bros. Auto Service in 1970, Huling Mazda in 1980, Western Permaplate auto detailing in 1990, AA Rentals in 1996, and Hertz Rentals in 2005.

2.6.5 South

In 1929, the Huling property was undeveloped except for a small residential structure near the southwest corner. Historical street grading profiles indicate that approximately 9 feet of fill was placed on the south end of the property near Southwest Edmunds Street (PanGEO 2012).

A real estate office was constructed on the northern portion of the property in 1950. The office was initially heated by a stove and was converted to electric heat by 1967. Between 1959 and 1961, the office was moved to the northwestern portion of the property. A one-story, wood-framed, stove-heated coffee shop was constructed on the northern portion of the property in 1953. The coffee shop operated on the property until at least 1980. A one-story, masonry-framed repair garage was constructed on the northeastern portion of the property in 1959. Heat was provided by a suspended electric heater. All three buildings were demolished in 1983.

The existing automotive dealership and service garage building were constructed on the southern half of the property in 1952. The dealership and service facility was occupied by Westside Ford from the early 1950s to the early 1970s, Jim Houston Ford in the late 1970s, Goodyear Tire and Hart Chevrolet in the 1980s, and Huling Chevrolet from 1989 to 2008. The facilities have been vacant since 2008. An additional automotive repair building was constructed to the north of the dealership building in 1983. This building was demolished by 1990. The existing retail building on the northern portion of the property was constructed between 1990 and 1995 and used as a used car sales office, and later used as a produce stand.

The service garage equipment included 14 underground hydraulic hoists (one was removed in the 1990s) and a trench drain outlet leading to an oil/water separator. Three USTs were removed by Lee Morse Contractors in September 1989. The removed USTs included a 2,500-gallon UST used for gasoline storage, a 1,000-gallon UST used for heating oil storage, and a 500-gallon UST used for waste oil storage.

2.7 FUTURE LAND USE

The planned development project will include the construction of two separate mixed-use, commercial/residential buildings with subgrade parking that will extend lot-line to lot-line on the SKS Shell Property and adjoining properties to the south and west. The two buildings will contain ground floor retail spaces, each with five floors of apartment units above. Two levels of below-grade parking are planned across the entire development property with a capacity of 534 parking spaces. The lowest level of parking will have a top of slab elevation of 248 feet, with an excavation base at approximately 247 feet. The excavation will employ a combination of soldier pile and soil nail shoring systems. The development will include the undergrounding of current overhead utilities along the Fauntleroy Way Southwest and Southwest Alaska Street sidewalks.

SoundEarth reviewed available online permit information for the SKS Shell Property, which indicated that the Seattle Department of Planning and Development issued the following permits for the project:

- City of Seattle Department of Land Use and Development SEPA Determination of Non-Significance issued February 12, 2012, with conditions on large truck period of entry and noise impact time limits.
- City of Seattle Department of Land Use and Development Land Use Permit issued August 28,2013, with an expiration date of 3/2/2015.
- City of Seattle Department of Land Use and Development Construction Permit issued October 10, 2013, with an expiration date of May 6, 2015.

SoundEarth is unaware of any future land use plans for the adjoining properties or ROWs.

2.8 ENVIRONMENTAL SETTING

This section provides a summary of the environmental setting of the Site.

2.8.1 Meteorology

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 74.90 degrees Fahrenheit (°F), while the coldest month of the year is January, which has an average minimum temperature of 36.00 °F.

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 2012).

2.8.2 Topography

The Site and vicinity lie within the Puget Trough or Lowland portion of the Pacific Border Physiographic Province. The Puget Lowland is a broad, low-lying region situated between the Cascade Range to the east and the Olympic Mountains and Willapa Hills to the west. In the north, the San Juan Islands form the division between the Puget Lowland and the Strait of Georgia in British Columbia. The province is characterized by roughly north-south-oriented valleys and ridges, with the ridges that locally form an upland plain at elevations of up to about 500 feet above sea level (asl). The moderately to steeply sloped ridges are separated by swales, which are often occupied by wetlands, streams, and lakes. The physiographic nature of the Puget Lowland was prominently formed by the last retreat of the Vashon Stade of the Fraser Glaciation, which is estimated to have occurred between 14,000 and 18,000 years before present (Waitt Jr. and Thorson 1983).

The Site is located on a relatively flat topography at elevations ranging between 270 feet (northeast corner) and 273 feet asl (northwest and southwest corners) and gently slopes toward the northeast (Dowl HKM 2012). The Puget Sound waterway is located approximately 1 mile to the west of the Site (USGS 1983).

2.8.3 Groundwater Use

According to the Ecology Water Well Logs database (Ecology 2012), no water supply wells are present within approximately 2 miles of the Site.

Seattle Public Utilities (SPU) provides the potable water supply to the City of Seattle. SPU's main source of water is derived from surface water reservoirs located within the Cedar and South Fork Tolt River watersheds. According to King County's Interactive Map for the County's Groundwater Program, there are no designated aquifer recharge or wellhead protection areas within several miles of the Site.

2.9 GEOLOGIC AND HYDROGEOLOGIC SETTING

This section summarizes the regional geology and hydrogeology in the Site vicinity, and the geologic and hydrogeologic conditions encountered beneath the Site.

2.9.1 Regional Geology and Hydrogeology

According to the Geologic Map of Seattle (Troost et al. 2005), the surficial geology in the vicinity of the Site consists of deposits corresponding to the Vashon Stade of the Fraser Glaciation and pre-Fraser glacial and interglacial periods. In the immediate Site vicinity, surficial deposits have been mapped as Vashon-age recessional outwash and lacustrine deposits (Troost et al. 2005).

The youngest pre-Fraser deposits in the Seattle area, known as the Olympia beds, were deposited during the last interglacial period, approximately 18,000 to 70,000 years ago. The Olympia beds consist of very dense, fine to medium, clean to silty sands and intermittent gravel channel deposits, interbedded with hard silts and peats (Troost and Booth 2008; Galster and Laprade 1991). Organic matter and localized iron-oxide horizons are common. The Olympia beds have known thicknesses of up to 80 feet. Beneath the Olympia beds are various older deposits of glacial and nonglacial origin. In general, deposits from older interglacial and glacial periods are similar to deposits from the most recent glacial cycle, due to similar topographic and climactic conditions (Troost and Booth 2008).

The Vashon ice-contact deposits in the vicinity of the Site are generally discontinuous, highly variable in thickness and lateral extent, and consist of loose to very dense, intermixed glacial till and glacial outwash deposits. The till typically consists of sandy silts with gravel. The outwash consists of sands and gravels, with variable amounts of silt (Troost et al. 2005).

The Vashon recessional outwash deposits are generally discontinuous in the Site vicinity, and consist of loose to very dense, layered sands and gravels, which are generally well-sorted (poorly graded). Layers of silty sands and silts are less common. The Vashon recessional lacustrine deposits consist of layered silts and clays, which range in plasticity from low to high, and that may contain localized intervals of sand or peat. The recessional lacustrine deposits may grade into recessional outwash deposits (Troost et al. 2005).

The glacial and non-glacial deposits beneath the Seattle area comprise the unconsolidated Puget Sound aquifer system, which can extend from ground surface to depths of more than 3,000 feet. Coarse-grained units within this sequence generally function as aquifers, and alternate at various scales with fine-grained units which function as aquitards (Vaccaro et al. 1998). Above local or regional water table aquifers, discontinuous perched groundwater may be present in coarse-grained intervals seated above fine-grained intervals. Below the regional water table, the alternating pattern of coarse and fine-grained units results in a series of confined aquifers. Regional groundwater flow is generally from topographic highs toward major surface water bodies such as Puget Sound and Lake Union. Vertical hydraulic gradients are typically upward near the major surface water bodies, and downward inland (Floyd Snider McCarthy Team 2003; Vaccaro et al. 1998).

2.9.2 Site Geology

Based on the results of the investigations summarized in later sections of this report, subsurface soil beneath the Site consists primarily of near surface anthropogenic fill overlying Vashon-age recessional outwash and lacustrine deposits.

The locations of the borings and wells advanced during explorations at the Site are shown in Figure 4. Cross sections depicting subsurface soil characteristics and geologic units encountered in the explorations are presented in Figures 5 through 7. Detailed boring logs with well construction details are included as Appendix B.

Anthropogenic Fill

Utility corridors and the USTs associated with the SKS Shell service station may include select gravel backfill bedding materials not encountered in the soil borings.

Vashon Recessional Outwash and Lacustrine Deposits

Vashon-age recessional outwash and/or lacustrine type deposits were encountered in all of the borings throughout the Site. In general, these deposits consisted of medium-dense to dense silty sand to sandy silt with variable gravel and sand-rich and silt-rich horizons. These deposits extended to the full depth explored in all of the Site borings (up to 55 feet below ground surface [bgs]).

2.9.3 Site Hydrology

A consistent water-bearing zone was encountered within the recessional outwash deposits during Site explorations. This shallow water-bearing zone was encountered at depths ranging from approximately 23 to 25 feet bgs, extending to depth of at least 55 feet bgs, and corresponding to elevations of 247 to 245 feet North American Vertical Datum 1988 (NAVD88).

Figure 8 presents the groundwater contour map for the shallow water-bearing zone based on groundwater levels measured on November 7, 2012. Groundwater in the shallow water-bearing zone beneath the Site flows toward the northeast, with a shift toward the north at the intersection of Southwest Alaska Street and Fauntleroy Way Southwest. The hydraulic gradient for the water-bearing zone is approximately 0.03 feet/foot near the intersection of Fauntleroy Way Southwest and Southwest Alaska Street. The large dewatered excavation located across Southwest Alaska Street and immediately to the north of the SKS Shell property is approximately 30 to 35 feet below grade, and this excavation may influence groundwater flow directions and hydraulic gradients downgradient of the Site.

Aquifer testing was conducted by SoundEarth on the SKS Shell Property as discussed in Section 4.6.

3.0 PREVIOUS INVESTIGATIONS

This section summarizes the results of the previous investigations conducted at the SKS Shell Property, as well as the adjoining, upgradient properties to the south (Huling property) and west (Kennedy property). The locations of soil borings, groundwater monitoring wells, and other Property features are shown on Figure 4. The soil and groundwater analytical results are shown on Figures 9 and 10 and in

Tables 1 and 2. A summary of the monitoring well IDs, installation dates, depths advanced and well completion details is presented in Table 3.

The soil descriptions and observations were recorded in boring logs attached as Appendix B. Laboratory analytical reports are included in Appendix C. The remainder of this report includes references to MTCA CULs, and these references refer to the 2001 MTCA Method A CULs for soil and groundwater.

Information regarding the previous investigations conducted by others at the Site and on the adjoining upgradient property was obtained from the following reports:

- *Phase I Environmental Site Assessment, Huling Brothers Chevrolet, 4755 Fauntleroy Way Southwest, Seattle, Washington*, by Geotech Consultants, Inc., dated August 16, 1994.
- *Phase 2 Environmental Soil Exploration, Huling Chevrolet, 4755 Fauntleroy Way Southwest, Seattle, Washington*, by Geotech Consultants, Inc., dated November 2, 1994.
- *Groundwater Investigation, Huling Brothers Chevrolet, 4755 Fauntleroy Way Southwest, Seattle, Washington*, by Environmental Partners Inc., dated July 11, 1997.
- *Phase I Environmental Site Assessment, Huling Brothers Property, 4755 Fauntleroy Way Southwest and 4724 40th Avenue Southwest*, *Seattle Washington*, EAI, dated December 18, 2007.
- *Supplemental Phase II Subsurface Investigation, Proposed West Seattle Mixed Use Redevelopment, Former Huling Brothers Chevrolet Property*, by The Riley Group, Inc., dated April 24, 2008.
- *Phase I Environmental Site Assessment, Former Huling Brothers Chevrolet Property*, by The Riley Group, Inc., dated April 25, 2008.
- *Remedial Investigation and Feasibility Study, Shell Station, 3901 SW Alaska Street, Seattle, Washington*, by G-Logics, Inc. (G-logics), dated November 10, 2011.

3.1 SKS SHELL PROPERTY

This section summarizes the results of the previous subsurface investigations conducted at the SKS Shell property. Boring logs for the previous investigations are included in Appendix B. Boring locations are shown on Figure 4.

3.1.1 1995 Subsurface Investigation and Release Discovery

Contamination at the SKS Shell property was first discovered during a two-phase subsurface investigation conducted by Environmental Associates, Inc. (EAI) in 1995. Three soil borings (borings B-1 through B-3) and three monitoring wells (MW-1 through MW-3) were completed around the former and current USTs and pump islands in the locations shown on Figures 9 and 10. Borings B-1 through B-3 were advanced to depths ranging between 17.5 bgs and 22.5 bgs and monitoring wells MW-1 through MW-3 were advanced to depths ranging between 36 to 44 feet bgs.

Monitoring well MW-1 was screened between 29 and 44 feet bgs, and monitoring wells MW-2 and MW-3 were screened between 10 and 30 feet bgs. The depth to groundwater was measured at approximately 24 feet bgs in monitoring wells MW-1 through MW-3. Soil and groundwater samples were submitted for analysis of GRPH, DRPH, and/or BTEX.

Soil Results. The soil samples collected from borings B-1 and B-3, at depths of 17.5 feet bgs and the soil samples collected from boring B-2 and monitoring well MW-2 at depths of 22.5 feet bgs, contained concentrations of GRPH exceeding the applicable CUL. The soil sample collected from monitoring well MW-2 at a depth of 22.5 feet bgs also contained a concentration of benzene above the applicable CUL (Figure 9; Table 1). COCs were not detected in the soil samples collected from MW-3 at depths of 12.5 and 22.5 feet bgs, and from MW-1 at 22.5 to 24.0 feet and from 27.5 to 29.0 feet.

Groundwater Results. The groundwater samples collected from monitoring wells MW-1 through MW-3 contained concentrations of GRPH and benzene exceeding the applicable groundwater CULs. Monitoring well MW-2 also contained a concentration of DRPH exceeding the applicable groundwater CUL (Figure 10; Table 2).

Data Gaps. The lateral and vertical extent of soil and groundwater contamination beneath the SKS Shell Property was not characterized.

3.1.2 1997 Interim Remedial Action and Groundwater Monitoring

In 1997, Alisto Engineering Group Inc. (Alisto) installed an air sparge and soil vapor extraction system (AS/SVE) on a limited area of the eastern portion of the SKS Shell Property. The system included extraction wells DW-1 through DW-4 (Figure 11); however, no information regarding the design or construction of the AS/SVE system was available for review. The system was reportedly operated from May 1999 to December 2002. Between 1997 and 2003, Alisto conducted biannual groundwater sampling of monitoring wells MW-1 through MW-3, presumably to evaluate the progress of the AS/SVE system. Groundwater samples were submitted for analysis of GRPH, DRPH, BTEX, and methyl tertiary-butyl ether (MTBE).

Groundwater Results. The groundwater samples collected from monitoring wells MW-1 through MW-3 contained concentrations of GRPH, DRPH, and/or BTEX exceeding the applicable CULs throughout the years sampled (Table 2).

3.1.1 2004 Groundwater Monitoring Event

Associated Environmental Group, LLC entered the SKS Shell Property into Ecology's VCP in January 2004 and conducted a groundwater sampling event in March 2004. Groundwater samples were collected from monitoring wells MW-1 through MW-3 and submitted for analysis of GRPH, DRPH, BTEX, and MTBE.

Groundwater Results. The groundwater sample collected from monitoring well MW-2 contained concentrations of GRPH, DRPH, and BTEX exceeding the applicable groundwater CULs. The groundwater sample collected from monitoring well MW-3 contained a concentration of benzene exceeding the applicable groundwater CUL. The groundwater sample collected from monitoring well MW-1 did not contain concentrations of GRPH, DRPH, BTEX, or MTBE in excess of their respective CULs (Table 2).

3.1.2 2007 to 2008 Subsurface Investigation, Groundwater Sampling, and Forensic Analysis

In 2007, The Riley Group, Inc. (RGI) conducted a subsurface investigation at the SKS Shell Property that included the installation of six borings (B-1 through B-6) around the perimeters of the fueling area and in the sidewalks to the north and east of the Property boundary (Figure 9). The borings were advanced to maximum depths ranging between 19 and 30 feet bgs. Selected soil samples were submitted for analysis of GRPH, DRPH, ORPH, and BTEX.

In 2008, RGI collected groundwater samples from monitoring wells MW-1 through MW-3 and extraction well DW-2.

Soil Results. The soil samples collected from borings B-1 through B-3 and B-6 (surrounding the tank and dispenser area), at depths between 12 and 24 feet bgs, contained concentrations of GRPH, benzene, and/or total xylenes exceeding the applicable soil CULs (Figure 9; Table 1).

Groundwater Results. Separate-phase hydrocarbon (SPH; i.e., free-phase gasoline product) was encountered in the groundwater samples collected from monitoring well MW-1 and extraction well DW-2. Concentrations of GRPH, benzene, and/or total xylenes exceeding the applicable groundwater CULs were measured in the groundwater samples collected from monitoring wells MW-2 and MW-3.

Forensic Analysis of Separate-Phase Hydrocarbon. Subsequent to encountering SPH beneath the SKS Shell Property, RGI reported the petroleum release to Ecology (Emergency Tracking Response System Number #6091062). RGI conducted product recovery by vacuum truck, followed by absorbent socks changed on a weekly basis until 2009. RGI collected a sample of the SPH and submitted it for identification and fingerprinting analysis. Laboratory analytical results approximated the date of the SPH as pre-1970.

Due to the presence of SPH beneath the SKS Shell Property, testing of the UST systems was conducted in 2008 to evaluate the potential for ongoing petroleum releases. RGI also conducted a historical SKS Shell Property use investigation and geophysical survey for possible historical sources of the release. RGI reported that a 280-gallon UST from the 1960s may remain beneath the northern border of the Property. Based on historical research, UST system test results, the possible presence of a UST along the northern border, and fingerprinting analysis of the SPH, RGI concluded that the SPH was not related to a recent or ongoing release.

In 2008, Environmental Claims Consulting, Horizon (ECC Horizon) collected samples of the SPH to independently evaluate the timing of one or more releases at the property. ECC Horizon also reviewed fuel inventory records, environmental records, historical documents, and site equipment-maintenance records. The investigation was conducted in conjunction with the evaluation conducted by RGI (2008).

Laboratory analytical results reported the SPH samples collected by ECC Horizon as post-1970. In addition, ECC Horizon's review of available records revealed a shortage of 17,000 gallons of fuel from January 2003 to December 2008, a history of regulatory violations, and failed leak detection tests. Based on evaluation of available data, ECC Horizon reported that SPH and Property contamination resulted from petroleum releases that likely occurred between March of 2004 and October of 2008.

Data Gaps. The lateral and vertical extent of soil contamination beneath the northern and northeastern portion of the SKS Shell Property was not characterized by work up to this date (2009).

3.1.3 2011 Subsurface Investigation

In June 2011, G-Logics installed three monitoring wells (GLMW-1 through GLMW-3), as shown on Figure 9, and conducted groundwater sampling at each of the new and existing wells to further evaluate the extent of soil and groundwater contamination beneath the SKS Shell Property. Monitoring wells GLMW-1 through GLMW-3 were advanced to depths of 30 feet in the area surrounding the tanks and dispensers and well screens were placed between 10 and 30 feet bgs. The depth to groundwater in the new wells ranged between 22 and 25 feet bgs. Selected soil samples were submitted for analysis of GRPH, DRPH, BTEX, MTBE, and lead.

In May and June 2011, groundwater samples were collected from monitoring wells GLMW-1 through GLMW-3, MW-1 through MW-3, and extraction wells DW-1 through DW-4. Groundwater samples were submitted for analysis of GRPH, DRPH, ORPH, BTEX, and 1,2 dibromoethane (EDB), 1,2 dichloroethane (EDC), and MTBE.

Soil Results. The soil samples collected from monitoring wells GLMW-1 and GLMW-2 contained concentrations of GRPH and/or BTEX exceeding the applicable soil CULs at depths between 15 and 25 feet bgs. Soil samples collected from monitoring well GLMW-3 at depths of 20 and 25 feet bgs did not contain concentrations of COCs above the applicable CULs (Figure 9; Table 1).

Groundwater Results. The groundwater samples collected from each of the wells, including GLMW-1 through GLMW-3, MW-1 through MW-3, and DW-1 and DW-2, contained concentrations of GRPH, DRPH, benzene, ethylbenzene, and/or total xylenes exceeding the applicable groundwater CULs (Figure 10; Table 2).

Data Gaps. The lateral and vertical extents of soil and groundwater contamination beneath the northern, northeastern, southern, and western portions of the SKS Shell Property were not characterized by cumulative work to this date.

3.1.4 2011 Soil Vapor Extraction/Air Sparge Pilot Test

G-Logics conducted a pilot test for additional SVE/AS remediation on June 20, 2011. The SVE/AS pilot test was conducted using the existing extraction well DW-2. Results of the pilot test indicated that a more powerful blower than that which existed was required, and that a compressor replacement would also be necessary to achieve a more efficient collection of soil vapors volatilized from the contaminated groundwater plume. The existing wells were determined to have a potential radius of influence of 20 feet.

3.1.5 Summary of SKS Shell Investigations and Data Gaps

Previous subsurface investigations indicated that soil beneath the SKS Shell Property is contaminated with GRPH, DRPH, and BTEX exceeding the applicable soil CULs at depths generally ranging between 12 and 25 feet bgs. Petroleum-contaminated soil (PCS) is located beneath the northern and eastern two-thirds of the SKS Shell Property. However, the lateral (to the north and northeast) and vertical extents of contaminated soil were not fully characterized during these investigations.

Groundwater samples collected from monitoring wells located around the perimeter of the USTs and pump islands (wells MW-1 through MW-3 and GLMW-1 through GLMW-3) contain concentrations of GRPH, DRPH, and BTEX that exceeded the applicable groundwater CULs. SPH has been intermittently observed in wells MW-1, MW-3, GLMW-2, and DW-2. Based on these historical groundwater results and the general groundwater flow direction for the SKS shell Property, the contaminant plume likely extends at depth beneath the Fauntleroy Way Southwest and Southwest Alaska Street ROWs.

3.2 ADJOINING HULING PROPERTY

This section summarizes the results of the previous investigations conducted at the adjoining upgradient Huling Property.

3.2.1 1994 Phase I Environmental Site Assessment

In 1994, Geotech Consultants, Inc. (Geotech) conducted a Phase I Environmental Site Assessment (ESA) of the Huling property on behalf of the Huling Brothers (Geotech 1994a). Geotech identified the following two potential environmental conditions for the Huling property:

- One of 14 underground hydraulic hoists located on the Huling property was inoperable, likely as a result of leaking hydraulic fluid.
- Inadequate confirmation soil sampling and UST closure documentation during the removal of the three USTs formerly located on the Huling property. Geotech concluded that petroleum contamination may be present in soil in the UST excavation areas.

3.2.2 1994 Subsurface Investigation

The release at the Huling property was first discovered during a subsurface investigation conducted by Geotech in 1994 (1994b). Fifteen soil borings were completed on the property near the vehicle hoists and former UST areas. The borings were advanced to depths between 4 and 20 feet bgs. Groundwater was not encountered in any of the borings. Selected soil samples were submitted for the analysis of hydrocarbon identification by Northwest Total Petroleum Hydrocarbon (NWTPH) Method NWTPH-HCID for GRPH, DRPH, ORPH, and/or benzene.

Soil Results. The soil samples collected from borings collected near the former waste oil UST at depths of 7.5 feet bgs and 12.5 feet bgs, respectively, contained concentrations of GRPH, ORPH, and/or benzene exceeding soil CULs. A maximum concentration of 37,000 milligrams per kilogram (mg/kg) ORPH was reported at a depth of 7.5 feet. Soil samples collected from 6 borings in the service garage and parking lot to the north contained concentrations of petroleum hydrocarbons either below the applicable CULs or below the laboratory reporting limits.

3.2.3 1997 Groundwater Investigation

In 1997, Environmental Partners, Inc. installed three monitoring wells on the southern half of the Huling Property, on the southwestern portion of the property adjacent to the former 1,000-gallon heating oil UST (Huling MW-1), on the central portion of the property adjacent to the former 2,500-gallon gasoline UST (Huling MW-2), and on the southwestern portion of the property adjacent to the former 500-gallon waste oil UST and impacted hydraulic hoist area identified during the 1994 investigation (Huling MW-3).

Monitoring wells MW-1 and MW-3 were advanced to depths of 25 feet bgs and screened from 10 to 25 feet bgs. Monitoring well MW-3 was installed to a depth of 30 feet bgs and screened from 10 to 30 feet. Groundwater samples collected from the monitoring wells were submitted for the analysis of GRPH, DRPH, ORPH, volatile organic compounds (VOC), polychlorinated biphenyls (PCB), and/or dissolved metals.

Groundwater Results. The groundwater sample collected from monitoring well MW-1 contained a concentration of ORPH slightly exceeding the applicable groundwater CUL. Groundwater samples collected from all three monitoring wells contained concentrations of DRPH below the applicable groundwater CUL. Concentrations of GRPH, VOCs, and PCBs were not detected above the laboratory reporting limits. Concentrations of dissolved metals were either below the applicable CULs or below the applicable laboratory reporting limits.

3.2.4 2008 Subsurface Investigation

In 2008, RGI conducted a subsurface investigation at the property that included the installation of sixteen soil borings advanced to depths between 7 and 32 feet. A reconnaissance groundwater sample was collected from a boring near an oil/water separator at the north end of the garage. Selected soil samples were submitted for analysis of GRPH, DRPH, ORPH, BTEX, naphthalene, and/or PCBs. The reconnaissance groundwater sample was submitted for analysis of VOCs.

Soil Results. The soil samples collected in the service garage near the waste oil tank at 8 feet bgs contained a concentration of ORPH that exceeded the applicable soil CUL. The soil sample collected at 11.3 feet bgs contained a concentration of PCBs slightly exceeding the applicable soil CUL.

Groundwater Results. The reconnaissance groundwater sample did not contain concentrations of VOCs above the laboratory reporting limits (petroleum hydrocarbons were not analyzed).

3.2.5 2008 Phase I Environmental Site Assessment

In 2008, RGI conducted a Phase I ESA of the Huling property (RGI 2008). RGI identified the following recognized environmental conditions for the Huling property:

- The nature and extent of soil and/or groundwater contamination is unknown as a result of the incomplete UST site assessments conducted during the removal of the three USTs formerly located on the Huling property.
- The use of hydraulic hoists and the possible leakage of hydraulic fluid from inoperable hoists on the Huling property, and the potential presence for PCBs in the fluid.
- Staining observed on the concrete outside of the secondary containment around a 1,000-gallon aboveground storage tank used for waste oil storage at the north end of the service garage on the Huling property.
- The presence of an oil/water separator on the Huling property at the north end of the service garage.
- Potential impacts to groundwater beneath the northeast corner of the Huling property from the northeast-adjoining SKS Shell Property (i.e., Alaska Street Texaco).

3.2.6 Summary of Huling Investigations

Subsurface investigations conducted at the Huling property identified soil containing concentrations of GRPH, ORPH, benzene, and PCBs exceeding the applicable CULs in the service garage at depths ranging between 7.5 and 12.5 feet bgs. However, the lateral extent of contaminated soil was not characterized during these investigations.

Although the soil sample collected at 11 feet bgs near the waste oil UST contained a concentration of PCBs exceeding the applicable CUL, concentrations of PCBs were not detected in soil samples collected from any other borings on the Huling property. Therefore, this contamination is considered to be a minor isolated release that will be remediated during redevelopment excavation.

The initial groundwater sample collected from monitoring well Huling-MW-1 in 1997 contained a concentration of ORPH exceeding the applicable groundwater CUL. Monitoring wells Huling-MW-1 through Huling-MW-3 contained concentrations of DRPH below the applicable groundwater CUL. Concentrations of GRPH, BTEX, VOCs, ORPH, and PCBs were not detected above the laboratory reporting limits in groundwater beneath the Huling property.

Potential impacts to soil and groundwater beneath the floor and trench drains, and also the automotive painting and chemical storage areas located inside the Huling body shop building; the sewer line located adjacent to north of the body shop; the automotive repair shop formerly located on the north portion of the Huling property; and the 1,000-gallon heating oil UST formerly located on the Huling property were inadequately assessed or not evaluated during previous subsurface investigations.

3.3 OTHER ADJOINING PROPERTIES

Subsurface investigations conducted by ARCADIS US Inc. (ARCADIS) on the northeast-adjacent BP Arco property at 4580 Fauntleroy Way Southwest identified free-phase product and elevated concentrations of GRPH and BTEX in groundwater beneath the property, indicating that this property has been impacted by their own petroleum release (ARCADIS 2010b).

A subsurface investigation conducted by LSI Adapt Inc. (LSI) in 2005 on the north-adjacent former gasoline station property at 3922 Southwest Alaska Street indicated that no concentrations of GRPH, DRPH, and BTEX were present in groundwater beneath that property (LSI 2005).

4.0 REMEDIAL INVESTIGATION FIELD PROGRAM

SoundEarth conducted the most recent supplementary RI field work at the Site and on the adjoining Huling and Kennedy properties between August and December 2012. The objectives of the RI field program for the SKS Shell Property included the following:

- Evaluate and bound the extent of soil and groundwater contamination identified beneath the northern, northeastern, and western portions of the SKS Shell Property.
- Collect sufficient data to conduct a FS and ultimately develop a cleanup action plan for the Site.

As indicated above, soil boring and monitoring well locations were selected to address the data gaps identified during previous investigations as reported. The following sections summarize the results of the RI field program. The locations of soil borings, groundwater monitoring wells and other SKS shell Site features are shown on Figure 4. The soil and groundwater analytical results are shown on Figures 9 and 10 and in Tables 1 and 2. A summary of the monitoring well IDs, installation dates, depths advanced, and well completion details is presented in Table 3 (includes wells installed at the adjoining Huling and Kennedy properties). The soil descriptions and observations were recorded in boring logs attached as Appendix B. Laboratory analytical reports for the Site are included in Appendix C.

4.1 PRE-FIELD ACTIVITIES

SoundEarth conducted the following pre-field activities for the RI:

- Updated the existing health and safety plan for the Site in accordance with MTCA and Part 1910.120 of Title 29 of the Code of Federal Regulations (CFR) before initiating field activities.
- Prepared detailed work plans for the field activities to be conducted at the Site.
- Requested public utility locates along Fauntleroy Way Southwest and Southwest Alaska Street ROWs by contacting the Northwest Utility Notification Center.
- Oversaw private utility locates by Underground Detection Services, Inc. to clear each boring location before drilling.
- Prepared traffic control plans to block parking lanes and redirect traffic within the Fauntleroy Way Southwest ROW.
- Secured Seattle Department of Transportation street use permits to redirect traffic and conduct field activities within the ROW.
- Implemented the traffic control plans to allow field activities to be conducted within the Fauntleroy Way Southwest ROW.

4.2 SOIL BORING ADVANCEMENT AND SAMPLING

The drilling and well installation activities conducted as part of this RI were performed between August and December 2012. Drilling activities were conducted under the supervision of a SoundEarth geologist. Soil borings (SMW01 through SMW04, and MW101 through MW106) were advanced at the Site to maximum depths ranging from 30 to 55 feet bgs. The borings were advanced by Boretec Inc. using a hollow-stem auger drill rig.

Relatively undisturbed, discrete soil samples were collected from each soil boring at 2.5- to 5-foot intervals throughout the maximum depth explored. Soil samples were collected from the center of the core sample to avoid cross-contamination. The soil was classified using the Unified Soil Classification System. Soil characteristics, including moisture content, relative density, texture, and color, were recorded on boring logs, provided in Appendix B. The depths at which changes in soil lithology were observed and where groundwater was first encountered are also included on the boring logs. Selected portions of recovered soil core samples were placed in a plastic bag so the presence or absence of volatile organic compounds could be quantified using a photoionization detector (PID). Soil samples were selected for analysis based on previous data, field indications of potential contamination, including visual and olfactory notations, PID readings, and/or the location of the sample proximate to the soil-groundwater interface.

After collection, soil samples were labeled with a unique sample ID, placed on ice in a cooler, and delivered to Friedman & Bruya, Inc. of Seattle, Washington, under standard chain-of-custody protocols for laboratory analysis. Selected soil samples were submitted for laboratory analysis of GRPH by Method NWTPH-Gx, DRPH and ORPH by Method NWTPH-Dx, BTEX by U.S. Environmental Protection Agency (EPA) Method 8021B or 8260C, VOCs by Method 8260C, metals by Methods 200.8 and 1631E, and/or PCBs by EPA Method 8082.

4.3 MONITORING WELL INSTALLATION

Monitoring wells MW101 through MW106 and SMW01 through SMW04 were constructed of 2-inch-diameter blank polyvinyl chloride (PVC) casing and flush-threaded to 0.010-inch slotted well screen. The bottom of each of the wells was fitted with a threaded PVC bottom cap, and the top of each well was fitted with a locking compression-fit well cap. The annulus of the monitoring wells was filled with #10/20 silica sand to a minimum height of 1 foot above the top of the screened interval. A bentonite seal with a minimum thickness of 1 foot was installed above the sand pack. The wells were completed at the surface with a flush-mounted, traffic-rated well box set in concrete. The well completion details are presented in Table 3 and in the boring logs, which are provided in Appendix B.

A shallow water-bearing zone was encountered within the recessional outwash deposits during Site explorations. This shallow water-bearing zone was encountered at depths ranging from approximately 22.35 feet to 27.80 feet bgs and extending to a maximum depth of 55 feet bgs. All monitoring wells installed during the RI were screened within the shallow water-bearing zone between approximately 20 and 30 feet bgs. Monitoring wells installed at the Site were constructed with 10 feet of screen set at approximately 5 feet above the water table (as observed during drilling).

4.4 MONITORING WELL DEVELOPMENT

The monitoring wells were developed with the use of a Grundfos submersible pump. Monitoring well development consisted of surging and purging the wells until a minimum of five well volumes was removed and the groundwater no longer appeared turbid. Turbidity was measured visually by field personnel conducting development activities.

4.5 GROUNDWATER SAMPLING

Groundwater samples were collected from monitoring wells in accordance with EPA's *Low Flow (Minimal Drawdown) Ground-Water Sampling Procedures* (1996) at least 24 hours following well development. Prior to sampling, depth to groundwater measurements were collected from the wells relative to the top of well casings to an accuracy of 0.01 feet using an electronic water meter. Purging and sampling of each well was performed using a bladder 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. Samples were placed directly in to clean, laboratory-prepared containers.

After collection, groundwater samples were labeled with a unique sample ID, placed on ice in a cooler, and delivered to Friedman & Bruya, Inc. under standard chain-of-custody protocols for laboratory analysis.

4.6 SKS SHELL PROPERTY

This section summarizes the results of investigations conducted by SoundEarth to evaluate the extent of soil and groundwater contamination at the SKS Shell Property. Soil boring and monitoring well locations and analytical data are shown on Figures 9 and 10, and a summary of the laboratory analytical results are included in Tables 1 and 2.

4.6.1 August 5 to 7, 2012 Investigation

SoundEarth installed monitoring well MW101 across the Fauntleroy Way Southwest ROW, to evaluate the extent of GRPH and BTEX contamination in groundwater to the east of the SKS Shell Property. Monitoring well MW101 was advanced to a total depth of 55 feet bgs, backfilled with bentonite to 30 feet and screened between 20 and 30 feet bgs. A reconnaissance groundwater sample was collected at a depth of 55 feet bgs before backfilling and installation of the monitoring well screen. Monitoring well MW101 was screened between 20 and 30 feet bgs. Selected soil samples were submitted for analysis of GRPH by Method NWTPH-Gx and BTEX by EPA Method 8260C. The reconnaissance groundwater sample collected at 55 feet bgs and the groundwater sample collected from within the screen interval were submitted for analysis of GRPH by Method NWTPH-Gx and BTEX, MTBE, EDB, and EDC by EPA Method 8260C.

Soil Results. Concentrations of GRPH and BTEX were not detected above the laboratory reporting limits in soil samples collected from monitoring well MW101.

Groundwater Results. Concentrations of GRPH, BTEX, MTBE, EDB, and EDC were not detected above the laboratory reporting limits in the reconnaissance and groundwater samples collected from MW101.

Additional Groundwater Sampling. On August 5, 6, and 7, 2012, SoundEarth collected groundwater samples from existing monitoring wells GLMW-1, GLMW-2, MW-2, and MW-X. Monitoring wells GLMW-1, GLMW-2, MW-2, MW-3 are located within the SKS Shell Property boundary. Monitoring well MW-X is located downgradient of the SKS Shell Property in the Southwest Alaska Street ROW. ARCADIS installed monitoring well MW-X in 2012 for characterization of the neighboring BP Arco gasoline station; SPH and elevated GRPH/BTEX have been identified at BP Arco from releases at that site. Groundwater samples were submitted for analysis of GRPH by Method NWTPH-Gx, DRPH and ORPH by Method NWTPH-Dx, and BTEX/EDB/EDC/MTBE by EPA Method 8260C.

Groundwater Results. SPH was encountered in monitoring wells GLMW-2 and MW-3. The SPH collected from monitoring well MW-3 had a green tint indicating high lead content, and on that basis was tentatively identified by Friedman & Bruya, Inc. laboratory as "antique gasoline," typical of pre-1970s origin. Groundwater samples collected from monitoring wells MW-2 and GLMW-1 contained concentrations of GRPH and BTEX exceeding the applicable CULs. Concentrations of COCs were not detected above the laboratory reporting limits in the groundwater sample collected from monitoring well MW-X.

4.6.2 August 29 to 31, 2012 Investigation

SoundEarth installed monitoring well SMW04 on the Kennedy property to evaluate the extent of contamination in groundwater to the west of the SKS Shell Property boundary. Monitoring well SMW04 was advanced to a depth of 36.5 feet bgs and screened between 23 and 33 feet bgs. Selected soil samples were submitted for analysis of GRPH by Method NWTPH-Gx, DRPH and ORPH by Method NWTPH-Dx, and BTEX by EPA Method 8260C. The groundwater sample was submitted for analysis of GRPH by Method NWTPH-Gx, DRPH and ORPH by Method NWTPH-Dx, dissolved metals by EPA Methods 200.8 and 1631E, and VOCs by EPA Method 8260C.

Soil Results. Concentrations of GRPH, ethylbenzene, and total xylenes exceeding the applicable soil CULs were detected in the sample collected at a depth of 25 feet bgs from monitoring well SMW04. A concentration of DRPH was also detected in SMW04 at a depth of 25 feet bgs;

however, review of the carbon distribution patterns shown in the chromatogram are not indicative of diesel fuel, but rather late-eluting compounds from aged gasoline or "antique" gasoline (pre-1970 era fuel).

Groundwater Results. Concentrations of GRPH, total xylenes, and dissolved arsenic exceeding the applicable groundwater CULs were detected in the groundwater sample collected from monitoring well SMW04. The concentration of dissolved arsenic (8.4 micrograms per liter [μg/L]) slightly exceeds the CUL of 5 μg/L and is likely a result of natural background levels typical for the Puget Sound area.

4.6.3 November 2 to 7, 2012 Investigation

SoundEarth installed monitoring wells MW102 through MW104 and borings SB201 and SB202 to evaluate the extent of contamination in soil and groundwater to the north, northeast, and east of the SKS Shell Property boundary. Monitoring wells MW102 and MW103 were advanced to total depths of 31.5 feet bgs, and monitoring well MW104 and soil borings SB201 and SB202 were each advanced to a depth of 36.5 feet bgs. The monitoring wells were screened between 20 and 30 feet bgs. Selected soil samples were submitted for analysis of GRPH by Method NWTPH-Gx; DRPH and ORPH by Method NWTPH-Dx; and BTEX, MTBE, EDC, and EDB by EPA Method 8260C. Groundwater samples were submitted for analysis of GRPH by Method NWTPH-Gx; DRPH and ORPH by Method NWTPH-Dx; dissolved metals by EPA Methods 200.8 and 1631E; and BTEX, MTBE, EDB, and EDC by EPA Method 8260C.

Soil Results. Concentrations of GRPH, benzene, ethylbenzene, and/or total xylenes exceeding the applicable soil CULs were detected in the soil samples collected from monitoring well MW104 at depths of 20, 23, and 25 feet bgs, and in the soil sample collected from boring SB201 at a depth of 23 feet bgs. Concentrations of COCs were not detected above the laboratory reporting limits in soil samples collected from MW102, MW103, or SB202.

Groundwater Results. Concentrations of GRPH, DRPH, and benzene exceeding the applicable groundwater CULs were detected in the groundwater sample collected from monitoring well MW104, which was completed in the sidewalk near the northeast corner of the SKS Shell Property. Concentrations of COCs were not detected above the laboratory reporting limits in groundwater samples collected from monitoring wells MW102 and MW103, which were completed within the Fauntleroy Way Southwest ROW.

4.6.4 December 12 and 13, 2012 Investigation

SoundEarth installed monitoring well MW105 to evaluate the extent of contamination in soil and groundwater to the northeast of the SKS Shell Property boundary. Monitoring well MW105 was advanced to a total depth of 36.5 feet bgs and was screened between 22 and 32 feet bgs. Selected soil samples were submitted for analysis of GRPH by Method NWTPH-Gx, DRPH and ORPH by Method NWTPH-Dx, and BTEX by EPA Method 8260C. The groundwater sample was submitted for analysis of GRPH by Method NWTPH-Gx, DRPH and ORPH by Method NWTPH-Dx, and BTEX by EPA Method 8260C.

Soil Results. Concentrations of COCs were not detected above the laboratory reporting limits.

Groundwater Results. GRPH was detected at a concentration that was below the CUL. Concentrations of DRPH, ORPH, and BTEX were not detected above the laboratory reporting limits.

4.6.5 Groundwater Monitoring and Sampling

SoundEarth collected groundwater samples over time from on- and off-property wells. The groundwater monitoring events and sampling results are summarized below. The laboratory analytical results are presented on Table 2.

4.6.5.1 <u>March 2013</u>

SoundEarth collected groundwater samples from off-property downgradient wells MW104 and MW105 on March 6, 2013. Concentrations of GRPH, DRPH, and benzene exceeded the CULs in MW104. The analytical results for MW105 were similar to samples collected from the well in December 2012. No GRPH or benzene was detected in well MW105. A DRPH concentration of 61µg/L was detected in MW105, well below the CUL of 500 µg/L.

4.6.5.2 <u>April 2013</u>

SoundEarth collected groundwater samples from MW101, MW104, MW106, and SMW04 on April 1, 2013. Concentrations of GRPH and benzene exceeded the CULs in MW104 and SMW04. Concentrations of DRPH exceed the CUL in MW104. No COCs exceeded the CULs in MW101 and MW106.

4.6.5.3 <u>November 2013</u>

SoundEarth collected a groundwater sample from MW-2 on November 5, 2013, prior to abandonment of the well associated with the UST decommissioning. Concentrations of GRPH, DRPH, ORPH, ethylbenzene and total xylenes exceeded the CULs in MW-2.

4.6.5.4 <u>June 2014</u>

SoundEarth collected groundwater samples from MW104, GLMW-1, and MW-3 on June 12, 2014. During this monitoring event approximately 0.2 feet of SPH (product), that was blue-green in coloration, was detected in MW-3. A sample of the product and a groundwater sample from beneath the product and groundwater interface were collected from MW-3. Concentrations of GRPH, DRPH, and benzene exceeded the CULs in all three wells. The concentration of total xylenes exceeded the CUL in MW104.

4.6.6 Aquifer Testing and Analysis

A short-term aquifer pumping test was completed for the shallow water-bearing zone located beneath the northeast corner of the SKS Shell Property and the adjacent ROWs for Fauntleroy Way Southwest and Southwest Alaska Street. The purpose of the pumping test was to obtain aquifer hydraulic data needed for evaluating potential remedial options for this part of the Site.

A 4-inch-diameter Schedule 40 PVC pumping well, identified as recovery well RW01, was installed between monitoring wells MW-1 and MW104 on February 20, 2013 (Figure 4). Well RW01 was constructed using PVC well screen (0.010-inch slot widths) extending from 25 to 40 feet below ground surface. A detailed boring log with well construction details is included in Appendix B. Well RW01 and monitoring well MW-1 were developed on February 20, 2013.

The well screens for pumping well RW01 and monitoring wells MW-1 and MW104 were installed in the shallow water-bearing zone that comprises the upper portion of the local water table aquifer beneath this area of the Site. Well MW104 was completed with a shorter well screen than wells RW01 and MW-1, and does not extend as deep into the shallow-water zone (Figures 5 and 6). A well step test was completed on March 14, 2013, to evaluate the range of pumping rates which could be maintained for the constant rate test. The results of the step test indicated that a rate of 1 gallon per minute (gpm) could be sustained for several hours in RW01 given the available drawdown in the well.

The short-term constant-rate pumping test was conducted on March 19, 2013. A Grundfos Redi-Flow submersible pump was used to pump water from well RW01. Groundwater was pumped at a relatively constant rate of about 1 gpm for about 5 hours (304 minutes), and discharged into 55-gallon drums for temporary storage on the Site. Vented (gauged) 30 pound per square inch pressure transducers with integrated data loggers were placed in RW01, MW-1 and MW104. The pressure transducers were programmed to obtain pressure readings at 10-second intervals and synchronized to a field laptop computer. Water level recovery measurements were obtained after the pump was shut off. Manual water level measurements were obtained from all three wells during the pumping and recovery tests for comparison with the electronic data collected by the pressure transducers.

Static water level depths of about 23.3 feet below the top of the well casing were measured in the wells immediately before starting the constant-rate pumping test. A water level drawdown of 9.92 feet was measured in pumping well RW01 at the conclusion of the constant-rate test. Water level drawdowns of 2.61 feet and 1.54 feet were measured in wells MW-1 and MW104, respectively, at the conclusion of the constant-rate pumping test. Water levels in the three wells recovered to approximately 98 to 99 percent of the initial static water level within about 100 minutes after the well pump was shut off.

The resulting water level data were compiled and processed, and then imported for analysis into the AquiferWin 32 software program (Version 4.05) developed by Environmental Solutions, Inc. Based on the known hydraulic characteristics of the shallow water-bearing zone and the limitations of the short-term pumping test, several analytical solutions were used to estimate aquifer properties:

- Theis Method (1935) for unconfined aquifers
- Neuman Method (1972) for unconfined aquifers
- Cooper and Jacob Straight Line Method (1946) for confined aquifers

These analytical methods have multiple assumptions for applying the solutions to specific aquifer or test conditions, including the following:

- The aquifer is homogeneous, has an infinite areal extent and has a uniform thickness.
- Well discharge (pumping) is at a constant rate.
- The well screens for the pumping well and observation wells fully penetrate the full thickness of the aquifer.
- Well storage is relatively small, and discharge is derived exclusively from the aquifer storage.

Although some of these assumptions were not completely met given the known subsurface conditions and the design of the wells, these three methods were deemed to be generally applicable for estimating the aquifer properties at the SKS Shell Property. Partial penetration effects were more evident for the data obtained from well MW104 because of the shallower well screen. Therefore, the data obtained from well MW104 was considered to be less reliable than the data obtained from well MW-1, and were not used for estimating aquifer hydraulic parameters.

The results of the aquifer test analysis for well MW-1 are listed in Table 4. Aquifer transmissivity estimates ranged from about 9.3 to 17.5 square feet per day (ft^2/day), with an average value of 14.5 ft^2/day. Using an aquifer thickness of 25 feet, an average hydraulic conductivity of 5.82 x 10^{-1} feet per day, or 2.05 x 10^{-4} centimeters per second (cm/s), was estimated from the aquifer test analysis for the shallow water-bearing zone in the vicinity of the three wells. The range of hydraulic conductivity values estimated from the aquifer test analysis corresponds to the physical characteristics of the silty sand and sandy silt comprising the shallow water-bearing zone at this location.

4.6.7 Summary of SKS Shell Remedial Investigation Field Program

The results of the remedial investigation conducted by SoundEarth indicate that PCS beneath the Shell SKS Property extends vertically to a maximum depth of 25 feet bgs mostly beneath the northern two-thirds of the property as illustrated on Figure 9. The lateral extent of contaminated soil was bound by soil boring SB201 to the north and monitoring well MW105 to the northeast. The southern extent of contamination is likely beneath the SKS Shell building. Soil borings conducted further south on the Huling and alley properties (SMW03, B-1, and B-4) did not encounter petroleum-impacted soils (Section 4.7).

Laboratory analytical results for groundwater samples collected from downgradient monitoring wells MW101 through MW103, MW105, and MW-X indicate that the plume extends less than 25 feet northeast of the SKS Shell Property boundary beneath the Fauntleroy Way Southwest ROW, and the plume does not extend beyond the Southwest Alaska Street ROW (Figure 10).

As reported in Section 3.1.2, ECC Horizon’s review of available records revealed a shortage of 17,000 gallons of fuel from January 2003 to December 2008. Based on the concentrations identified in soil and groundwater during previous investigations and the current RI/FS, SoundEarth estimated the residual mass of petroleum contamination in soil and groundwater for the Site. Table 5 provides a summary of the mass calculations and assumptions for both soil and groundwater. The estimated amount of GRPH in soil is 14, 897 gallons and approximately 1 gallon of dissolved GRPH in groundwater for a total of 14,898 gallons of gasoline released to the subsurface.

Data Gaps. The soil and groundwater samples collected from monitoring well SMW04 indicate that the groundwater plume extends to the west beneath the Kennedy property; however, as discussed in Sections 5.0 and 7.0 below, the planned redevelopment of the SKS Shell Property includes excavation of soil to approximately 28 feet bgs in this area of the Site, as well as dewatering and treatment of contaminated groundwater beneath the SKS Shell Property and Kennedy property. After demolition of the funeral home building occurs in July or August 2014, a soil boring and well (MW107) will be installed in the area approximately 20 feet to the west of SMW04 to further bound the extent of the SKS Shell plume. The results of soil and groundwater sampling will used to modify the cleanup plan (if necessary).

4.7 ADJOINING HULING PROPERTY

A remedial investigation of the Huling property was conducted by SoundEarth between August and December 2012 (SoundEarth 2014). A total of 22 soil borings were conducted, with three completed as monitoring wells. The results of the Huling RI indicated that soil beneath the southwestern portion of the Huling property contaminated with GRPH, ORPH, and benzene, is limited to a small area near the former 500-gallon waste oil UST (in the Huling service garage located approximately 400 feet from the SKS Shell Property). The vertical extent of soil contamination in this area is approximately 13 feet bgs. Soil contaminated with ORPH is also located in an isolated area in the central portion of the Huling property. The vertical extent of ORPH contamination is approximately 8 feet bgs and was laterally bound by four nearby borings that did not encounter detectable ORPH.

Concentrations of PCBs were not detected in SoundEarth soil samples collected from any borings near the waste oil UST or elsewhere on the Huling property.

Laboratory analytical results for groundwater samples collected from monitoring wells on the Huling property show that groundwater has not been significantly impacted by any releases of COCs to the subsurface soil. A monitoring well (SMW03) installed approximately 25 feet upgradient to the south of the SKS Shell Property contained no detectable VOCs, dissolved Metals, GRPH or ORPH. A concentration of 280 µg/L DRPH was detected in SMW03, below the MTCA cleanup level of 500 µg/L.

4.8 ADJOINING KENNEDY PROPERTY

A remedial investigation of the Kennedy property was conducted by SoundEarth between August and December 2012 (SoundEarth 2014). A total of 11 soil borings were conducted, with two completed as monitoring wells. The two monitoring wells (SMW04 and MW106) were also conducted to assess potential for impacts from the SKS Shell Site to evaluate whether groundwater beneath the Kennedy property was impacted by the release of heating oil to the subsurface.

The results of the remedial investigation indicate that PCS is located beneath the Kennedy property in the area of the operational heating oil UST. The vertical extent of heating oil-impacted soil is approximately 20 feet bgs, and it is laterally bounded to the north by SMW04, to the west by two nearby borings, to the south by a boring located in the alley, and to the east by MW106.

Laboratory analytical results for the groundwater sample collected from monitoring well MW106 show that groundwater has not been impacted by the release of heating oil on the Kennedy property (Figure 7). However, a concentration of GRPH exceeding the applicable CUL was detected in monitoring well SMW04, located in the northeast corner of the Kennedy property. Groundwater beneath this area of the Kennedy property has been impacted by the SKS Shell plume (Figure 10).

4.9 PROPERTY SURVEY

In November 2012, Dowl HKM surveyed the horizontal and vertical monitoring well locations and top of casing and monument elevations for the purposes of calculating groundwater flow gradient and direction. Monitoring wells MW105 and MW106 were installed on the Site at a later date and were not included in the survey. Elevations were surveyed relative to NAVD88 using City of Seattle Benchmark SNV-5244 as the source benchmark.

4.10 DATA VALIDATON

Upon receipt of the final laboratory reports, SoundEarth conducted a quality assurance/quality control (QA/QC) review of all data sets. The following QA/QC criteria were reviewed:

- The data package for completeness.
- Sample chain-of-custody forms, including a comparison of the requested analyses against laboratory reported information, signatures, sample condition upon receipt by the laboratory, and sample preservation.
- Holding times for each analysis.
- Laboratory QC including recoveries for surrogate, matrix spike, matrix spike duplicates, laboratory control standards, and relative percent differences for duplicate sample analysis and matrix spike/matrix spike duplicates and laboratory control standards/laboratory control duplicates.
- Blank results for possible field or laboratory contamination.

The results of QA/QC review indicated that the following criteria were acceptable:

- All data packages/laboratory reports were complete.
- No issues with the chain of custody forms and holding times were identified.
- No analytes were detected in any of the method blanks.

All laboratory QC parameters were acceptable except for the following:

- EPA Method 8260C calibration standards for SKS Shell Property groundwater samples MW-2 and GLMW-1 exceeded control limits for vinyl chloride and 2-butanone. Also, sample GLMW-1 was analyzed outside of the 12-hour calibration shift (Friedman & Bruya, Inc. laboratory report #208089). Based on the elevated concentrations of GRPH and BTEX in GLMW-1 (approximately 50 times the detection level), the 12-hour shift exceedance was deemed insignificant. All other laboratory QA/QC for the sample delivery group were met; therefore, no data were qualified or rejected.

4.11 SUMMARY OF DATA GAPS

The borings and monitoring wells completed as part of this RI represent SoundEarth's reasonable efforts to evaluate the Site. The western extent of the SKS Shell plume was not bounded near SMW04 due to access limitations posed by the funeral home building. This data gap will be addressed following building demolition and prior to the cleanup action. No other data gaps were identified for this Remedial Investigation. Data gaps identified in Section 3.0 for previous investigations were also addressed.

5.0 CONCEPTUAL SITE MODEL

A CSM identifies suspected sources of contamination, affected media, transport mechanisms, contaminant fate, potential receptors, and exposure pathways. A CSM serves as a basis for developing technically feasible cleanup alternatives and for selecting a final cleanup action. A CSM is dynamic and may be refined throughout implementation of a cleanup action as additional information becomes available. Figure 11 provides a visual representation of the information presented below.

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 media, COCs, contaminant fate and transport, the preliminary exposure assessment, and the CSM summary.

5.1 CONFIRMED AND SUSPECTED SOURCE AREA

The source area is the locations of releases of the COCs that have affected soil and groundwater quality at the Site. The series of investigations, conducted at the Site between 1994 and 2012, defined the nature and extent of the COCs in the affected media as follows.

Soil beneath the SKS Shell Property is impacted by GRPH, DRPH, and BTEX at depths generally ranging from 12 to 25 feet bgs throughout much of the northern and eastern two-thirds of the SKS Shell Property. The source of the contamination is likely the USTs and piping systems that presently exist in this area, as well as the previous UST systems. The exact location of previous tanks was not determined; however, based on the pump and canopy locations from the 1930s through the 1970s (consistently near the northeast corner, as shown in the cover page photograph) the pre-existing USTs were likely within the northern and eastern two-thirds of the SKS Shell Property.

As noted in section 4.6, certain DRPH found on the Property appears to be aged gasoline, likely from before the 1970s. Operators of the gas station during this time frame included Gilmore Red Lion, Mobil Oil, Texaco, and Atlantic Richfield.

An estimate of the vertical extent of subsurface contamination is presented in Figures 5 and 6. Groundwater sampled from monitoring wells at the SKS Shell Property contains concentrations of GRPH, DRPH, and BTEX exceeding applicable MTCA Method A CULs. In addition, SPH has intermittently been detected in several monitoring wells on the SKS Shell Property. Based on the general groundwater flow direction, the contaminant plume has the potential to migrate toward the Fauntleroy Way and Alaska Street intersection. However, the relatively low concentrations of COCs in the groundwater samples collected from downgradient monitoring wells MW-105 (or non-detect values for MW-101, MW102, and MW103) located in ROWs to the east and northeast of the SKS Shell Property indicate that the contaminated groundwater plume has migrated only into the sidewalk area slightly beyond the SKS Shell Property into Fauntleroy Way (Figure 10).

5.2 CHEMICALS OF CONCERN

Based on the findings from the investigations conducted at the Site, the primary COCs for the Site are GRPH, DRPH, and BTEX.

5.3 MEDIA OF CONCERN

Based on results from previous investigations, concentrations of GRPH, DRPH, and BTEX have been confirmed in soil and/or groundwater at the Site at concentrations that exceed applicable MTCA Method A CULs. The distribution of these contaminants in the affected media has been investigated sufficiently for definition of the Site under MTCA and subsequent evaluation of remedial alternatives. A discussion of the affected media is presented below.

5.4 CONTAMINANT FATE AND TRANSPORT

This section discusses the fate and transport characteristics of GRPH, DRPH, and BTEX in soil, groundwater, and ambient air at the Site that are relevant to the evaluation of potential remedial technologies.

5.4.1 Transport Mechanism Affecting the Distribution of Petroleum Hydrocarbons in the Subsurface

The transportation and distribution of petroleum hydrocarbons in the vadose zone beneath the SKS Shell Property is controlled by a number of factors, including the following:

- The mass of contamination released from the source area.
- The vertical migration of dissolved-phase petroleum hydrocarbons through the soil column due to gravity driven advection.
- The vertical movement of light nonaqueous-phase liquid (LNAPL; i.e., SPH) in the soil column as a result of gravity-driven advection.
- The lateral migration of LNAPL as a result of encountering semi-impermeable soils layers.
- Adsorption and desorption of contaminants from soil particles and organic matter. Adsorption is a function of moisture content of the soil, the organic-carbon partitioning coefficient for the contaminants, and the concentration of organic matter in the soil.
- The diffusive transport of contaminated vapors from areas of high to low concentrations.
- Advective transport of vapors due to changes in pressure and temperature gradients.
- Depth to groundwater.

The transportation and distribution of petroleum hydrocarbons in the groundwater controls the lateral and vertical migration of petroleum hydrocarbons by advection and dispersion transport mechanisms. Advection is a function of hydraulic conductivity of the aquifer material and the hydraulic gradient of the groundwater. Under advective transport, dissolved contaminants follow direction of groundwater flow, sometimes referred to as the advection front. Dispersive mixing causes some contaminant molecules to move ahead (longitudinal) of the average advective velocity along the hydraulic gradient and some molecules to move laterally (transverse) to the hydraulic gradient. The net effect is to spread (disperse) the contaminant plume about the advective front. The amount of spreading is related to the dispersivity of the soil, microscopic velocities through the pore spaces in the soil, the advective velocity of groundwater flow, and the molecular diffusion of the contaminant in the water within the pore space.

5.4.2 Environmental Fate of Petroleum Hydrocarbons in the Subsurface

Once petroleum hydrocarbons enter the subsurface, natural attenuation of the compound begins. The natural attenuation processes include intrinsic abiotic and biotic degradation in the groundwater and soil, and adsorption onto soil particles. Both abiotic and biotic processes degrade petroleum hydrocarbons to carbon dioxide, assuming the appropriate geochemical conditions are present in soil and groundwater. Adsorption onto soil particles retards the vertical and lateral migration of petroleum hydrocarbons, and the residual saturation capacity of soil inhibits the vertical migration of LNAPL. In addition, advection and dispersion dilute the concentration of petroleum hydrocarbons in the groundwater as the compounds migrate downgradient from the source release areas. Evidence for natural attenuation processes in the soil and groundwater beneath the Site include the presence of aerobic to slightly anaerobic conditions in the groundwater, significant shrinking in the magnitude and extent of the petroleum contaminant plumes, and the absence of petroleum hydrocarbons in groundwater at or below the source area or at downgradient monitoring wells.

5.5 NATURE AND EXTENT OF CONTAMINATION AT THE SITE

The nature and extent of petroleum hydrocarbon contamination has been defined through a series of subsurface investigations conducted at the Site between 1994 and 2012. Source areas for petroleum hydrocarbons include the former and existing UST systems at the SKS Shell Property. Limited forensic testing of SPH encountered in SKS Shell monitoring well MW-3 indicated "antique gasoline," typical of pre-1970s origin.

5.5.1 SKS Shell Property

Borings advanced at the SKS Shell Property encountered fill to a depth of 5 feet, underlain by silty fine sand to 40 feet. A soil boring advanced east of the SKS Shell Property, on the east side of Fauntleroy Way Southwest (off-property), encountered approximately 5 feet of fill underlain by brown silty fine sand to a depth of approximately 35 feet, grading to a gray fine sandy silt to a depth of 55 feet, the maximum depth of the boring. Groundwater under the SKS Shell Property is present at a depth of approximately 23 feet bgs (Figure 6). Groundwater flows to the north-northeast with a gradient of 0.03 feet/foot. The aquifer test conducted on the northeast corner of the SKS Shell Property adjacent to Fauntleroy Way indicates an average hydraulic conductivity of 2.05×10^{-4} cm/s in this area of the property.

Concentrations of GRPH, DRPH, and/or BTEX in the vadose zone beneath SKS Shell Property exceed applicable MTCA Method A CULs (Table 1). Vadose zone contamination is confined to the SKS Shell Property and the immediately adjacent ROW to the north and east (Figures 5 and 6). The contamination occupies an area of approximately 6,000 square feet on the SKS Shell Property (Figure 9) and extends to a maximum depth of approximately 25 feet.

The groundwater beneath the SKS Shell property contains GRPH, DRPH, and/or BTEX at concentrations that exceed applicable MTCA Method A CULs. Concentrations of GRPH, DRPH, and BTEX in the groundwater downgradient of the SKS Shell Property do not exceed applicable CULs and/or the concentrations were not reported above laboratory reporting limits. The absence and/or the limited extent of groundwater contamination downgradient of the SKS Shell Property suggest that contaminant migration in the groundwater beneath Fauntleroy Way Southwest is being naturally attenuated by intrinsic bioremediation, advection and dispersive transport mechanisms, and/or absorption on the soil of the aquifer.

The presence or absence of volatile organics in the indoor ambient air as a result of petroleum hydrocarbon contamination in the vadose zone beneath the SKS Shell Property has not been evaluated. However, redevelopment of the SKS Shell Property will include the mass excavation of PCS in the vadose zone, the extraction of contaminated groundwater, and the installation of a passive vapor barrier.

5.6 EXPOSURE PATHWAYS

There are two general types of receptors that are potentially at risk from exposure associated with the presence of petroleum hydrocarbons in soil and groundwater at the Site. The receptors include terrestrial wildlife (birds and burrowing animals) and humans (commercial, utility, construction, and environmental workers). Because the Site qualifies for a Terrestrial Ecological Evaluation (TEE) exclusion based on WAC 173-340-7491 and discussed further in Section 5.7, below, mitigating the potential human health risk, if any, associated with exposure to the petroleum hydrocarbons in the affected medium at the Site will be the primary objective of any cleanup action implemented. This section presents the evaluation and conclusions pertaining to the exposure pathways at the Site. The goal of this section is to identify potential exposure scenarios that will assist in the evaluation of potential feasible cleanup alternatives that are protective of terrestrial and human health. The CSM highlighting the source areas, potential pathways, and potential receptors for each medium of concern is presented on Figure 11 and discussed below.

5.6.1 Soil

Soil with concentrations of petroleum hydrocarbons exceeding applicable MTCA Method A CULs presents a potential risk to human receptors. The potential release mechanism for soil at the Site includes soil to groundwater by leaching, airborne dust generated during remediation and redevelopment of the SKS shell Property, and volatilized contaminants in the soil. The potential exposure pathways for soil that could be complete are as follows:

- **Dermal Contact and Ingestion (Direct Contact) of Contaminated Soil.** The release mechanisms for this exposure pathway include soil and leaching of contaminants from soil to groundwater. This exposure pathway may be complete for environmental field personnel and construction and utility workers who may come in contact with contaminated soil and groundwater during excavation and dewatering operations. Groundwater at the Site is not a likely source for drinking water. Drinking water at the Site and vicinity is supplied by the City of Seattle.
- **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 SKS Shell Property. This exposure pathway could be complete for environmental field personnel and construction and utility workers during redevelopment.
- **Inhalation of Vapors.** The release mechanism for this exposure pathway is volatilization. This exposure pathway may be complete for environmental, construction, and utility workers during redevelopment of the SKS Shell Property. In addition, this pathway may also be complete for commercial workers at the Howden-Kennedy Funeral Home and at the convenience store on the SKS Shell Property. When the Site is redeveloped, engineering and institutional controls will eliminate this pathway for future residence and commercial workers.

5.6.2 Groundwater

Contaminated groundwater presents a potential risk to workers only because the groundwater beneath the SKS Shell Property is not a potential source for drinking water and the groundwater does not discharge to any nearby surface water body. The potential release mechanism for groundwater is vapor migrating from groundwater to the outdoor and indoor ambient air. The potential exposure pathways for groundwater and the potential receptors include the following:

- **Direct Contact and Ingestion of Contaminated Groundwater.** This exposure pathway may be complete for environmental field personnel and construction and utility workers during redevelopment of the Site. This pathway is not complete for current commercial workers at the Site because drinking water is supplied by the City of Seattle. Future exposure to contaminated groundwater by commercial workers and residents is unlikely because institutional and engineering controls will eliminate any potential exposures to contaminated groundwater. Therefore, the direct contact pathway will be incomplete for residents and commercial workers at the completion of the development.
- **Inhalation of Vapors.** The release mechanism for this exposure pathway is volatilization of contaminants in the groundwater. This exposure pathway could be complete for environmental, construction, and utility workers during redevelopment of the Site. In addition, this pathway may also be complete for commercial workers at the Howden-Kennedy Funeral Home and at the convenience store on the SKS Shell Property. At the completion of the development, engineering and institution controls will eliminate the inhalation pathways at the Site for commercial workers and residents.

5.6.3 Vapor

The presence or absence of volatile organic compounds in indoor and outdoor ambient air as a result of petroleum hydrocarbon contamination in the vadose zone and groundwater beneath the Site has not been determined. However, the future development of the Site will result in the mass excavation of PCS to a depth of approximately 25 to 30 feet bgs and the installation of vapor barriers to mitigate any vapors that may originate from residual contamination beneath the Site after completing the development. Therefore, this pathway is considered incomplete for commercial workers and residents that may occupy the Site after redevelopment.

5.7 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 Site qualifies 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 12, which qualifies the Site for the TEE exclusion per WAC 173-340-7492(2)(a)(ii) on the basis that land use at the Site and surrounding area makes substantial wildlife exposure unlikely (Appendix D). The TEE considers Site area, Site land use, Site habitat quality, likelihood that the Site will attract wildlife, and COCs occurring in Site soil. No further consideration of ecological impacts is required under MTCA.

5.8 CONCEPTUAL SITE MODEL SUMMARY

Soil and/or groundwater beneath the Site contain concentrations of GRPH, DRPH, ORPH, and/or BTEX that exceed applicable MTCA Method A CULs. Contaminants originating at the SKS Shell Property extend slightly into Fauntleroy Way Southwest and Southwest Alaska Street, immediately downgradient of the SKS Shell Property. The absence of groundwater contamination at monitoring well MW105 suggests that contaminants from the source area are being naturally attenuated by intrinsic bioremediation, advection and dispersive transport mechanisms, and/or absorption on the soil of the aquifer.

There are two general types of receptors that are potentially at risk from exposure associated with the presence of petroleum hydrocarbons in soil and groundwater at the Site. The receptors include terrestrial wildlife (terrestrial birds and burrowing animals) and humans (commercial, environmental, utility, and construction workers). Because the Site qualifies for a TEE exclusion based on WAC 173-340-7491, mitigating the potential human health risk, if any, associated with exposure to the petroleum hydrocarbons in the affected medium at the Site will be the primary objective of any cleanup action implemented. The potential exposure pathways for soil at the Site include direct contact, inhalation of airborne soil, and inhalation of vapors. The potential exposure pathways for groundwater and the potential receptors include direct contact with contaminated groundwater and inhalation of volatile organics. The primary receptors for these exposure pathways include environmental field personal and construction and utility workers. Currently, the inhalation pathway for vapors may be complete for commercial workers at the SKS Shell Property. During redevelopment of the Site, direct contact with soil and groundwater, inhalation of airborne soil, and inhalation of vapors pathways are potentially complete for construction, utility, and environmental workers. At the completion of the redevelopment, engineering and institutional controls will eliminate the direct contact and inhalation pathways at the Site for commercial workers and residents.

6.0 TECHNICAL ELEMENTS

The RAOs developed for the Site were used to define the technical elements for the screening evaluation and to select remedial alternatives as part of the FS conducted for the Site and discussed in Section 7.0, below. The technical elements include ARARs, COCs, media of concern, and cleanup standards.

6.1 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 cleanup action 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 from WAC 173-340:

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

There are two RAOs for this Site. The first RAO consists of bringing the SKS Shell Property into compliance with the applicable soil and groundwater cleanup criteria for each of the COCs. The final RAO is to bring those portions of the Site located outside of the SKS Shell Property boundary into compliance with soil and groundwater cleanup criteria for each of the COCs and obtain a Prospective Purchaser Consent Decree for the SKS Shell Property.

6.2 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 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 for the Site.

Preliminary ARARs for the Site

Preliminary ARAR	Citation or Source
MTCA	Chapter 70.105 of the Revised Code of Washington (RCW)
MTCA Cleanup Regulation	WAC 173-340

Preliminary ARAR	Citation or Source
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
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 Regulations [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 Parts 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
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.

6.3 CHEMICALS AND MEDIA OF CONCERN

The COCs for the Site are those compounds that were detected at concentrations exceeding their respective CULs. The COCs and the media where the COCs were detected are listed below:

- GRPH in soil and groundwater

- DRPH in soil and groundwater
- BTEX in soil and groundwater

6.4 CLEANUP 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 those portions of the Site located within the SKS Shell Property boundary and for the greater Site are consistent with the RAOs, which state that the remedial objective is to reduce concentrations of COCs in soil and groundwater beneath the Site to below their applicable groundwater CULs. In addition to mitigating risks to human health and the environment, achieving the RAOs will allow Ecology to issue a Site-wide No Further Action determination. The associated media-specific CULs for the identified COCs are summarized in the following sections.

6.4.1 Cleanup Levels

The CULs for the media and COCs are tabulated below, including the source of the cleanup standard. The proposed CUL for impacted soil beneath the SKS Shell Property is the MTCA Method A Standard Formula Value for COCs. The proposed cleanup levels for groundwater 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
GRPH	30	MTCA Method A, Unrestricted; WAC 173-340-740(2)(b)(i)
DRPH	2,000	
Benzene	0.03	
Toluene	7	
Ethylbenzene	6	
Total Xylenes	9	

NOTES:
COC = chemical of concern
DRPH = diesel-range petroleum hydrocarbons
GRPH = gasoline-range petroleum hydrocarbons
mg/kg = milligrams per kilogram
MTCA = Washington State Model Toxics Control Act
WAC = Washington Administrative Code

Proposed Cleanup Levels for Groundwater

COC	Cleanup Level (µg/L)	Source
GRPH	800	MTCA Method A, Table Value; WAC 173-340-720(3)(b)(i)
DRPH	500	
Benzene	5	
Toluene	1,000	
Ethylbenzene	700	
Total Xylenes	1,000	

NOTES:
µg/L = micrograms per liter
COC = chemical of concern
DRPH = diesel-range petroleum hydrocarbons
GRPH = gasoline-range petroleum hydrocarbons
MTCA = Washington State Model Toxics Control Act
WAC = Washington Administrative Code

6.4.2 Points of Compliance

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 Site will no longer be considered a threat to human health or the environment.

6.4.2.1 Point of Compliance for Soil

In accordance with WAC 173-340-740 (6) (b-d), the point of compliance for direct contact exposure is throughout the SKS Shell 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. All soil containing concentrations of COCs above the MTCA Method A CULs will be over-excavated and removed from the SKS Shell Property.

6.4.2.2 Point of Compliance for Groundwater

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.

7.0 FEASIBILITY STUDY

The purpose of this FS is to develop and evaluate cleanup action alternatives to facilitate selection of a final cleanup action at the Site in accordance with WAC 173-340-350(8). An FS includes the development, screening, and evaluation process for numerous remedial alternatives. Because Site-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 SKS Shell Property. Based on the screening, the FS presented below evaluates the most practicable remedial alternative to recommend a cleanup action for the Site in conformance with WAC 173-340-360 through 173-340-390.

7.1 IDENTIFICATION AND EVALUATION OF TECHNOLOGIES

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 6 summarizes the remedial component screening process. The remedial components that passed the screening process include the following:

- **Excavation and Land Disposal of Contaminated Soil (Source Removal).** For the purposes of this FS, the excavation of contaminated soil from the SKS Shell Property will result in the complete removal of the ongoing source of COCs to the groundwater (Figures 5 through 7). 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 (Source Removal).** Dewatering is the process of pumping groundwater collected in sumps, trenches, and wells along the northeast construction excavation perimeter, at the SKS Shell Property, to provide a more thorough cleanup of groundwater during the SKS Shell Property development.
- **Soil Vapor Extraction.** SVE is the process of inducing a pressure and concentration gradient in the subsurface to cause volatile compounds, such as petroleum hydrocarbons, to desorb from the soil and flow with the vapor stream to a common collection point for discharge or treatment.
- **Air Sparging.** AS involves the injection of oxygen through the contaminated aquifer. The oxygen creates an underground air stripper that removes volatile compounds from saturated soil by volatilizing the contaminants into the unsaturated zone for uptake by a SVE system. Recovered vapor is discharged to the atmosphere and may require pre-treatment before discharge. In addition to the physical removal of volatile compounds, the added oxygen can enhance biodegradation in both saturated and unsaturated soil.
- **Biosparging.** Biosparging is an air or oxygen delivery system that uses lower air flow rates than an AS system. The goal of biosparging is to increase dissolved oxygen in the subsurface and stimulate biodegradation. The volatile compounds are degraded as dissolved phase and vapor phase contaminants slowly move through the biologically active soil.
- **In Situ Chemical Oxidation.** Sodium persulfate has proven to be an effective chemical oxidant for the treatment of GRPH and BTEX in groundwater. A solution of sodium persulfate activated by a 10 percent solution of hydrogen peroxide will be injected into the groundwater to chemically oxidize the COCs and provide an oxygen source to stimulate aerobic biodegradation of COCs.
- **Impermeable Vapor and Water Barrier.** Impermeable vapor barriers are materials that exhibit very low gas flow permeability and that can prevent the intrusion of vapor-phase COCs into the

interior of the building. The foundation of the future SKS Shell Property development will include the floor and walls of a two-level, belowground parking garage. An impermeable membrane or liner will be placed along the northeast SKS Shell Property, extending over the majority of the SKS Shell Property, boundary before pouring the concrete foundation and walls to act as a permanent vapor and water barrier to contaminant migration. The liner will mitigate intrusion of both water and vapor; the parking garage and the associated venting system will provide an effective vapor intrusion barrier for the new building.

- **Monitored Natural Attenuation.** Monitored natural attenuation refers to the methods used to evaluate whether natural attenuation processes are effectively remediating a contaminant plume, and if so, at what rate. Contaminants released to the environment in concentrations that pose risks to human health or the environment are subject to natural degradation processes such as volatilization, diffusion, biotic and abiotic reactions, and dilution. These naturally occurring attenuation processes are distinguished from an engineered remedy employed to increase the rate of remediation above the rate observed through these "natural" processes. In many cases, natural attenuation is the most cost-effective means for achieving CULs.

  Monitored natural attenuation is retained as a complimentary remedial component to other engineered remedial components rather than as a stand-alone or sole remedial component. Under MTCA, monitored natural attenuation can be considered an active remedial measure if site conditions conform to the expectations listed in WAC 173-340-370(7), as follows:

    - Source control (including removal and/or treatment of hazardous substances) has been conducted to the maximum extent practicable.
    - Leaving contaminants in place during the restoration time frame does not pose an unacceptable threat to human health or the environment.
    - There is evidence that natural biodegradation or chemical degradation is occurring and will continue to occur at a reasonable rate at the site.
    - Appropriate monitoring requirements are conducted to ensure that the natural attenuation process is taking place and that human health and the environment are protected.

7.2 EVALUATION OF CLEANUP ALTERNATIVES

This section presents the criteria used to evaluate the potentially feasible cleanup alternatives with respect to the RAOs established for the Site. Remedial components were identified per the requirements set forth in MTCA under WAC 173-340-350(8)(b) and the focused screening of potential remedial components 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 cleanup 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 of the Site.
- **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; and 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; includes 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 SKS Shell Property.

- **Consideration of public concerns.** Consideration of public concerns is mandated under the MTCA cleanup regulation for an Ecology-led or potentially liable person-led cleanup action under an Agreed Order or Consent Decree. This is typically implemented by Ecology through a mandatory public review and comment period on a proposed cleanup action plan. Because this public review and comment process is not implemented by the private party responsible for the cleanup under the VCP and because this FS was prepared within the purview of the VCP, public concerns regarding cleanup actions for this Site were not evaluated in this document.

7.3 FOCUSED EVALUATION OF CLEANUP ALTERNATIVES

The focused evaluation of cleanup 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. A detailed description of the three cleanup alternatives that were retained for additional consideration is provided below.

Three cleanup alternatives have been developed and are comprised of various combinations of the remedial components retained from the component screening step. Common to all alternatives is the excavation and off-site land disposal of soil exceeding the CULs. The alternatives differ only in the type of treatment employed to remediate soil and groundwater beneath the ROW.

Because of the elevation changes—and associated relative depths bgs—across the Site, discussions regarding elevation and depth are hereafter presented in elevations above NAVD88.

The three alternatives, which are described in more detail in the following subsections, include the following:

- Cleanup Action Alternative 1, Excavation Soil with ROW Dewatering and Chemical Oxidation
- Cleanup Action Alternative 2, Excavation of Soil with Biosparging of Groundwater
- Cleanup Action Alternative 3, Excavation of Soil with Air Sparge and Soil Vapor Extraction

7.3.1 Common Components and Basic Assumptions

The three alternatives differ only in the type of treatment technology used to address soil and groundwater contamination beneath the ROW. Due to the nature of the development plan, the following elements are common among all three cleanup alternatives.

Remedial Excavation Area. The entire SKS Shell Property will be excavated from lot-line to lot-line, as discussed in greater detail below. The SKS Shell Property construction excavation boundary is shown on Figure 12. The Remedial Excavation Area is defined as the vertical and horizontal limit of soil exhibiting detectable concentrations of COCs within the SKS Shell Property boundary (Figures 5 through 7 and 12).

Demolition. Because the remediation activities will be conducted as part of a larger redevelopment project, the alternatives discussed below assume that all buildings on the Property will be demolished before beginning shoring and excavation. The costs associated with the pre-demolition hazardous materials surveys and UST decommissioning activities are included in the cost estimates provided in this FS.

Shoring. Shoring is required to protect the safety of personnel working in the excavation, as well as the surrounding infrastructure in ROWs and properties, from damage due to slope failure. The shoring will enable the removal of source contaminated soil for SKS Shell Property redevelopment to an approximate elevation of approximately 247 feet above NAVD88. For the purpose of estimating the remedial cost for each alternative, it is assumed that the development-related shoring costs are not included in the cost estimates provided in this FS. However, the shoring costs associated with the over-excavation of additional soil as PCS to an elevation of 240 feet above NAVD88 on the SKS Shell property are included in the cost estimates.

For illustration purposes, it is anticipated that the shoring would be installed around the entire perimeter of the redevelopment. Footing drains would be completed along the exterior perimeter of the foundation to collect any groundwater that may come into contact with the structure. Considering the anticipated depth of the shoring and excavation project (approximately 23 feet bgs or elevation 247 above NAVD88) and the primary water-bearing zone relative to the depth of the excavation (approximately 1 foot below the final grade), any groundwater collected at the footing drains would likely be limited in volume.

Excavation. The costs for each alternative include the removal and disposal of all soil within the Remedial Excavation Area (Figures 5 through 7 and 12). Although CULs protective of an unrestricted land use are proposed for soil across the SKS Shell Property, soil containing detectable concentrations of COCs will be excavated in an effort to remove the ongoing source of contamination to groundwater and provide a reasonable restoration time frame.

The depth of the Remedial Excavation Area varies across the SKS shell Property, from approximately 25 to 30 feet. Based on the estimated depth of individual areas, the volume of soil within the Remedial Excavation Area would be approximately 13,000 tons. Soil would be excavated within the confines of the shoring as designed by the civil engineer and would be directly loaded into trucks for off-property land disposal at a permitted Subtitle D landfill.

Excavation Trench Dewatering. A dewatering trench will be installed within the limits of the excavation to remove and treat groundwater encountered during excavation activities and any accumulated surface water during the course of the excavation. Excavation dewatering will facilitate soil removal activities within the water bearing zone. The groundwater will be pumped to a temporary storage tank and removed periodically by a vacuum truck service for treatment and disposal.

Impermeable Vapor and Water Barrier. Each alternative includes the construction of a belowground concrete parking garage structure with an associated venting system. The removal of all soil contamination via excavation, the substantial thickness of the proposed foundation, as well as the belowground structure and venting system, would mitigate the potential for intrusion and/or collection of unsafe levels of COC vapors into the parking garage and above-grade building. In addition, an impermeable vapor and water barrier will extend over the majority of the SKS Shell Property to act as a permanent vapor and water barrier to contaminant migration (Figures 13 through 15).

Monitored natural attenuation of residual concentrations of petroleum hydrocarbons in groundwater located within and beyond the active treatment area. Monitored natural attenuation is retained as a complimentary remedial component to other engineered remedial components rather than as a stand-alone or sole remedial component. In accordance with WAC 173-340-370, monitored natural attenuation is an appropriate supplement to the active treatment approach for the following reasons: source control (excavation) will be conducted to the maximum extent practicable, the concentrations and locations of the contaminated groundwater do not pose an unacceptable risk to human health or the environment.

7.3.2 Cleanup Action Alternative 1, Excavation of Soil with Right-of-Way Dewatering and Chemical Oxidation

Cleanup Action Alternative 1 includes elements discussed above in 7.3.1, dewatering the ROW over a period of 3 to 4 months, and the injection of a chemical oxidant to address residual soil and groundwater contamination in the ROW and to stimulate biodegradation of COCs. Figures 12 and 13 provide an illustration of the conceptual implementation of this cleanup action alternative.

Implementation of the dewatering system in the ROW involves the installation of 8 vertical wells within the zone of contamination. Based on the aquifer test performed in March 19, 2013, a radius of influence of 15 feet was determined for each remediation well. Electric submersible pumps will be placed in each remediation well with an anticipated extraction rate of 0.5 gpm per well and a total of 4 gpm for the combined system. Water will be pumped to a main water discharge header and transferred to a water storage tank staged on Property. The generated water will be removed by a vacuum truck service for off Property treatment and disposal. The dewatering system will remove approximately three pore volumes from beneath the Site.

A chemical injection will be completed once the temporary dewatering system is decommissioned. Sodium persulfate activated by hydrogen peroxide will be injected into each of the 8 remediation wells and MW104. Approximately 300 gallons or two batches will be injected into each well. A second contingency injection is proposed if COCs in compliance monitoring wells remain above the MTCA Method A cleanup levels.

Key assumptions for this cleanup action include the following:

- All permits associated with the construction excavation and site redevelopment activities are a development related cost.
- An underground injection control registration will be submitted to Ecology. A hazardous materials survey will be completed for all of the buildings on the Property before demolition. While survey costs have been estimated and incorporated into the feasibility study level costs, no abatement costs are included in this cost estimate because they are considered to be a development related cost.
- After demolition activities are completed a delineation boring and monitoring well will be advanced on the Kennedy Funeral Home property to bound the soil and groundwater plume to the west as requested by Ecology.
- UST decommissioning activities will be overseen by a certified professional with Site Assessor/Decommissioner certifications. The necessary closure reports will be filed with Ecology.
- All monitoring wells within the construction excavation boundary will be decommissioned.
- Approximately 13,000 tons of contaminated soil will be excavated and disposed of at a Subtitle D landfill. This volume includes a 10 percent contingency for the discovery of additional PCS during the course of the excavation.
- Dewatering the ROW along the northeast corner of the SKS Shell Site for approximately 3 to 4 months during construction excavation activities. Approximately 3 pore volumes will be removed through the dewatering process for an estimated 50,000 gallons. The water will be pumped to a temporary water storage tank and removed periodically by a vacuum truck service for off property treatment and disposal.
- The installation of a horizontal and vertical impermeable vapor and water barrier beneath the SKS Shell Property.
- Installation of three compliance groundwater monitoring wells within the northeast SKS Shell Property boundary post excavation.
- Injection of sodium persulfate into the 8 remediation wells and MW104. If necessary, a second contingency injection of sodium persulfate into the remediation wells will be completed.
- Groundwater will be monitored for COCs and the following monitored natural attenuation parameters: pH, dissolved oxygen, and oxidation-reduction potential.

- Groundwater will be monitored quarterly for 5 years. If COCs in groundwater exceed the MTCA Method A cleanup levels after 2 years of quarterly monitoring, then a second chemical injection event will be completed.
- Monitoring wells installed at the Site will be decommissioned at the conclusion of 5 years of post-excavation groundwater monitoring or when points of compliance are met.
- The life cycle for this alternative is assumed to be 5 years for the purpose of estimating the present worth cost. This duration should not be construed as a guaranteed remediation time frame.

The present worth cost estimate to implement Cleanup Action Alternative 1, assuming a real discount rate of 0.9 percent and a life cycle of 5 years, is approximately $1,517,000 (Table 7).

7.3.3 Cleanup Action Alternative 2, Excavation of Soil and Biosparging of Groundwater

Cleanup Action Alternative 2 involves the elements discussed above in 7.3.1 and the installation of a biosparge system to delivery oxygen to the subsurface to stimulate biodegradation and enhance natural attenuation processes. As COCs in groundwater move through the biologically active soil, the contaminants are degraded. The oxygen-rich environment will stimulate biological processes in unsaturated soils as well as facilitate the degradation of COCs. Figure 14 provides an illustration of the conceptual implementation of this cleanup action alternative.

Implementation of biosparging involves the installation of vertical wells within the saturated zone of contamination. The wells will be screened within the saturated soil zone to deliver dissolved oxygen to the subsurface. The biosparge system will use low injection pressures and air flow rates. A radius of influence (ROI) of 10 feet was assumed for each biosparge well and the wells will be placed on 15-foot centers to provide adequate coverage for the dissolved-phase groundwater plume. Subsurface piping will extend from a remediation equipment enclosure located on the lower level of the parking garage to each biosparge well. A system manifold will control the pressure and air flow rate out to each biosparge well. Confirmation groundwater samples will be used to demonstrate that the remediation objectives were attained at the presumed conclusion of remediation.

Key assumptions for this cleanup action include the following:

- All permits associated with the construction excavation and site redevelopment activities are a development related cost.
- Access will be provided by the City of Seattle for the installation of the biosparge wells and subsurface piping in the ROW.
- Permitting associated with the installation of the biosparge system, such as sidewalk and lane closures fees and ROW permit fees, are included in the cost estimate for this alternative.
- All monitoring wells within the construction excavation boundary will be decommissioned.
- A hazardous materials survey will be completed for all of the buildings on the Property before demolition. While survey costs have been estimated and

incorporated into the feasibility study- level costs, no abatement costs are included in this cost estimate because they are considered to be a development related cost.

- After demolition activities are completed a delineation boring and monitoring well will be advanced on the Kennedy Funeral Home property to bound the soil and groundwater plume to the west as requested by Ecology.
- UST decommissioning activities will be overseen by a certified professional with a Site Assessor certification. The necessary closure reports will be filed with Ecology.
- Approximately 13,000 tons of contaminated soil will be excavated and disposed of at a Subtitle D landfill. This volume includes a 10 percent contingency for the discovery of additional petroleum impacted soil during the course of the excavation.
- The installation of a horizontal and vertical impermeable vapor and water barrier beneath the SKS Shell Property.
- Installation of three compliance groundwater monitoring wells along the northeast Property boundary post excavation.
- Installation of 16 biosparge wells, remediation equipment, and subsurface piping.
- Operation of the biosparge system for 3 years.
- Rental of two parking spots in the redevelopment parking garage for the placement of the remediation equipment enclosure for 4 years.
- Quarterly groundwater monitoring and reporting for 4 years, one of which will be completed after the system has been turned off.
- Once compliance groundwater monitoring is complete, the biosparge system, biosparge wells, and groundwater monitoring wells will be decommissioned.
- The life cycle for this alternative is assumed to be 4 years for the purpose of estimating the present worth cost. This duration should not be construed as a guaranteed remediation time frame.

The present worth cost estimate to implement Cleanup Action Alternative 2, assuming a real discount rate of 0.9 percent and a life cycle of 4 years, is approximately $1,897,000 (Table 8).

7.3.4 Cleanup Action Alternative 3, Excavation of Soil with Air Sparge and Soil Vapor Extraction

Cleanup Action Alternative 3 involves the elements discussed above in 7.3.1 and the installation of an air sparge and soil vapor extraction system to remediate COCs beneath the ROW. Figure 15 provides a conceptual illustration of how this cleanup action alternative might be implemented.

Implementation of the AS and SVE remediation system involves the installation of vertical wells within the zone of contamination. The AS system will inject oxygen into the subsurface to strip COCs in groundwater and volatilize them into the unsaturated soil for uptake by the SVE system. The oxygen will also enhance biodegradation in the saturated and unsaturated soil. The SVE system will apply a vacuum to induce the flow of air and enhance the recovery of COCs from the unsaturated soil.

A ROI of 10 feet was assumed for the AS wells and a ROI of 15 feet was assumed for the SVE wells. The well configuration provides adequate coverage of the dissolve phase groundwater plume. Subsurface piping will extend from a remediation equipment enclosure located on the lower level of the parking garage to each AS and SVE well. A system manifold will control the pressure and air flow rate out to each AS well and a separate manifold will control the vacuum and air flow rate from each of the SVE wells. The vapors from the system will be monitored monthly to assess the effectiveness and progress of the system. Confirmation groundwater samples will be used to demonstrate that the remediation objectives were attained at the conclusion of remediation.

Key assumptions for this cleanup action include the following:

- All permits associated with the construction excavation and site redevelopment activities are a development related cost.
- Access will be provided by the City of Seattle for the installation of the AS and SVE wells and subsurface piping in the ROW.
- Permitting associated with the installation of the AS and SVE system, such as sidewalk and lane closures fees and ROW permit fees, are included in the cost estimate for this alternative.
- All monitoring wells within the construction excavation boundary will be decommissioned.
- A hazardous materials survey will be completed for all of the buildings on the Property prior to demolition. While survey costs have been estimated and incorporated into the feasibility study level costs, no abatement costs are included in this cost estimate because they are considered to be a development related cost.
- After demolition activities are completed a delineation boring and monitoring well will be advanced on the Kennedy Funeral Home property to bound the soil and groundwater plume to the west as requested by Ecology.
- UST decommissioning activities will be overseen by a certified professional with a Site Assessor certification. The necessary closure reports will be filed with Ecology.
- Approximately 13,000 tons of contaminated soil will be excavated and disposed of at a Subtitle D landfill. This volume includes a 10 percent contingency for the discovery of additional petroleum impacted soil during the course of the excavation.
- The installation of a horizontal and vertical impermeable vapor and water barrier beneath the SKS Shell Property.
- Installation of three compliance groundwater monitoring wells along the northeast SKS Shell Property boundary post excavation.
- Installation of 16 AS wells, 6 SVE wells, remediation equipment, and subsurface piping.
- Operation of the AS and SVE system for 5 years.
- Rental of two parking spots in the redevelopment parking garage for the placement of the remediation equipment enclosure for 6 years.

- Quarterly groundwater monitoring and reporting for 6 years, one of which will be completed after the system has been turned off.
- The emissions from the extracted soil vapors will be modeled to determine whether an air discharge permit from Puget Sound Clean Air Agency and/or pretreatment of the vapor generated will be necessary.
- Once compliance groundwater monitoring is complete the AS and SVE system, remediation wells, and groundwater monitoring wells will be decommissioned.
- The life cycle for this alternative is assumed to be 6 years for the purpose of estimating the present worth cost. This duration should not be construed as a guaranteed remediation time frame.

The present worth cost estimate to implement Cleanup Action Alternative 3, assuming a real discount rate of 0.9 percent and a life cycle of 6 years, is approximately $2,299,000 (Table 9).

7.4 COMPARISON OF CLEANUP ACTION ALTERNATIVES

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

- **Protectiveness.** All of the cleanup action alternatives provide a similar measure of protectiveness for human health and environment as a result of source removal. Cleanup Action Alternatives 1 and 2 rely on an in situ technique to biodegrade the COCs in groundwater and unsaturated zone soil, whereas Cleanup Action Alternative 3 physically removes the COCs from groundwater and unsaturated zone soil beneath the ROWs. Cleanup Action Alternative 1 physically removes COCs from groundwater with the ROW dewatering system, but the physical removal of COCs is for a shorter time frame than Alternative 3.
- **Permanence.** All of the cleanup action alternatives provide a permanent solution in the reduction of toxicity, mobility, and volume of COCs through both biological and physical means. Cleanup Action Alternative 3 would actively address COCs in groundwater and unsaturated zone soil by the physical removal of COCs from the subsurface.
- **Effectiveness over the Long Term.** The long-term effectiveness of Cleanup Action Alternatives 1 and 3 is slightly more than that of Cleanup Action Alternative 2. Cleanup Action Alternative 1 physically removes COCs via extraction of 3 groundwater pore volumes and the injection of a chemical that oxidizes the COCs and promotes biodegradation. Cleanup Action Alternative 2 enhances the natural aerobic degradation process but does not physically remove COCs from the subsurface. Cleanup Action Alternative 3 may be limited by the COCs rate of diffusion from contaminated media, but physically removes COCs from the subsurface.
- **Management of Short-Term Risks.** The short-term risks are similar for all three Cleanup Action Alternatives. Cleanup Action Alternatives 1 through 3 present short-term risks associated with the installation of remediation wells and infrastructure within a busy ROW with many utilities.
- **Technical and Administrative Implementability.** All three alternatives involve extensive shoring along busy ROWs associated with redevelopment activities and excavation of contaminated soil. Cleanup Action Alternative 1 scores the highest because it is the most readily implementable, and does not involve the installation of subsurface infrastructure. The piping for the ROW dewatering system is all located above ground and no permanent piping is required for the

chemical injections. Cleanup Action Alternatives 2 and 3 score lower due to the complexities associated with permitting and installing remediation wells and infrastructure within the ROW.

As indicated in Table 10, when equal weighting factors are used for each of the evaluation criteria, Cleanup Action Alternative 1 scored the highest (7.0). Cleanup Action Alternatives 2 and 3 achieved similar ranking scores, 6.5 and 6.2, respectively.

7.5 DISPROPORTIONATE COST ANALYSIS

The purpose of a disproportionate cost analysis (DCA) is to facilitate selection of the cleanup alternative providing the highest degree of permanence to the maximum extent practicable. The DCA considers Cleanup Action Alternatives 1 through 3. 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. The results of the DCA indicate that Cleanup Action Alternative 1 has the lowest cost-to-benefit ratio and ranks the highest using the evaluation criteria.

7.5.1 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 action 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 2012 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 Cleanup Alternatives 1 through 3 are as follows:

- Cleanup Action Alternative 1, $1,517,00 (Table 7)
- Cleanup Action Alternative 2, $1,885,000 (Table 8)
- Cleanup Action Alternative 3, $2,286,000 (Table 9)

As indicated above, the cost of Cleanup Action Alternative 1 less than Cleanup Action Alternatives 2 and 3. The ranking score for Cleanup Action Alternative 1 is also slightly higher than that of the competing alternatives. Chart 1 plots the relative cost and ranking scores, and Chart 2 plots the cost–to-benefit ratios for the three alternatives in order to illustrate the relative cost and benefits afforded by each alternative. The charts clearly demonstrate that Cleanup Action Alternative 1 exhibits the lowest cost-to-benefit ratio.

7.6 RECOMMENDED CLEANUP ACTION ALTERNATIVE

After performing the comparative analysis and ranking of alternatives in accordance with the MTCA evaluation criteria, Cleanup Action Alternative 1 is the recommended alternative. Cleanup Action Alternative 1 entails the full source removal excavation within the limits of the SKS Shell Property, dewatering of the ROW, and chemical oxidant injection to address residual soil and groundwater contamination beneath the ROW. This combination of remedial methods is the recommended alternative because it achieves the RAOs, meets the requirements set forth in WAC 173-340-360(3) and WAC 173-340-370, and is the most favorable with respect to the established evaluation and ranking criteria. Cleanup Alternative 1 also exhibits the lowest cost-to-benefit ratio compared to the comparative alternatives.

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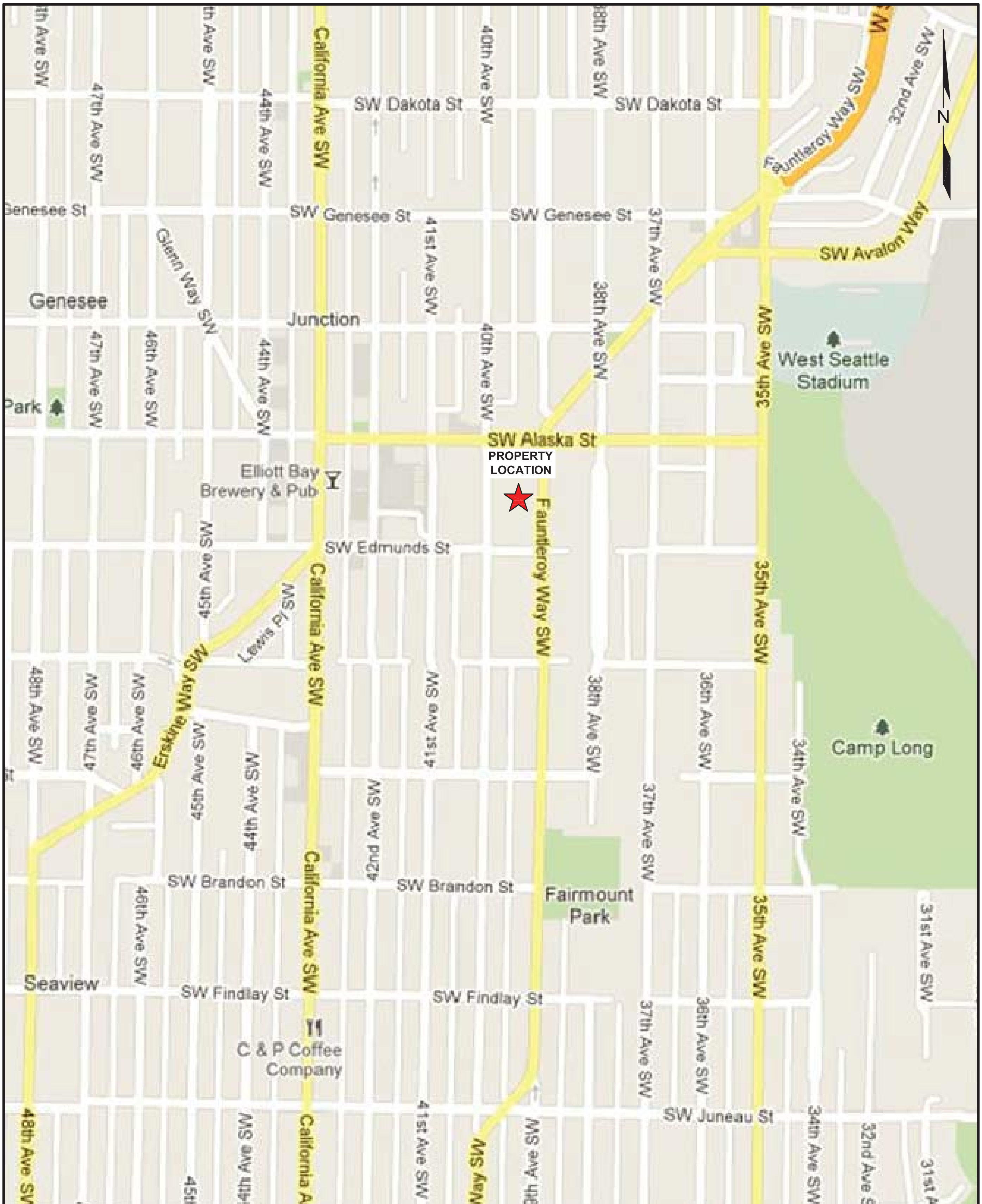
9.0 LIMITATIONS

The services, findings, and conclusions described in this report were prepared for the specific application to this project and were developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. A potential always remains for the presence of unknown, unidentified, or unforeseen subsurface contamination on portions of the Site not sampled. 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 apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. SoundEarth is not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. SoundEarth does not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

FIGURES

11/1/2012



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APPROXIMATE SCALE IN FEET

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PROJECT NAME: SKS SHELL REDEVELOPMENT
PROJECT NUMBER: 0914-004
STREET ADDRESS: 4724 40TH AVENUE SOUTHWEST
CITY, STATE: SEATTLE, WASHINGTON

FIGURE 1
PROPERTY LOCATION MAP

P:\0914 LENNAR SHELL\0914-004 RIFSCAP\TECHNICAL\CAD\FIGURE 1\0914-004_VIC_F.DWG

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PROJECT NUMBER:	0914-004
STREET ADDRESS:	3901 SOUTHWEST ALASKA STREET
CITY, STATE:	SEATTLE, WASHINGTON

REGION:

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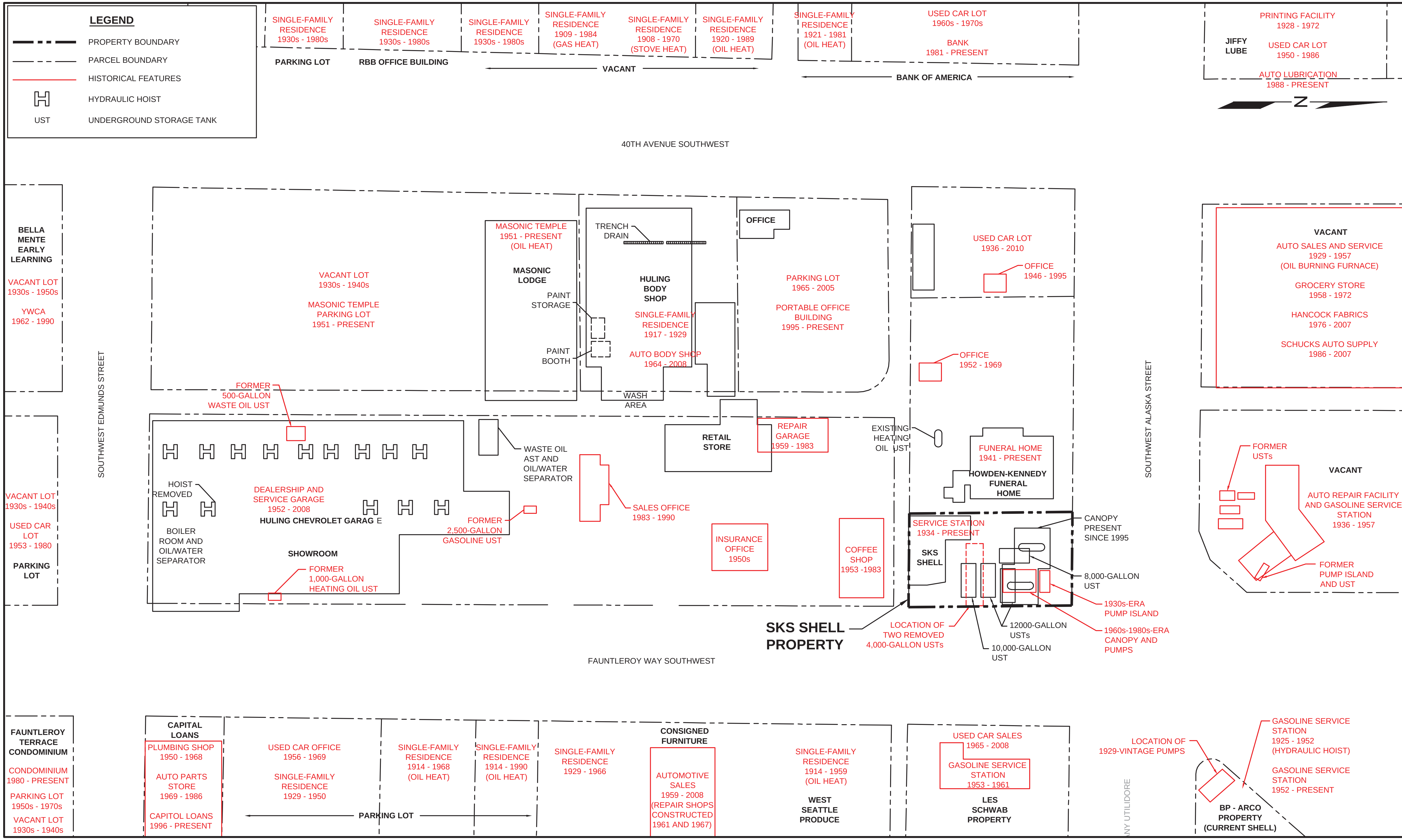
FIGURE 2
PROJECT AND SITE LOCATION PLAN



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REGION:

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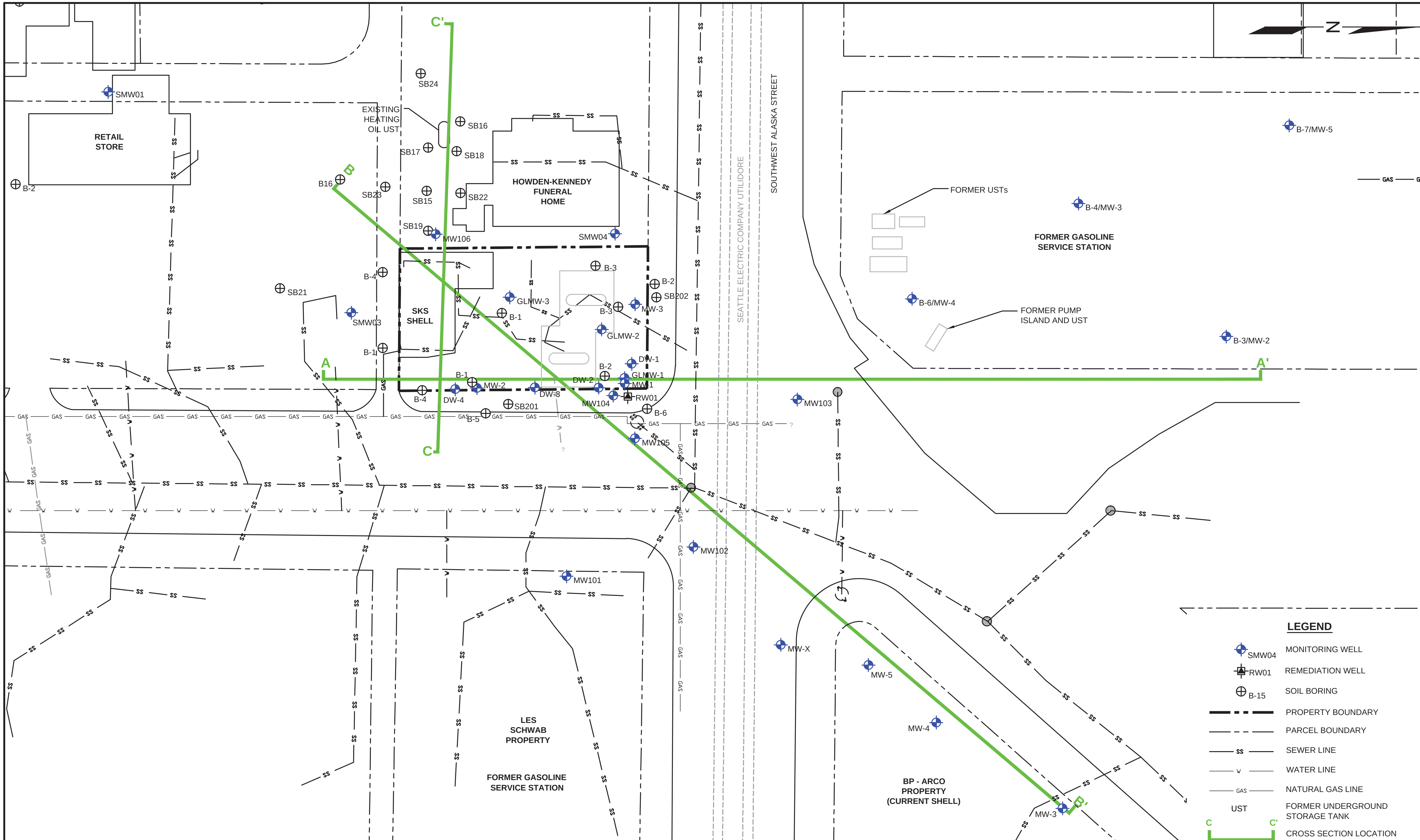
FIGURE 3
CURRENT AND HISTORICAL FEATURES



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CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 20 40 80
APPROXIMATE SCALE IN FEET

FIGURE 4
EXPLORATION LOCATION PLAN

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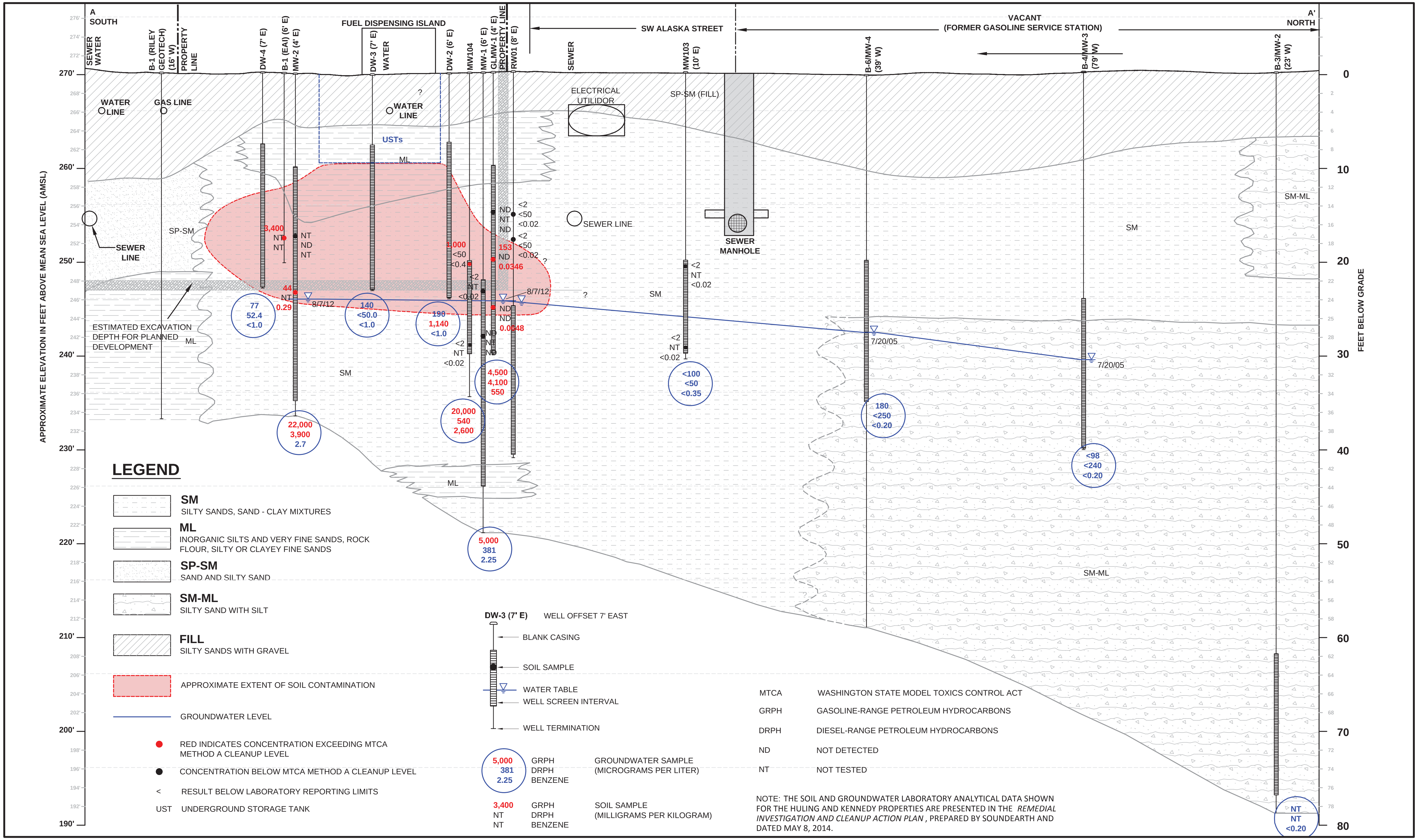

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REGION:

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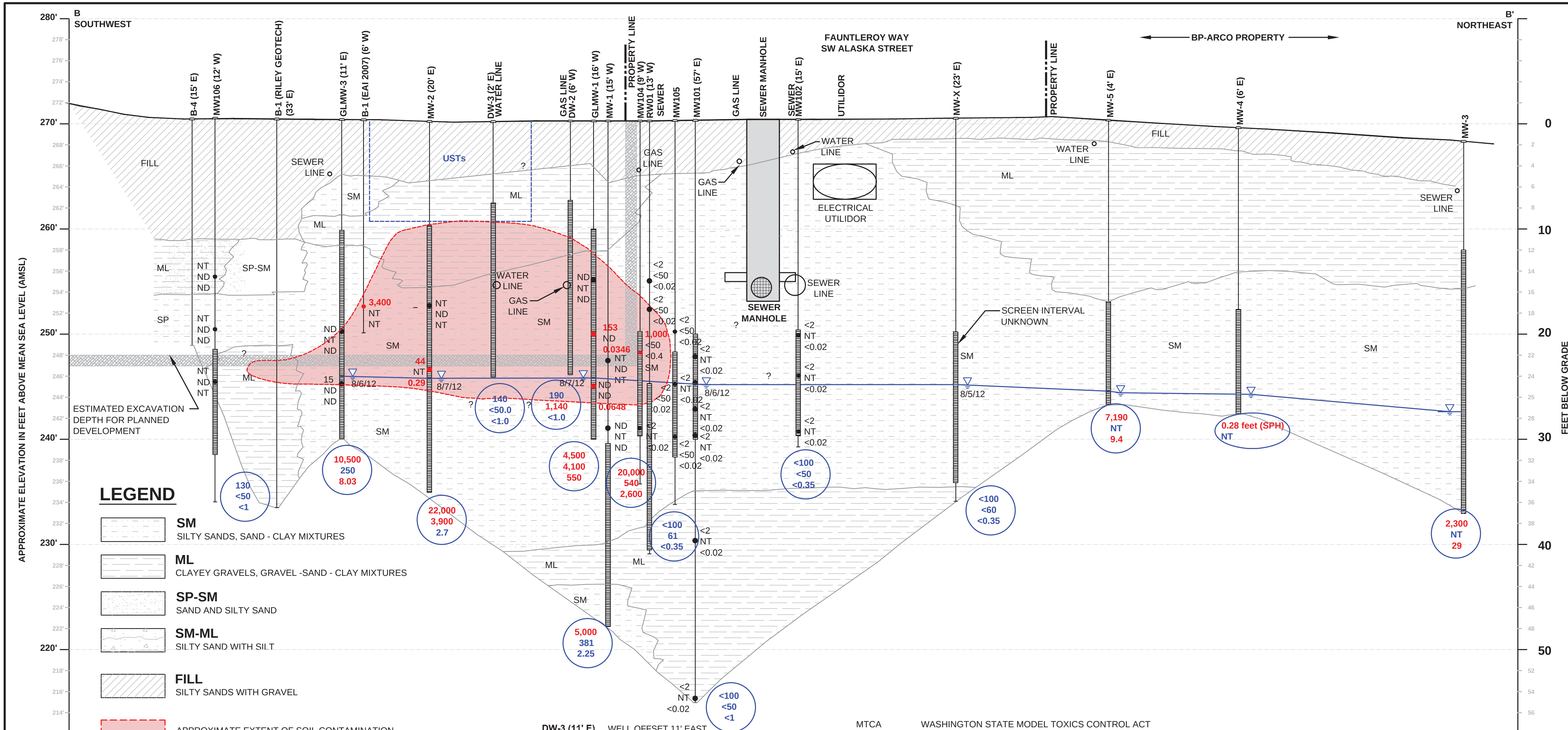
APPROXIMATE SCALE IN FEET

FIGURE 5
SKS SHELL GEOLOGIC CROSS SECTION A-A'



LEGEND

SM SILTY SANDS, SAND - CLAY MIXTURES

ML CLAYEY GRAVELS, GRAVEL -SAND - CLAY MIXTURES

SP-SM SAND AND SILTY SAND

SM-ML SILTY SAND WITH SILT

FILL SILTY SANDS WITH GRAVEL

APPROXIMATE EXTENT OF SOIL CONTAMINATION

GROUNDWATER LEVEL

EXCAVATION EXTENTS

RED INDICATES CONCENTRATION EXCEEDING MTCA METHOD A CLEANUP LEVEL

CONCENTRATION BELOW MTCA METHOD A CLEANUP LEVEL

< RESULT BELOW LABORATORY REPORTING LIMITS

UST UNDERGROUND STORAGE TANK

DW-3 (11' E) WELL OFFSET 11' EAST

BLANK CASING

SOIL SAMPLE

WATER TABLE

WELL SCREEN INTERVAL

WELL TERMINATION

7,190 / NT / 9.4 — GRPH / DRPH / BENZENE — GROUNDWATER SAMPLE (MICROGRAMS PER LITER)

ND / NT / ND — GRPH / DRPH / BENZENE — SOIL SAMPLE (MILLIGRAMS PER KILOGRAM)

MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT
GRPH	GASOLINE-RANGE PETROLEUM HYDROCARBONS
DRPH	DIESEL-RANGE PETROLEUM HYDROCARBONS
ND	NOT DETECTED
NT	NOT TESTED
SPH	SEPARATE PHASE HYDROCARBON

NOTE: THE SOIL AND GROUNDWATER LABORATORY ANALYTICAL DATA SHOWN FOR THE HULING AND KENNEDY PROPERTIES ARE PRESENTED IN THE *REMEDIAL INVESTIGATION AND CLEANUP ACTION PLAN*, PREPARED BY SOUNDEARTH AND DATED MAY 8, 2014.

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REGION:

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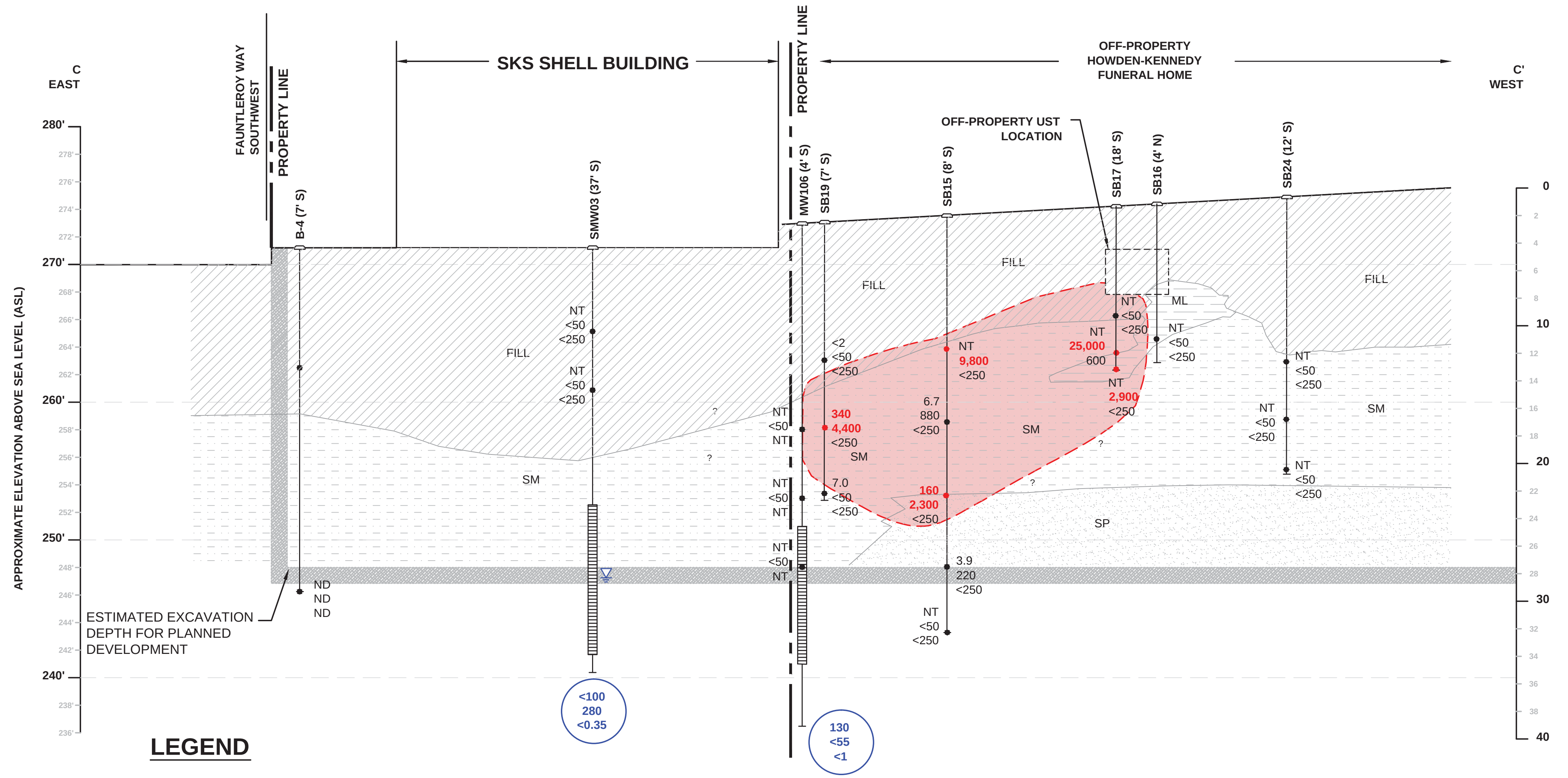
APPROXIMATE SCALE IN FEET

FIGURE 6
SKS SHELL GEOLOGIC CROSS SECTION B-B'



LEGEND

SM SILTY SANDS, SAND - CLAY MIXTURES

ML INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS

SP SAND AND SILTY SAND

FILL SILTY SANDS WITH GRAVEL

APPROXIMATE EXTENT OF SOIL CONTAMINATION

SMW03 (37' S) WELL OFFSET 37' SOUTH

BLANK CASING

SOIL SAMPLE

WATER TABLE

WELL SCREEN INTERVAL

WELL TERMINATION

<100 / 280 / <0.35 — GRPH / DRPH / BENZENE — GROUNDWATER SAMPLE (MICROGRAMS PER LITER)

7.0 / <50 / <250 — GRPH / DRPH / ORPH — SOIL SAMPLE (MILLIGRAMS PER KILOGRAM)

RED INDICATES CONCENTRATION EXCEEDING MTCA METHOD A CLEANUP LEVEL

CONCENTRATION BELOW MTCA METHOD A CLEANUP LEVEL

< RESULT BELOW LABORATORY REPORTING LIMITS

UST UNDERGROUND STORAGE TANK

MTCA WASHINGTON STATE MODEL TOXICS CONTROL ACT

GRPH GASOLINE-RANGE PETROLEUM HYDROCARBONS

DRPH DIESEL-RANGE PETROLEUM HYDROCARBONS

ORPH OIL-RANGE PETROLEUM HYDROCARBONS

NT NOT TESTED

ND NOT DETECTED

NOTE: THE SOIL AND GROUNDWATER LABORATORY ANALYTICAL DATA SHOWN FOR THE HULING AND KENNEDY PROPERTIES ARE PRESENTED IN THE *REMEDIAL INVESTIGATION AND CLEANUP ACTION PLAN*, PREPARED BY SOUNDEARTH AND DATED MAY 8, 2014.

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CITY, STATE: SEATTLE, WASHINGTON

REGION:

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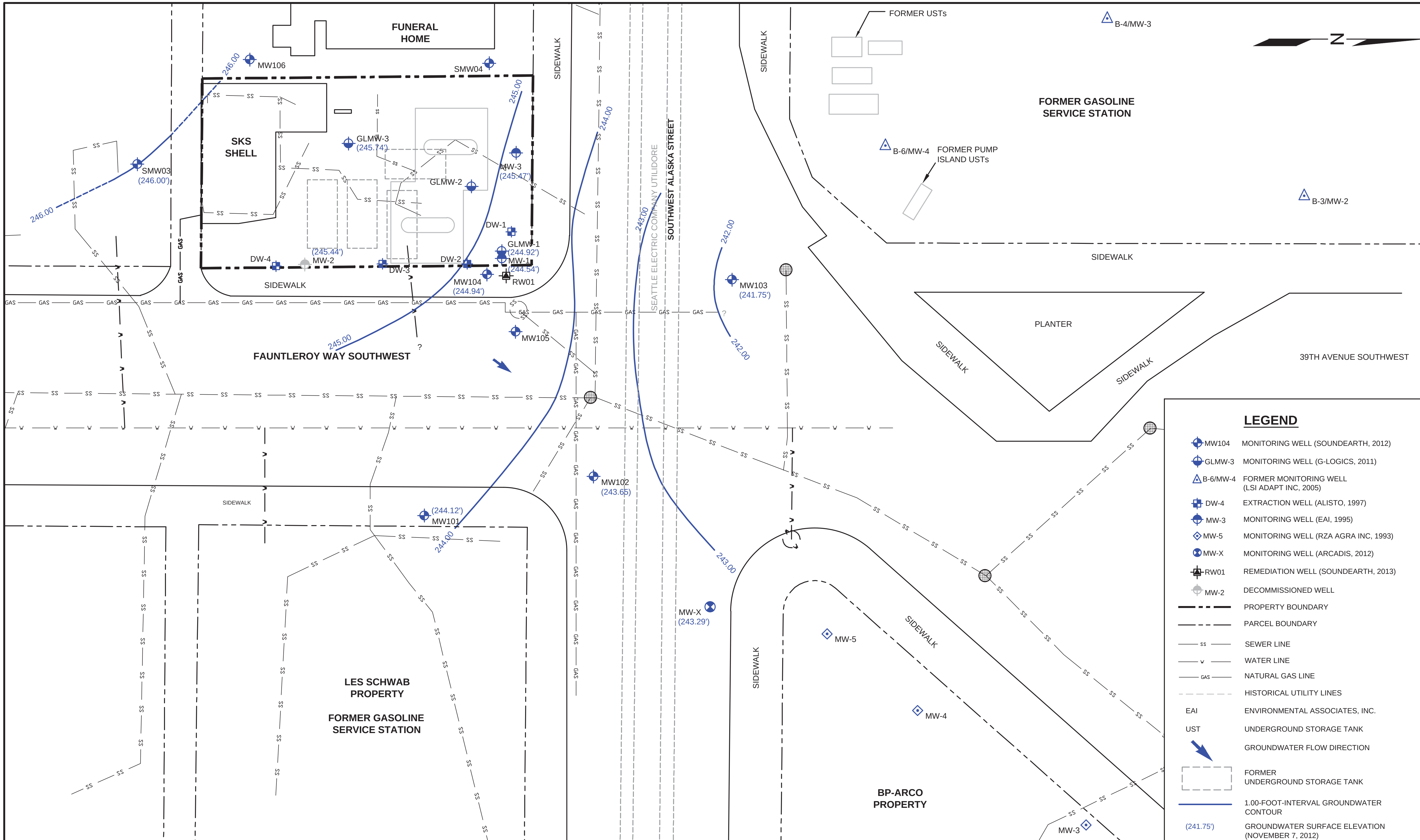
APPROXIMATE SCALE IN FEET

FIGURE 7
SKS SHELL GEOLOGIC CROSS SECTION C-C'



6/24/2014

P:\0914 LENNAR SHELL\0914-004 RIFS\CAP\TECHNICAL\CAD\2014 SKS SHELL RIFS FINAL\0914-004_FIG8_SKS_CM_F.DWG

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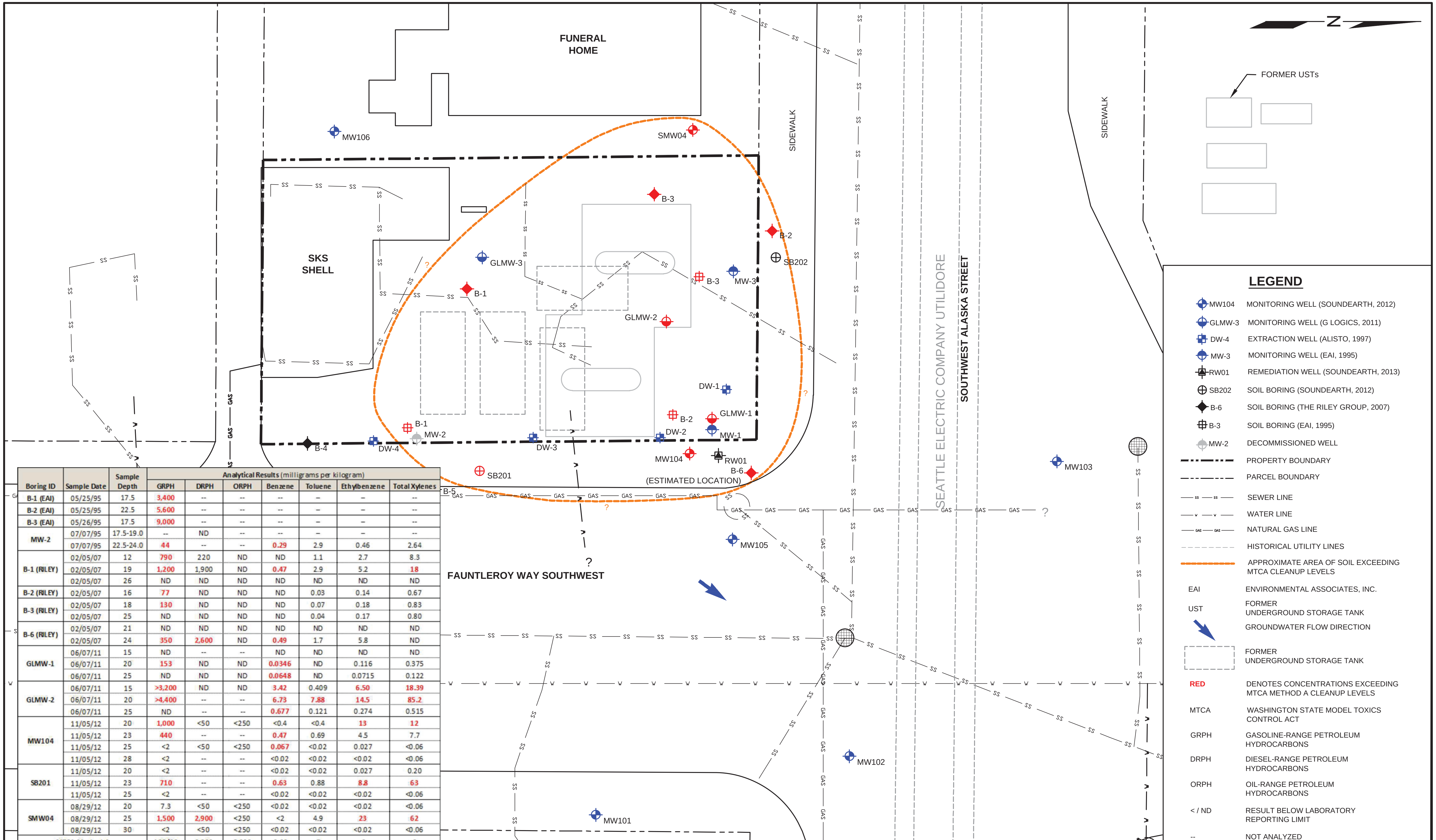
CAD FILE: 0914-004_FIG8_SKS_CM

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SOUTHWEST ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 15 30 60
APPROXIMATE SCALE IN FEET

FIGURE 8
SKS SHELL GROUNDWATER ELEVATIONS
(NOVEMBER 7, 2012)



Boring ID	Sample Date	Sample Depth	Analytical Results (milligrams per kilogram) GRPH	DRPH	ORPH	Benzene	Toluene	Ethylbenzene	Total Xylenes
B-1 (EAI)	05/25/95	17.5	3,400	--	--	--	--	--	--
B-2 (EAI)	05/25/95	22.5	5,600	--	--	--	--	--	--
B-3 (EAI)	05/26/95	17.5	9,000	--	--	--	--	--	--
MW-2	07/07/95	17.5-19.0	--	ND	--	--	--	--	--
	07/07/95	22.5-24.0	44	--	--	0.29	2.9	0.46	2.64
B-1 (RILEY)	02/05/07	12	790	220	ND	ND	1.1	2.7	8.3
	02/05/07	19	1,200	1,900	ND	0.47	2.9	5.2	18
	02/05/07	26	ND	ND	ND	ND	ND	ND	ND
B-2 (RILEY)	02/05/07	16	77	ND	ND	ND	0.03	0.14	0.67
B-3 (RILEY)	02/05/07	18	130	ND	ND	ND	0.07	0.18	0.83
	02/05/07	25	ND	ND	ND	ND	0.04	0.17	0.80
B-6 (RILEY)	02/05/07	21	ND	ND	ND	ND	ND	ND	ND
	02/05/07	24	350	2,600	ND	0.49	1.7	5.8	ND
GLMW-1	06/07/11	15	ND	--	--	ND	ND	ND	ND
	06/07/11	20	153	ND	ND	0.0346	ND	0.116	0.375
	06/07/11	25	ND	ND	ND	0.0648	ND	0.0715	0.122
GLMW-2	06/07/11	15	>3,200	ND	ND	3.42	0.409	6.50	18.39
	06/07/11	20	>4,400	--	--	6.73	7.88	14.5	85.2
	06/07/11	25	ND	--	--	0.677	0.121	0.274	0.515
MW104	11/05/12	20	1,000	<50	<250	<0.4	<0.4	13	12
	11/05/12	23	440	--	--	0.47	0.69	4.5	7.7
	11/05/12	25	<2	<50	<250	0.067	<0.02	0.027	<0.06
	11/05/12	28	<2	--	--	<0.02	<0.02	<0.02	<0.06
SB201	11/05/12	20	<2	--	--	<0.02	<0.02	0.027	0.20
	11/05/12	23	710	--	--	0.63	0.88	8.8	63
	11/05/12	25	<2	--	--	<0.02	<0.02	<0.02	<0.06
SMW04	08/29/12	20	7.3	<50	<250	<0.02	<0.02	<0.02	<0.06
	08/29/12	25	1,500	2,900	<250	<2	4.9	23	62
	08/29/12	30	<2	<50	<250	<0.02	<0.02	<0.02	<0.06
MTCA Method A			100/30	2,000	2,000	0.03	7	6	9

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CAD FILE: 0914-004_FIG9_SKS_SD

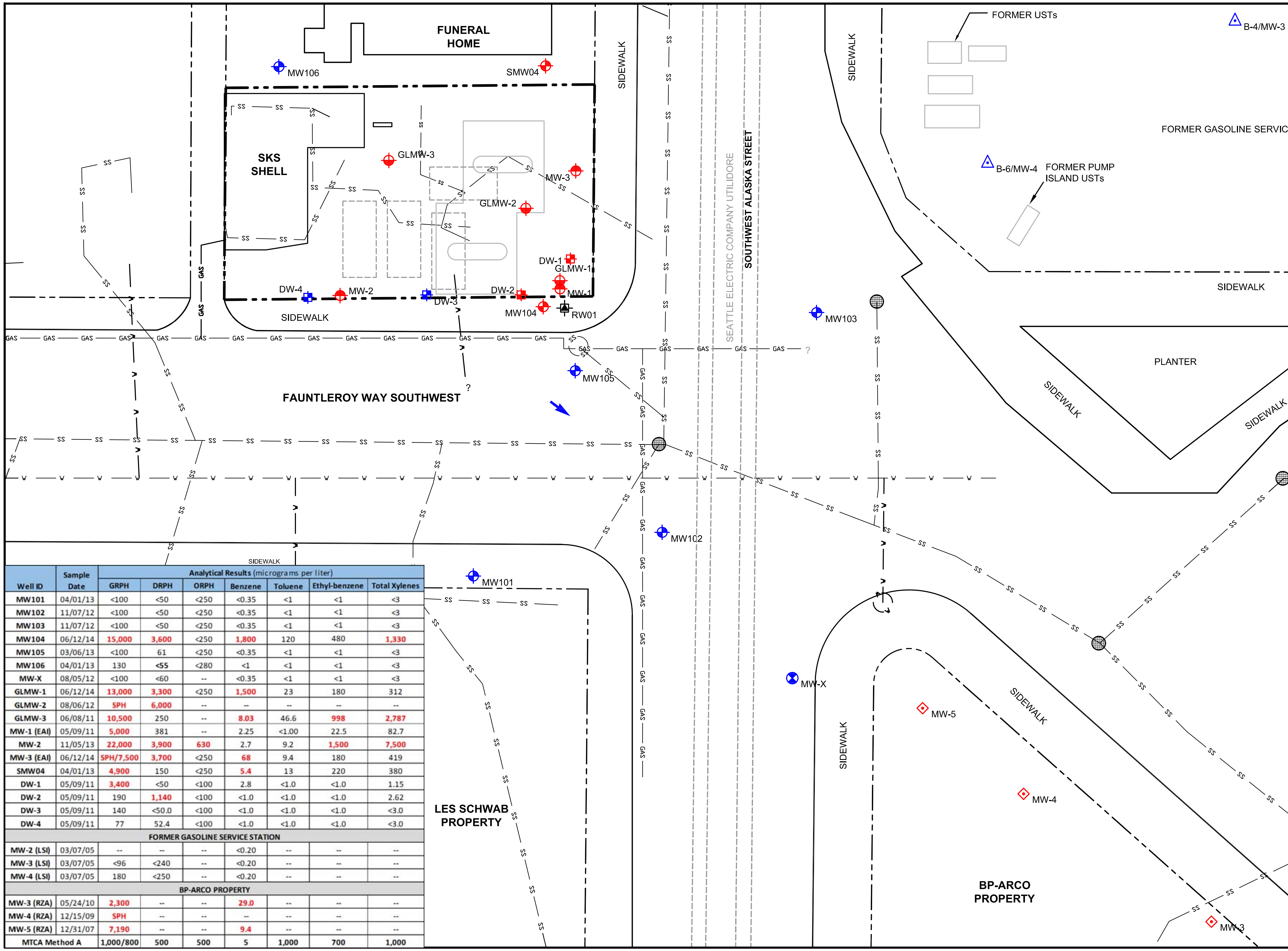
PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SOUTHWEST ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 10 20 40
APPROXIMATE SCALE IN FEET

FIGURE 9
SKS SHELL
SOIL ANALYTICAL RESULTS

P:\0914 LENNAR SHELL\0914-004 RIFSCAP\TECHNICAL\CAD\2014 SKS SHELL RIFS FINAL\0914-004 FIG9 SKS SD F.DWG 6/24/2014



Well ID	Sample Date	Analytical Results (micrograms per liter) GRPH	DRPH	ORPH	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW101	04/01/13	<100	<50	<250	<0.35	<1	<1	<3
MW102	11/07/12	<100	<50	<250	<0.35	<1	<1	<3
MW103	11/07/12	<100	<50	<250	<0.35	<1	<1	<3
MW104	06/12/14	15,000	3,600	<250	1,800	120	480	1,330
MW105	03/06/13	<100	61	<250	<0.35	<1	<1	<3
MW106	04/01/13	130	<55	<280	<1	<1	<1	<3
MW-X	08/05/12	<100	<60	--	<0.35	<1	<1	<3
GLMW-1	06/12/14	13,000	3,300	<250	1,500	23	180	312
GLMW-2	08/06/12	SPH	6,000	--	--	--	--	--
GLMW-3	06/08/11	10,500	250	--	8.03	46.6	998	2,787
MW-1 (EAI)	05/09/11	5,000	381	--	2.25	<1.00	22.5	82.7
MW-2	11/05/13	22,000	3,900	630	2.7	9.2	1,500	7,500
MW-3 (EAI)	06/12/14	SPH/7,500	3,700	<250	68	9.4	180	419
SMW04	04/01/13	4,900	150	<250	5.4	13	220	380
DW-1	05/09/11	3,400	<50	<100	2.8	<1.0	<1.0	1.15
DW-2	05/09/11	190	1,140	<100	<1.0	<1.0	<1.0	2.62
DW-3	05/09/11	140	<50.0	<100	<1.0	<1.0	<1.0	<3.0
DW-4	05/09/11	77	52.4	<100	<1.0	<1.0	<1.0	<3.0
FORMER GASOLINE SERVICE STATION								
MW-2 (LSI)	03/07/05	--	--	--	<0.20	--	--	--
MW-3 (LSI)	03/07/05	<96	<240	--	<0.20	--	--	--
MW-4 (LSI)	03/07/05	180	<250	--	<0.20	--	--	--
BP-ARCO PROPERTY								
MW-3 (RZA)	05/24/10	2,300	--	--	29.0	--	--	--
MW-4 (RZA)	12/15/09	SPH	--	--	--	--	--	--
MW-5 (RZA)	12/31/07	7,190	--	--	9.4	--	--	--
MTCA Method A		1,000/800	500	500	5	1,000	700	1,000

LEGEND

- MW104 — MONITORING WELL (SOUNDEARTH, 2012)
- GLMW-3 — MONITORING WELL (G LOGICS, 2011)
- B-6/MW-4 — MONITORING WELL (LSI ADAPT INC, 2005)
- DW-4 — EXTRACTION WELL (ALISTO, 1997)
- MW-3 — MONITORING WELL (EAI, 1995)
- MW-5 — MONITORING WELL (RZA AGRA INC, 1993)
- MW-X — MONITORING WELL (ARCADIS, 2012)
- RW01 — REMEDIATION WELL (SOUNDEARTH, 2013)
- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- SS — SEWER LINE
- V — WATER LINE
- GAS — NATURAL GAS LINE
- HISTORICAL UTILITY LINES
- UST — UNDERGROUND STORAGE TANK
- GROUNDWATER FLOW DIRECTION
- FORMER UNDERGROUND STORAGE TANK
- EAI — ENVIRONMENTAL ASSOCIATES, INC.
- RED — DENOTES CONCENTRATIONS EXCEEDING MTCA METHOD A CLEANUP LEVELS
- MTCA — WASHINGTON STATE MODEL TOXICS CONTROL ACT
- GRPH — GASOLINE-RANGE PETROLEUM HYDROCARBONS
- DRPH — DIESEL-RANGE PETROLEUM HYDROCARBONS
- ORPH — OIL-RANGE PETROLEUM HYDROCARBONS
- < — RESULT BELOW LABORATORY REPORTING LIMIT
- -- — NOT ANALYZED
- SPH — SEPARATE-PHASE HYDROCARBONS

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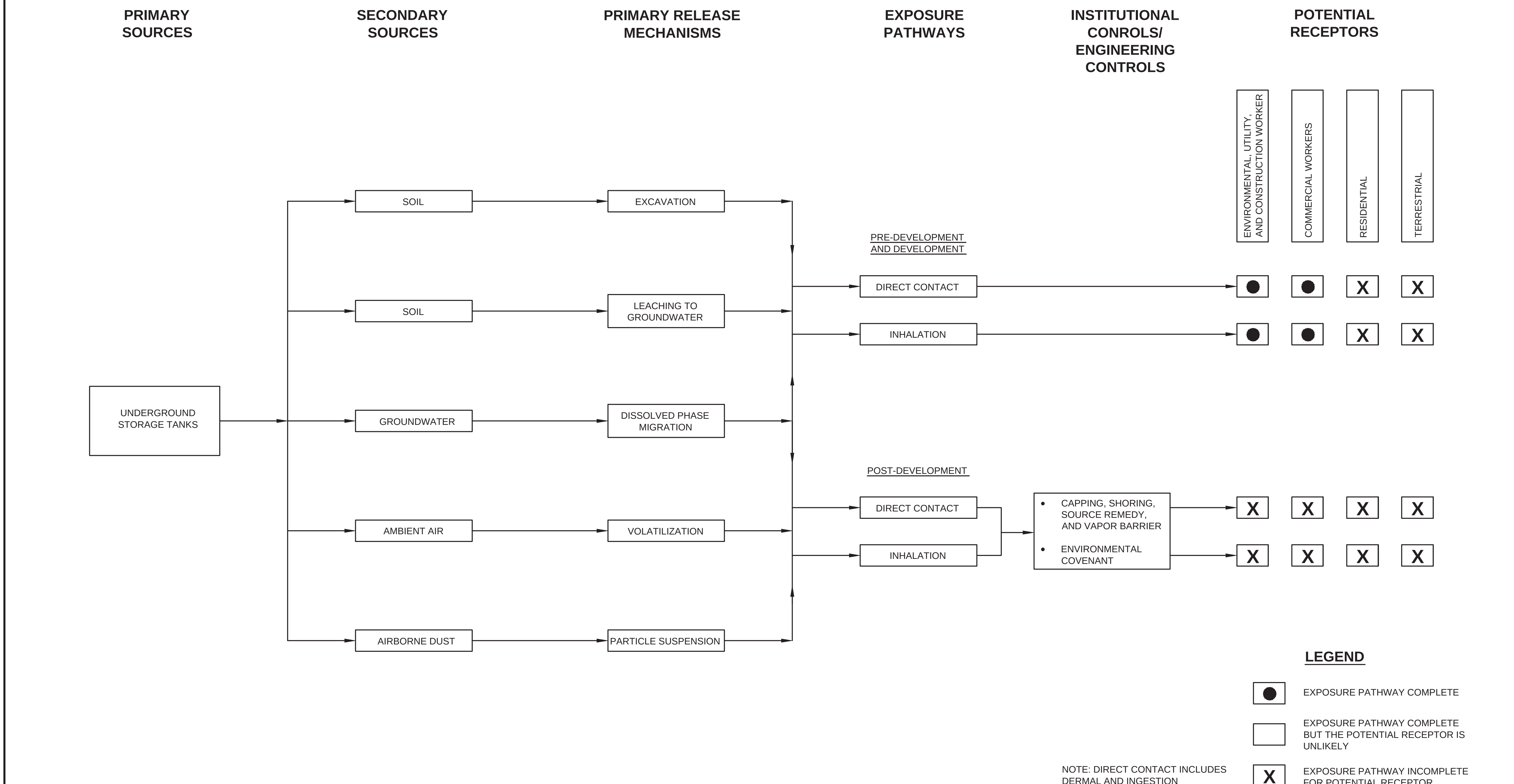
PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SOUTHWEST ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 15 30 60
APPROXIMATE SCALE IN FEET

FIGURE 10
SKS SHELL
GROUNDWATER ANALYTICAL RESULTS

P:\0914 LENNAR SHELL\0914-004 RIFSCAP\TECHNICAL\CAD\2014 SKS SHELL RIFS FINAL\0914-004_FIG10_SKS_GD_F.DWG
6/24/2014



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DATE: 12/27/12
DRAWN BY: NAC
CHECKED BY: TJC
CAD FILE: 0914-004_FIG11_CSM

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SOUTHWEST ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

REGION:

NOT TO SCALE

FIGURE 11
PRELIMINARY CONCEPTUAL SITE MODEL

P:\0914 LENNAR SHELL\0914-004 RIFSCAP\TECHNICAL\CAD\2014 SKS SHELL RIFS FINAL\0914-004_FIG11_CSM_F.DWG 6/19/2014

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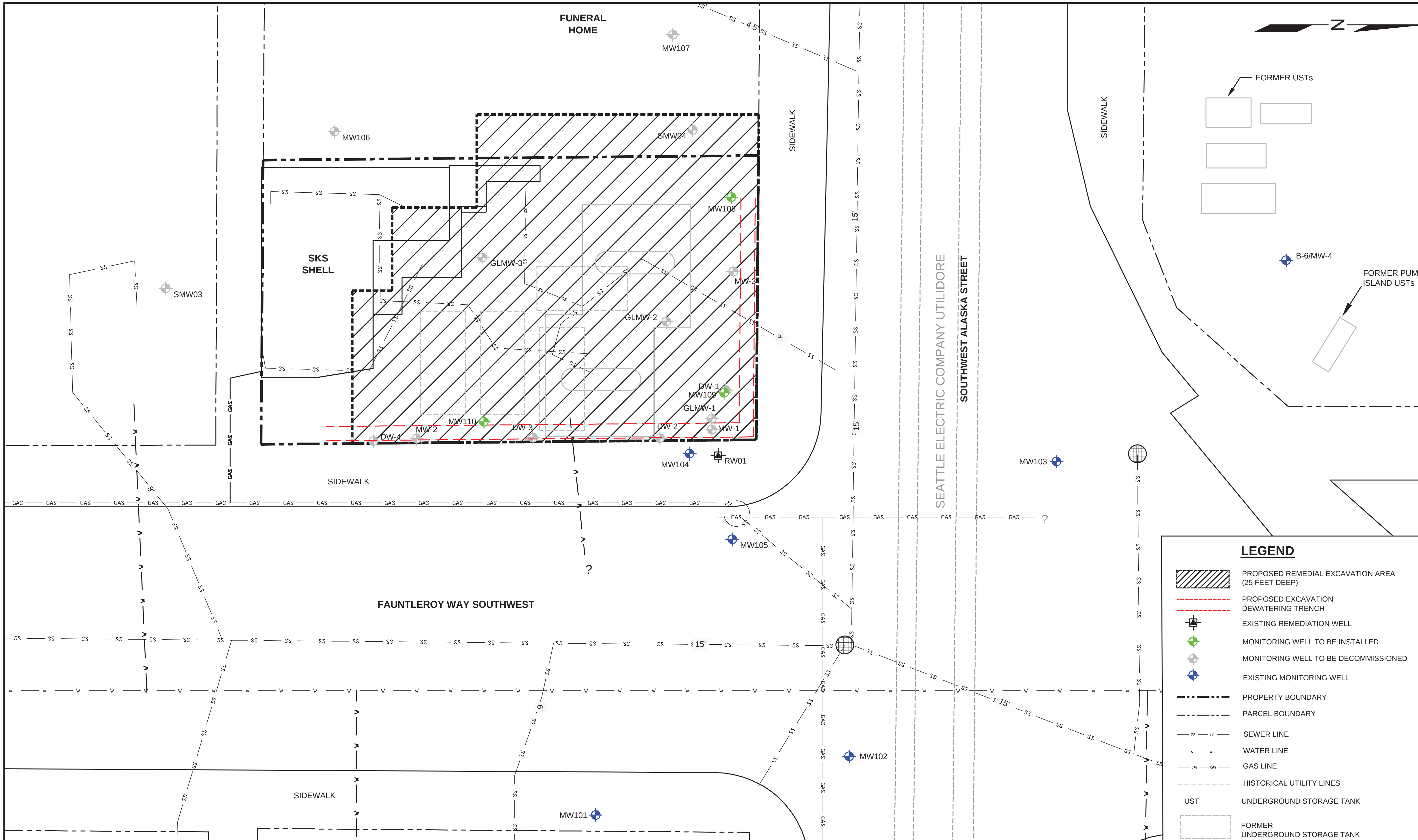

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DATE: 04/16/13
DRAWN BY: NAC
CHECKED BY: SES
CAD FILE: 0914-004_FIG12_EXCA

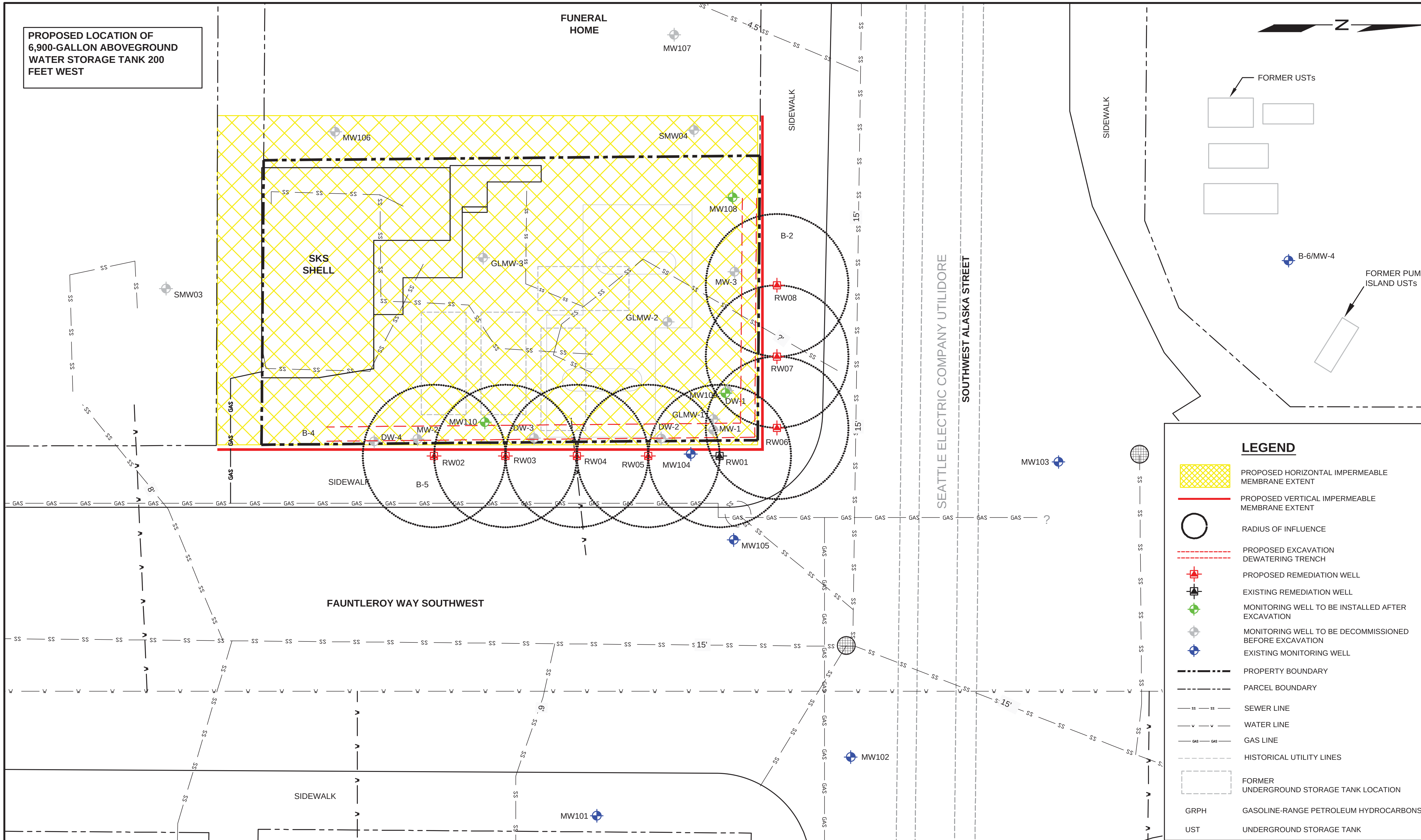
PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SOUTHWEST ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 10 20 40
APPROXIMATE SCALE IN FEET

FIGURE 12
ESTIMATED REMEDIAL EXCAVATION AREA (BASED ON LABORATORY DETECTIONS FOR PETROLEUM HYDROCARBONS)

P:\0914 LENNAR SHELL\0914-004 RIFS\CAP\TECHNICAL\CAD\2014 SKS SHELL RIFS FINAL\0914-004_FIG12_EXCA_F.DWG
6/24/2014



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DATE: 06/03/14
DRAWN BY: NAC/JQC
CHECKED BY: SES
CAD FILE: 0914-004_FIG13_CA1

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SOUTHWEST ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

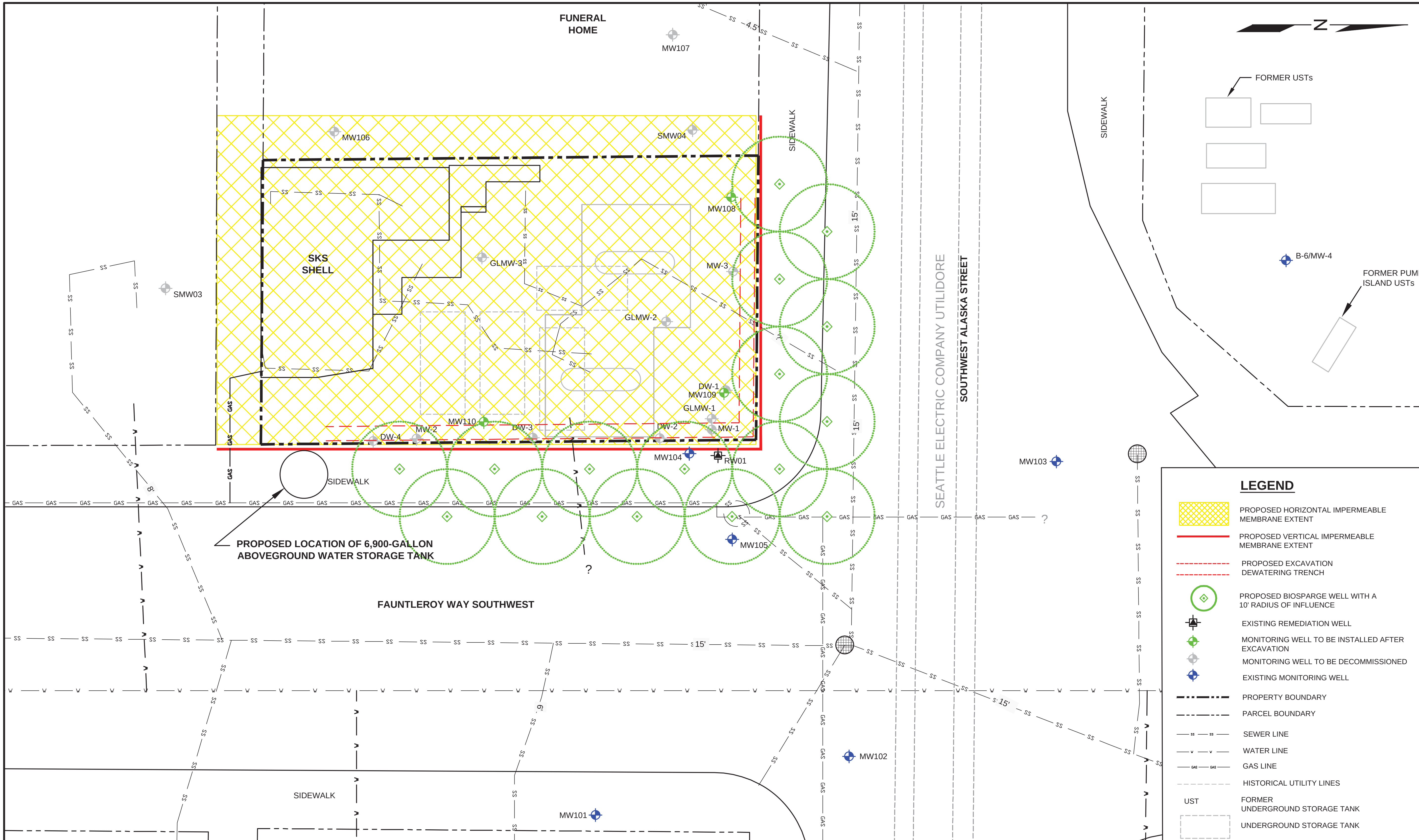
REGION:

0 10 20 40
APPROXIMATE SCALE IN FEET

FIGURE 13
CONCEPTUAL SITE PLAN
CLEANUP ACTION ALTERNATIVE 1 EXCAVATION OF SOIL WITH RIGHT-OF-WAY DEWATERING AND CHEMICAL OXIDATION, SKS SHELL PROPERTY

6/24/2014
P:\0914 LENNAR SHELL\0914-004 RIFSCAP\TECHNICAL\CAD\2014 SKS SHELL RIFS FINAL\0914-004_FIG13_CA1_F.DWG

6/24/2014



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DATE: 04/16/13
DRAWN BY: NAC
CHECKED BY: SES
CAD FILE: 0914-004_FIG14_CA2

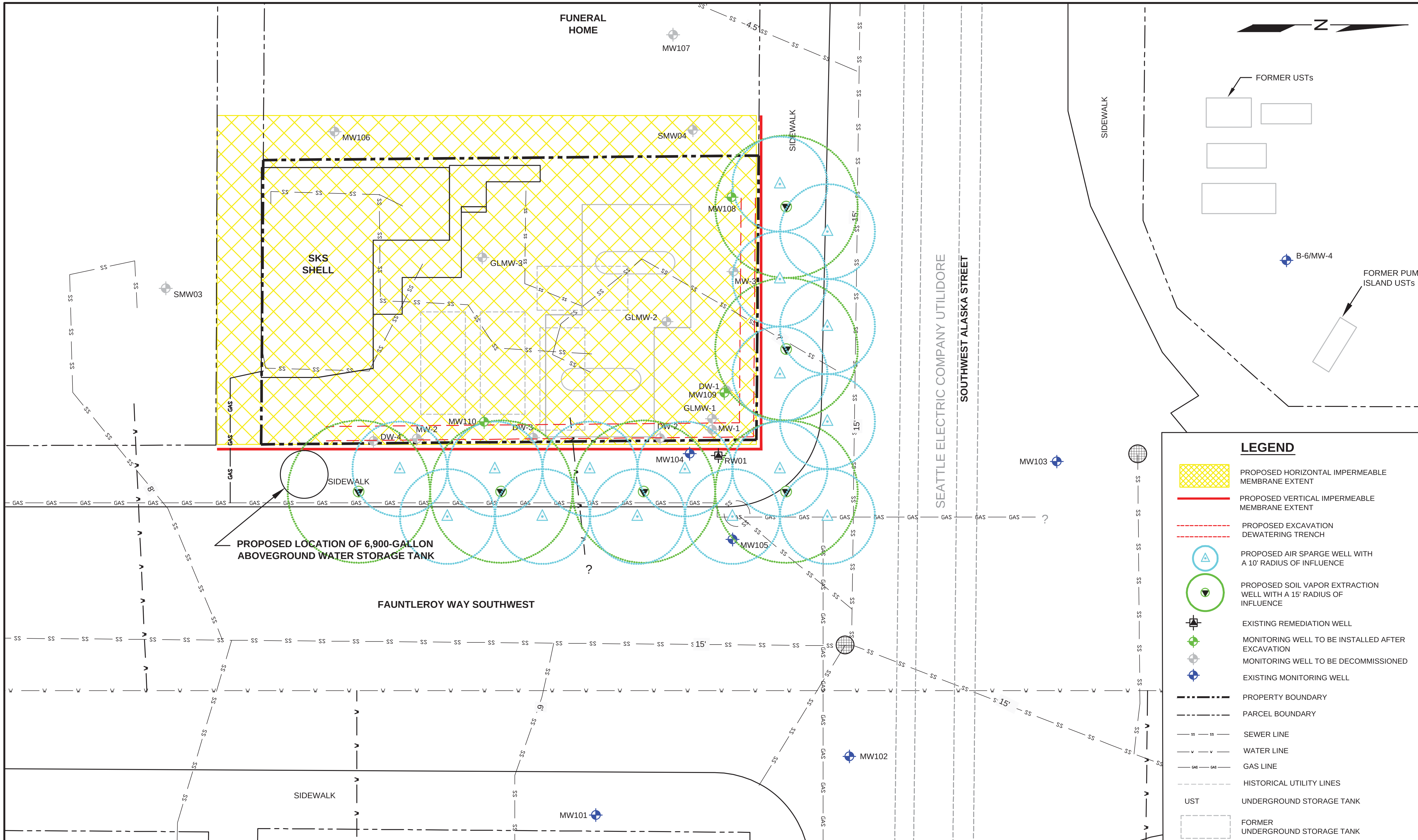
PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SOUTHWEST ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 10 20 40
APPROXIMATE SCALE IN FEET

FIGURE 14
CONCEPTUAL SITE PLAN
CLEANUP ACTION ALTERNATIVE 2
EXCAVATION OF SOIL WITH BIOSPARGING OF GROUNDWATER, SKS SHELL PROPERTY

P:\0914 LENNAR SHELL\0914-004 RIFSCAP\TECHNICAL\CAD\2014 SKS SHELL RIFS FINAL\0914-004_FIG14_CA2_F.DWG



SoundEarth Strategies
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DATE: 04/16/13
DRAWN BY: NAC
CHECKED BY: SES
CAD FILE: 0914-004_FIG15_CA3

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SOUTHWEST ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 10 20 40
APPROXIMATE SCALE IN FEET

FIGURE 15

CONCEPTUAL SITE PLAN
CLEANUP ACTION ALTERNATIVE 3 EXCAVATION OF SOIL WITH AIR SPARGE AND SOIL VAPOR EXTRACTION, SKS SHELL PROPERTY

6/24/2014
P:\0914 LENNAR SHELL\0914-004 RIFS\CAP\TECHNICAL\CAD\2014 SKS SHELL RIFS FINAL\0914-004_FIG15_CA3_F.DWG

TABLES

SoundEarth Strategies

Table 1
Summary of Soil Analytical Results
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

Sample Location	Sample ID	Sample Date	Sampled By	Sample Depth (feet bgs)	**Analytical Result:** (milligrams per kilogram)								
					GRPH[(1)]	DRPH[(2)]	ORPH[(2)]	Benzene[(3)]	Toluene[(3)]	Ethylbenzene[(3)]	Total Xylenes[(3)]	MTBE[(3)]	Lead[(4)]
B-1	B-1 @ 17.5	05/25/95	EAI	17.5	**3,400**	--	--	--	--	--	--	--	--
B-2	B-2 @ 22.5	05/25/95	EAI	22.5	**5,600**	--	--	--	--	--	--	--	--
B-3	B-3 @ 17.5	05/26/95	EAI	17.5	**9,000**	--	--	--	--	--	--	--	--
MW-1	MW-1 @ 22.5-24.0	07/06/95	EAI	22.5-24.0	--	ND	--	--	--	--	--	--	--
	MW-1 @ 27.5-29.0	07/06/95	EAI	27.5-29.0	ND	--	--	ND	ND	ND	ND	--	--
MW-2	MW-2 @ 17.5-19.0	07/07/95	EAI	17.5-19.0	--	ND	--	--	--	--	--	--	--
	MW-2 @ 22.5--24.0	07/07/95	EAI	22.5-24.0	**44**	--	--	**0.29**	2.9	0.46	2.64	--	--
MW-3	MW-3 @12.5-14.0	07/07/95	EAI	12.5-14.0	--	ND	--	--	--	--	--	--	--
	MW-3 @ 22.5-24.0	07/07/95	EAI	22.5-24.0	ND	--	--	ND	ND	ND	ND	--	--
B-1	B-1-12	02/05/07	RGI	12	**790**[d]	220[x]	ND	ND	1.1[d]	2.7[d]	8.3[d]	--	--
	B-1-19	02/05/07	RGI	19	**1,200**[d]	1,900[x]	ND	**0.47**[d]	2.9[d]	5.2[d]	**18**[d]	--	--
	B-1-26	02/05/07	RGI	26	ND	ND	ND	ND	ND	ND	ND	--	--
	B-1-30	02/05/07	RGI	30	ND	ND	ND	ND	ND	ND	ND	--	--
B-2	B-2-16	02/05/07	RGI	16	**77**	ND	ND	ND	0.03	0.14	0.67	--	--
B-3	B-3-18	02/05/07	RGI	18	**130**	ND	ND	ND	0.07	0.18	0.83	--	--
	B-3-25	02/05/07	RGI	25	ND	ND	ND	ND	0.04	0.17	0.80	--	--
B-4	B-4-24	02/05/07	RGI	24	ND	ND	ND	ND	ND	ND	ND	--	--
B-5	B-5-20	02/05/07	RGI	20	**27**	ND	ND	ND	ND	ND	ND	--	--
	B-5-23	02/05/07	RGI	23	**25**	ND	ND	ND	ND	ND	0.08	--	--
B-6	B-6-21	02/05/07	RGI	21	ND	ND	ND	ND	ND	ND	ND	--	--
	B-6-24	02/05/07	RGI	24	**350**[d]	**2,600**[x]	ND	**0.49**[d]	1.7[d]	5.8[d]	ND	--	--
GLMW-1	GLMW-1-15	06/07/11	G-Logics	15	ND	--	--	ND	ND	ND	ND	--	--
	GLMW-1-20	06/07/11	G-Logics	20	**153**	ND	ND	**0.0346**	ND	0.116	0.375	ND	2.10
	GLMW-1-25	06/07/11	G-Logics	25	ND	ND	ND	**0.0648**	ND	0.0715	0.122	--	--
GLMW-2	GLMW-2-15	06/07/11	G-Logics	15	**>3,200**[d]	ND	ND	**3.42**	0.409	**6.50**[d]	**18.39**[d]	ND	2.90
	GLMW-2-20	06/07/11	G-Logics	20	**>4,400**[d]	--	--	**6.73**[d]	**7.88**[d]	**14.5**[d]	**85.2**[d]	--	--
	GLMW-2-25	06/07/11	G-Logics	25	ND	--	--	**0.677**	0.121	0.274	0.515	--	--
GLMW-3	GLMW-3-20	06/07/11	G-Logics	20	ND	--	--	ND	ND	ND	ND	--	--
	GLMW-3-25	06/07/11	G-Logics	25	**15**	ND	ND	ND	ND	0.537	1.856	--	--
MW101	MW101-22.5	08/05/12	SoundEarth	22.5	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	MW101-25	08/05/12	SoundEarth	25	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	MW101-27.5	08/05/12	SoundEarth	27.5	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	MW101-30	08/05/12	SoundEarth	30	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	MW101-40	08/05/12	SoundEarth	40	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	MW101-55	08/05/12	SoundEarth	55	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
MTCA Method A Cleanup Level for Soil[(5)]					**100/30**[(6)]	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**	**0.1**	**250**

SoundEarth Strategies

Table 1
Summary of Soil Analytical Results
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

Sample Location	Sample ID	Sample Date	Sampled By	Sample Depth (feet bgs)	Analytical Result: (milligrams per kilogram) GRPH[1]	DRPH[2]	ORPH[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]	MTBE[3]	Lead[4]
MW102	MW102-20	11/02/12	SoundEarth	20	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	MW102-25	11/02/12	SoundEarth	25	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	MW102-31	11/02/12	SoundEarth	31	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
MW103	MW103-20	11/02/12	SoundEarth	20	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	MW103-25	11/02/12	SoundEarth	25	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	MW103-31	11/02/12	SoundEarth	31	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
MW104	MW104-20	11/05/12	SoundEarth	20	**1,000**	<50	<250	<0.4	<0.4	**13**	**12**	--	--
	MW104-23	11/05/12	SoundEarth	23	**440**	--	--	**0.47**	0.69	4.5	7.7	--	--
	MW104-25	11/05/12	SoundEarth	25	<2	<50	<250	**0.067**	<0.02	0.027	<0.06	--	--
	MW104-28	11/05/12	SoundEarth	28	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	MW104-30	11/05/12	SoundEarth	30	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	--	--
	MW104-33	11/05/12	SoundEarth	33	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
MW105	MW105-20	12/12/12	SoundEarth	20	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	--	--
	MW105-25	12/12/12	SoundEarth	25	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	--	--
	MW105-30	12/12/12	SoundEarth	30	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	--	--
SB201	SB201-20	11/05/12	SoundEarth	20	<2	--	--	<0.02	<0.02	0.027	0.20	--	--
	SB201-23	11/05/12	SoundEarth	23	**710**	--	--	**0.63**	0.88	**8.8**	**63**	--	--
	SB201-25	11/05/12	SoundEarth	25	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	SB201-30	11/05/12	SoundEarth	30	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	--	--
	SB201-33	11/05/12	SoundEarth	33	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
SB202	SB202-20	11/05/12	SoundEarth	20	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	SB202-25	11/05/12	SoundEarth	25	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	SB202-28	11/05/12	SoundEarth	28	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	SB202-30	11/05/12	SoundEarth	30	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	--	--
	SB202-35	11/05/12	SoundEarth	35	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
SMW04	SMW04-15	08/29/12	SoundEarth	15	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
	SMW04-20	08/29/12	SoundEarth	20	7.3	<50	<250	<0.02	<0.02	<0.02	<0.06	--	--
	SMW04-25	08/29/12	SoundEarth	25	**1,500**	**2,900**[x]	<250	<2	4.9	**23**	**62**	--	--
	SMW04-30	08/29/12	SoundEarth	30	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	--	--
	SMW04-35	08/29/12	SoundEarth	35	<2	--	--	<0.02	<0.02	<0.02	<0.06	--	--
MW106	MW106-15	12/12/12	SoundEarth	15	--	<50	<250	--	--	--	--	--	--
	MW106-20	12/12/12	SoundEarth	20	--	<50	<250	--	--	--	--	--	--
	MW106-25	12/12/12	SoundEarth	25	--	<50	<250	--	--	--	--	--	--
RW01	PW01-15	02/20/13	SoundEarth	15	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	--	--
	PW01-17.5	02/20/13	SoundEarth	17.5	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	--	--
MTCA Method A Cleanup Level for Soil[5]					**100/30[6]**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**	**0.1**	**250**

NOTES:

Red denotes concentration exceeds MTCA Method A cleanup level.

[1]Samples analyzed by Method NWTPH-Gx.

[2]Samples analyzed by Method NWTPH-Dx.

[3]Analyzed by EPA Method 8021B or 8260B.

[4]Analyzed by EPA Method 6010B or 200.8.

[5]MTCA Method A Cleanup Levels, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

[6]100 mg/kg when benzene is not present and 30 mg/kg when benzene is present.

Laboratory Notes:

[d]Denotes the samples was diluted. Detection limits are raised due to dilution.

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

-- = not analyzed

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

bgs = below ground surface

DRPH = diesel-range petroleum hydrocarbons

EAI = Environmental Associates, Inc.

EPA = Environmental Protection Agency

G-Logics = G-Logics Inc.

GRPH = gasoline-range petroleum hydrocarbons

mg/kg = milligrams per kilogram

MTBE = methyl tertiary-butyl ether

MTCA = Washington State Model Toxics Control Act

ND = not detected, concentration less than the laboratory method detection limit

NWTPH = Northwest Total Petroleum Hydrocarbon

ORPH = oil-range petroleum hydrocarbons

RGI = The Riley Group, Inc.

SoundEarth = SoundEarth Strategies, Inc.

Table 2
Summary of Groundwater Data and Analytical Results
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

Well ID	Sample Date	Sampled By	Depth to Groundwater (feet below TOC)	Relative Groundwater Elevation[1]	Analytical Results (micrograms per liter)																
					GRPH[2]	Benzene[3]	Toluene[3]	Ethyl-benzene[3]	Total Xylenes[3]	Other 8260 VOCs[3]	MTBE[3]	EDC[3]	EDB[3]	DRPH[2]	ORPH[2]	Tetraethyl Lead[4]	Dissolved Chromium[5]	Dissolved Arsenic[5]	Dissolved Cadmium[5]	Dissolved Lead[5]	Dissolved Mercury[5]
MW101	08/06/12	SoundEarth	24.39	245.15	<100	<0.35	<1	<1	<3	--	<1	<1	<1	--	--	--	--	--	--	--	--
	04/01/13	SoundEarth	24.67	244.87	<100	<1	<1	<1	<3	--	--	--	--	<50	<250	--	--	--	--	--	--
MW101-55 Temp	08/05/12	SoundEarth	Approx. 55'	--	<100	<0.35	<1	<1	<3	--	<1	<1	<1	--	--	--	--	--	--	--	--
MW102	11/07/12	SoundEarth	25.41	243.65	<100	<0.35	<1	<1	<3	--	<1	<1	<1	<50[6]	<250[6]	--	--	--	--	--	--
MW103	11/07/12	SoundEarth	27.80	241.75	<100	<0.35	<1	<1	<3	--	<1	<1	<1	<50[6]	<250[6]	--	--	--	--	--	--
MW104	11/07/12	SoundEarth	24.41	244.94	6,100	2,100	10	120	418	--	<1	<1	<1	4,000	<250	--	--	--	--	--	--
	03/06/13	SoundEarth	23.24	246.11	9,900	2,300	110	470	870	--	--	--	--	1,900[x]	<250	--	--	--	--	--	--
	04/01/13	SoundEarth	23.37	245.98	20,000	2,600	140	640	1,300	--	--	--	--	540[(6) x]	<250[6]	--	--	--	--	--	--
	06/12/14	SoundEarth	22.54	246.81	15,000	1,800	120	480	1,330	--	--	--	<0.01	3,600[(6)x]	<250[6]	--	--	--	--	<1	--
MW105	12/13/12	SoundEarth	24.25	245.05	140	<1	<1	<1	<3	--	--	--	--	<50[6]	<250[6]	--	--	--	--	--	--
	03/06/13	SoundEarth	23.33	245.97	<100	<0.35	<1	<1	<3	--	--	--	--	61[x]	<250	--	--	--	--	--	--
MW-X	08/05/12	SoundEarth	24.26	244.19	<100	<0.35	<1	<1	<3	--	<1	<1	<1	<60[b]	--	--	--	--	--	--	--
GLMW-1	06/08/11	G-Logics	22.76	246.68	11,600	1,510	41.8	349	884	--	--	--	--	4,590	--	--	--	--	--	--	--
	08/06/12	SoundEarth	--	--	6,000	640	15	190	233	--	<10	<10	<10	--	--	--	--	--	--	--	--
	08/07/12	SoundEarth	23.52	245.92	4,500	550[ve]	16	150[ve]	242	--	<1	<1	<1	4,100[x]	--	--	--	--	--	--	--
	06/12/14	SoundEarth	22.65	246.79	13,000	1,500	23	180	312	--	--	--	<0.01	3,300[(6)x]	<250[6]	--	--	--	--	<1	--
GLMW-2	06/08/11	G-Logics	22.72	246.80	22,500	2,410	467	825	3,340	--	--	--	--	961	--	--	--	--	--	--	--
	08/06/12	SoundEarth	23.34	246.18	0.05' SPH	--	--	--	--	--	--	--	--	6,000[x]	--	480000 mg/kg	--	--	--	--	--
GLMW-3	06/08/11	G-Logics	23.32	247.05	10,500	8.03	46.6	998	2,787	--	--	--	--	250	--	--	--	--	--	--	--
	08/06/12	SoundEarth	23.42	246.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	07/14/95	EAI[7]	--	--	7,500	78	30	130	410	--	--	--	--	ND	--	--	--	--	--	--	--
	06/18/97	Alisto[7]	--	--	1,800[b]	3.5	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--
	11/10/98	Alisto[7]	--	--	2,140	ND[c]	ND	ND	18.5	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/99	Alisto[7]	--	--	2,120	ND[c]	ND[c]	ND[c]	ND[c]	--	--	--	--	--	--	--	--	--	--	--	--
	07/11/00	Alisto[7]	--	--	1,310	7.26	ND[c]	ND[c]	ND[c]	--	6	--	--	--	--	--	--	--	--	--	--
	03/26/01	Alisto[7]	--	--	851	3.7	ND	ND	ND	--	4.05	--	--	--	--	--	--	--	--	--	--
	12/17/01	Alisto[7]	--	--	540	6.2	2	1	4.7	--	ND	--	--	--	--	--	--	--	--	--	--
	06/28/02	Alisto[7]	--	--	1,300	16	4.8	2.4	10	--	ND	--	--	--	--	--	--	--	--	--	--
	03/01/03	Alisto[7]	--	--	1,800	2.7	4.1	7	3	--	ND	--	--	--	--	--	--	--	--	--	--
	08/08/03	Alisto[7]	--	--	1,100	9.2	3.6	4.7	5	--	--	--	--	--	--	--	--	--	--	--	--
	03/21/04	AEG[7]	--	--	190	ND	4.5	ND	4	--	ND	--	--	--	--	--	--	--	--	--	--
	10/23/08	RGI[7]	--	--	>3' SPH	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/21/08	RGI[7]	--	--	0.01' SPH	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/09/11	G-Logics	23.26	246.19	5,000	2.25	<1.00	22.5	82.7	--	ND	<1.00	<0.0100	381	--	--	--	--	--	--	--
	08/06/12	SoundEarth	23.95	245.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	07/14/95	EAI[7]	--	--	25,000	2,500	48	100	240	--	--	--	--	9,500	--	--	--	--	--	--	--
	06/18/97	Alisto[7]	--	--	280,000	4,000	44,000	5,500	28,000	--	--	--	--	--	--	--	--	--	--	--	--
	11/10/98	Alisto[7]	--	--	161,000	4,000	42,100	5,710	29,400	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/99	Alisto[7]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/11/00	Alisto[7]	--	--	ND	ND	ND	ND	ND	--	ND	--	--	--	--	--	--	--	--	--	--
	03/26/01	Alisto[7]	--	--	ND	ND	ND	ND	ND	--	ND	--	--	--	--	--	--	--	--	--	--
	12/17/01	Alisto[7]	--	--	390[d]	85	10	2.7	13	--	ND	--	--	--	--	--	--	--	--	--	--
	06/28/02	Alisto[7]	--	--	3,500	58	6.5	160	300	--	ND	--	--	--	--	--	--	--	--	--	--
	03/01/03	Alisto[7]	--	--	140	1	ND	3.50	3	--	ND	--	--	ND	--	--	--	--	--	--	--
	08/08/03	Alisto[7]	--	--	7,500	100	490	1,400	350	--	--	--	--	--	--	--	--	--	--	--	--
	03/21/04	AEG[7]	--	--	25,200	403	1,100	1,540	4,040	--	ND	--	--	80,000	--	--	--	--	--	--	--
	10/23/08	RGI[7]	--	--	20,000	62	ND	530	1,640	--	--	--	--	ND	ND	--	--	--	--	--	--
	05/09/11	G-Logics	--	--	67,000	64.3	56.4	3,670	21,890	--	<1.00	<1.00	<0.0100	1,950	--	--	--	--	--	--	--
	06/08/11	G-logics	22.35	247.44	33,200	29.9	27.7	2,720	9,970	--	<10	<10	<10	411	--	--	--	--	--	--	--
	08/06/12	SoundEarth	--	--	32,000	11	23	1,900	10,100	--	<1	<1	<1	--	--	--	--	--	--	--	--
	08/07/12	SoundEarth	23.24	246.55	5,300	2.2	4.0	400[ve]	1,710	--	<1	<1	<1	2,800	--	--	--	--	--	--	--
	11/05/13	SoundEarth	24.8	244.99	22,000	2.7	9.2	1,500	7,500	--	--	--	--	3,900[x]	630[x]	--	--	--	--	--	--
MTCA Method A Cleanup Levels for Groundwater[8]					1,000/800[9]	5	1,000	700	1,000	varies	20	5	0.01	500	500	NA	50	5	5	15	2

SoundEarth Strategies

Table 2
Summary of Groundwater Data and Analytical Results
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

Well ID	Sample Date	Sampled By	Depth to Groundwater (feet below TOC)	Relative Groundwater Elevation[1]	Analytical Results (micrograms per liter)																
					GRPH[2]	Benzene[3]	Toluene[3]	Ethyl-benzene[3]	Total Xylenes[3]	Other 8260 VOCs[3]	MTBE[3]	EDC[3]	EDB[3]	DRPH[2]	ORPH[2]	Tetraethyl Lead[4]	Dissolved Chromium[5]	Dissolved Arsenic[5]	Dissolved Cadmium[5]	Dissolved Lead[5]	Dissolved Mercury[5]
MW-3	07/14/95	EAI[7]	--	--	**2,400**	**140**	7.4	13	14	--	--	--	--	ND							
	06/18/97	Alisto[7]	--	--	**3,000**	**48**	10	18	19	--	--	--	--	--	--	--	--	--	--	--	--
	11/10/98	Alisto[7]	--	--	**2,270**	**30.1**	3.93	5.62	ND[c]	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/99	Alisto[7]	--	--	**1,850**	ND[c]	ND[c]	ND[c]	13.6[c]	--	--	--	--	--	--	--	--	--	--	--	--
	07/11/00	Alisto[7]	--	--	**1,700**	**54.8**	10	9.61	16.8	--	ND	--	--	--	--	--	--	--	--	--	--
	03/26/01	Alisto[7]	--	--	**1,030**	**8.02**	3.15	ND	ND	--	2.50	--	--	--	--	--	--	--	--	--	--
	12/17/01	Alisto[7]	--	--	**1,200**	**11**	3.5	1.7	1.4	--	ND	--	--	--	--	--	--	--	--	--	--
	06/28/02	Alisto[7]	--	--	**3,000**	**33**	11	2.7	5	--	ND	--	--	--	--	--	--	--	--	--	--
	03/01/03	Alisto[7]	--	--	**3,900**	**28**	7.5	4.6	4	--	ND	--	--	--	--	--	--	--	--	--	--
	08/08/03	Alisto[7]	--	--	**3,200**	**20**	8.4	2.2	0.9	--	--	--	--	--	--	--	--	--	--	--	--
	03/21/04	Alisto[7]	--	--	780	**43**	15	9.2	57	--	ND	--	--	ND	--	--	--	--	--	--	--
	10/23/08	RGI[7]	--	--	**1,300**	**6.5**	2.5	3.6	8.4	--	--	--	--	ND	ND	--	--	--	--	--	--
	05/09/11	G-Logics	--	--	**160,000**	<1.00	11	690	**2,886**	--	<1.00	<1.00	<0.0100	**13,300**	--	--	--	--	--	--	--
	06/08/11	G-Logics	23.25	247.00	**13,500**	**8.46**	12.5	362	**1,501**	--	--	--	--	**910**	--	--	--	--	--	--	--
	08/06/12	SoundEarth	24.11	246.14	**trace SPH**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	06/12/14	SoundEarth	23.64	246.61	**SPH/7,500**	**68**	9.4	180	420	--	--	--	<0.01	**3,700**[6]x	<250[6]	--	--	--	--	3.62	--
SMW04	08/31/12	SoundEarth	26.03	246.27	**1,000**	<0.35	3	43	63	ND	--	<1	--	320[x]	<250	--	<1	**8.42**	1.62	<1	<0.1
	04/01/13	SoundEarth	25.57	246.73	**4,900**	**5.4**	13	220	380	--	--	--	--	150[6] x	<250[6]	--	--	--	--	--	--
MW106	12/13/12	SoundEarth	26.97	246.36	<100	<1	<1	<1	<3	--	--	--	--	110[x]	<250	--	--	--	--	--	--
	04/01/13	SoundEarth	25.92	247.41	130	<1	<1	<1	<3	--	--	--	--	<55[6]	<280[6]	--	--	--	--	--	--
DW-1	05/09/11	G-Logics	--	--	**3,400**	2.8	<1.0	<1.0	1.15	--	<1.0	<1.0	<0.01	<50	<100	--	--	--	--	--	--
DW-2	10/23/08	RGI[7]	--	--	**>0.5' SPH**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/21/08	RGI[7]	--	--	**0.6' SPH**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/09/11	G-Logics	--	--	190	<1.0	<1.0	<1.0	2.62	--	<1.0	<1.0	<1.0	**1,140**	<100	--	--	--	--	--	--
DW-3	05/09/11	G-Logics	--	--	140	<1.0	<1.0	<1.0	<3.0	--	<1.0	<1.0	<1.0	<50.0	<100	--	--	--	--	--	--
DW-4	12/17/99	Alisto[7]	--	--	**857**	4.04	5.92	8.47	152	--	--	--	--	--	--	--	--	--	--	--	--
	05/09/11	G-Logics	--	--	77	<1.0	<1.0	<1.0	<3.0	--	<1.0	<1.0	<1.0	52.4	<100	--	--	--	--	--	--
MTCA Method A Cleanup Levels for Groundwater[8]					**1,000/800[9]**	**5**	**1,000**	**700**	**1,000**	**varies**	**20**	**5**	**0.01**	**500**	**500**	**NA**	**50**	**5**	**5**	**15**	**2**

NOTES:

Red indicates concentrations exceeding MTCA Method A cleanup levels for groundwater.
2012 Samples analyzed by Friedman & Bruya, Inc. of Seattle, Washington.
2011 Samples analyzed for G-Logics by Fremont Analytical of Seattle, Washington.
(1)Elevation reference datum NAVD88 (Dowl HKM November 2012).
(2)Analyzed by Northwest Total Petroleum Hydrocarbon Method NWTPH-Gx (gasoline) and NWTPH-Dx (diesel and oil).
(3)Analyzed by EPA Method 8260B or 8260C.
(4)Analyzed by EPA Method 8082 (result is for product sample).
(5)Analyzed by EPA Method 200.8.
(6)Sample extracts passed through a silica gel column prior to analysis.
(7)Data obtained from G-Logics 2011 Remedial Investigation and Feasibility Study Report Table 2: Groundwater Sample Analyses.
(8)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.
(9)1,000 µg/L when benzene is not present and 800 µg/L when benzene is present.
August 7, 2012 results for wells MW-2 and GLMW-1 reflect 10x casing volume redevelopment conducted August 6.

Laboratory Notes:
[b]This sample did not have a typical gasoline pattern.
[c]The reporting limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
[ve]Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
[x]The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

-- = not analyzed, not measured
< = not detected above the laboratory reporting limit
µg/L = micrograms per liter
AEG = Associated Environmental Group LLC
Alisto = Alisto Engineering Group Inc.
DRPH = diesel-range petroleum hydrocarbons
EAI = Environmental Associates, Inc.
EDB = 1,2 dibromoethane
EDC = 1,2 dichloroethane
EPA = U.S. Environmental Protection Agency
G-Logics = G-Logics Inc.
GRPH = gasoline-range petroleum hydrocarbons
mg/kg = milligrams per kilogram
MTBE = methyl tertiary-butyl ether
MTCA = Washington State Model Toxics Control Act
NA = not applicable
ND = not detected
NWTPH = Northwest Total Petroleum Hydrocarbon
ORPH = oil-range petroleum hydrocarbons
RGI = The Riley Group, Inc.
SoundEarth = SoundEarth Strategies, Inc.
SPH = separate-phase hydrocarbon
TOC = top of casing elevation
VOC = volatile organic compound

Table 3
Summary of Monitoring Well Data
SKS Shell Property and Adjoining Parcels
Seattle, Washington

Well ID	Property	Installation Date	Installed By	Approximate Screen Depth (feet bgs)	Monument Rim Elevation (feet)[a]	Top of Casing (TOC) Elevation[a]	TOC Depth to Groundwater (11/7/12)	Groundwater Elevation[a,b] (11/7/12)
MW-1	Huling	5/15/1997	EPI	8 to 25	274.12	273.76	19.51	254.25
MW-2	Huling	5/15/1997	EPI	15 to 30	273.83	273.26	27.19	246.07
MW-3	Huling	5/15/1997	EPI	10 to 30	274.14	273.88	23.64	250.24
SMW01	Huling	8/30/2012	SoundEarth	22 to 32	273.87	273.53	26.35	247.18
SMW02	Huling	10/1/2012	SoundEarth	20 to 30	273.29	272.92	27.94	244.98
SMW03	Huling	8/29/2012	SoundEarth	20 to 30	271.60	271.26	25.26	246.00
SMW04	Kennedy	8/29/2012	SoundEarth	23 to 33	272.51	272.30	26.83	245.47
MW-1	SKS Shell	7/6/1995	EAI	26 to 44[c]	269.81	269.45	24.91	244.54
MW-2	SKS Shell	7/7/1995	EAI	10 to 30[c]	270.20	269.79	24.35	245.44
MW-3	SKS Shell	7/7/1995	EAI	10 to 30[c]	270.75	270.25	25.37	244.88
GLMW-1	SKS Shell	2011	G-Logics	10 to 30	269.91	269.44	24.52	244.92
GLMW-2	SKS Shell	2011	G-Logics	10 to 30	270.16	269.52	24.64	244.88
GLMW-3	SKS Shell	2011	G-Logics	10 to 30	270.76	270.37	24.63	245.74
MW101	SKS ROW	8/5/2012	SoundEarth	20 to 30	269.79	269.54	25.42	244.12
MW102	SKS ROW	11/2/2012	SoundEarth	20 to 30	269.35	269.06	25.41	243.65
MW103	SKS ROW	11/2/2012	SoundEarth	20 to 30	269.83	269.55	27.80	241.75
MW104	SKS ROW	11/3/2012	SoundEarth	20 to 30	269.64	269.35	24.41	244.94
MW105	SKS ROW	12/12/2012	SoundEarth	22 to 32	--	269.30	24.25	245.05
MW106	Kennedy	12/12/2012	SoundEarth	22 to 32	--	273.33	26.97	246.36
MW-X	BP Arco ROW	2012	Arcadis	20 to 35[d]	268.71	268.45	25.16	243.29

NOTES:

Monitoring wells MW101, MW102, MW103, MW104, MW105, MW106, and MW-X surveyed by SoundEarth. All Other well monuments survey by Dowl HKM.

[a]Elevation reference datum NAVD88 (Surveyed by Dowl HKM November 2012, except for MW105 and MW106 surveyed by SoundEarth Dec. 2012).

[b]Wells MW105 and MW106 groundwater levels were measured on March 6, 2013.

[c]Measured by G-Logics in 2011 using a vactor and camera (not based on the EAI boring logs).

[d]Estimated by SoundEarth with tape measure.

-- = not measured
bgs = below ground surface
EPI = Environmental Partners Inc.
EAI = Environmental Associates Inc.
G-Logics = G-Logics Inc.
ROW = right-of-way
SoundEarth = SoundEarth Strategies Inc.
TOC = top of casing elevation

SoundEarth Strategies

Table 4
Aquifer Test Results
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

Well ID	Well Type	Well Diameter (inches)	Well Screen Interval (feet bgs)	Aquifer Thickness (ft)	Radial Distance to Pumping Well (ft)	Maximum Drawdown (ft)	Analytical Method	Aquifer Model	Transmissivity (ft^2/d)	Hydraulic Conductivity (ft/d)	Hydraulic Conductivity (cm/s)
MW-1	Observation	2	29 - 44	25.0	4.1	2.61	Cooper-Jacob (1946)	Confined	1.68E+01	6.72E-01	2.37E-04
							Neuman (1972)	Unconfined	9.29E+00	3.72E-01	1.31E-04
							Theis (1935)	Unconfined Approximation	1.75E+01	7.02E-01	2.48E-04
								Average	1.45E+01	5.82E-01	2.05E-04

Pumping Well Information

Well ID	Well Type	Well Diameter (inches)	Well Screen Interval (feet bgs)	Pumping Rate (gpm)	Pumping Rate (ft^3/s)	Pumping Duration (minutes)	Maximum Drawdown (ft)
RW01	Pumping	4	25-40	1.0	0.0022	304	9.93

NOTES:
bgs = below ground surface
cm/s = centimeter per second
cm^2 = centimeter squared
ft = feet
ft/s = feet per second
ft/d = foot per day
ft^2/d = square feet per day
ft^3/s = cubic feet per second
gpm = gallons per minute
s = seconds
t = time

Table 5
Estimated Volume and Mass Calculations for GRPH in Soil and Groundwater
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

GRPH Concentration(1) (mg/kg)	Area(2) (sf)	Thickness(3) (ft)	Volume (cf)	Porosity	Total Soil Mass(4) (tons)	Total Soil Mass (pounds)	Total Soil Mass (kilograms)	GRPH Mass Subtotal (milligrams)	GRPH Mass Subtotal (kilograms)	GRPH Mass Subtotal (pounds)	GRPH Mass Subtotal(5) (gallons)
25,000	1,750	13	22,750	0.2	1,475	2,957,500	1,341,522	33,538,050,000	33,538	73,951	12,025
2,750	3,800	13	49,400	0.2	3,202	6,422,000	2,913,019	8,010,802,800	8,011	17,664	2,872
Totals								**41,548,852,800**	**41,549**	**91,615**	**14,897**

NOTES:

(1)Assumed soil is saturated near the USTs based on the presence of SPH in GLMW-2 and used a GRPH concentration of 25,000 mg/kg for this area; the average soil concentration from 18 to 22 feet bgs was used to estimate the mass for the remaining area of the GRPH soil contamination.
(2)The aerial extent of contamination is based on subsurface investigations completed at the SKS Shell Property - see Figures 9 and 10.
(3)Thickness was estimated at 13 feet based on existing cross-sections - see Figures 5 through 7.
(4)Assumed a multiplier of 1.75 from bank yards to tons.
(5)Weight of gasoline ranges from 5.8 to 6.5 pounds per gallon - used a value of 6.15 pounds per gallon.

µg/L = micrograms per liter
bgs = below ground surface
cf = cubic feet
ft = feet
GRPH = gasoline-range petroleum hydrocarbons
mg/kg = milligrams per kilograms
ND = nondetect
sf = square feet
SPH = separate-phase hydrocarbon
UST = underground storage tank

GRPH Concentrations in Groundwater Range	GRPH Concentration (µg/L)(1)	Area (sf)(2)	Thickness (ft)(3)	Porosity(4)	Total Groundwater Volume (cf)	Total Groundwater Volume (liters)	GRPH Mass Subtotal (micrograms)	GRPH Mass Subtotal (grams)	GRPH Mass Subtotal (pounds)	GRPH Mass Subtotal(5) (gallons)
SPH	25,000	190	1	0.2	38	1,076	26,900,960	27	0.1	0.01
ND to SPH	5,500	5,360	17	0.2	18,224	516,045	2,838,249,498	2,838	6	1
Totals							**2,865,150,458**	**2,865**	**6**	**1**

NOTES:
(1)Assumed an 8-foot radius around SPH well GLMW-2; and used the average groundwater concentration for the remaining wells to estimate the mass for the remaining area of the GRPH groundwater contamination.
(2)The aerial extent of contamination is based on subsurface investigations completed at the SKS Shell Property - reference Figures 9 and 10.
(3)Thickness was estimated at 17 feet based on existing cross-sections and well screen intervals - reference Figures 5 through 7.
(4)Porosity is estimated at 0.20 due to the low groundwater yield during a pump test performed at the SKS Shell Property on March 19, 2013.
(5)Weight of gasoline ranges from 5.8 to 6.5 pounds per gallon - used a value of 6.15 pounds per gallon.

Total Estimated GRPH Mass in Soil	**14,897**	**gallons**
Total Estimated GRPH Mass in Groundwater	**1**	**gallon**
Total Estimated Mass	**14,898**	**gallons**
Total Estimated Area with GRPH Exceedances	**5,550**	**square feet**

Table 6
Remedial Component Screening Matrix
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

Component Group	Component Options	Retained for Inclusion in Cleanup Action Alternatives?	Rationale for Inclusion or Exclusion
Passive Remediation			
	No Further Action	No	Excluded because it is not protective of human health or the environment.
	Monitored Natural Attenuation	Yes	Retained as a component of all cleanup action alternatives.
	Impermeable Membrane	Yes	Retained as a component of all cleanup action alternatives on the northeast corner of the site beneath the SKS Shell property.
	Containment Cap	No	Does not address groundwater contamination at the site.
	Environmental Covenant	No	Does not address residual soil and groundwater contamination beneath the ROW.
	Permeable Reactive Barrier	No	Does not address residual soil contamination beneath the Site. Passive technology that treats groundwater leaving the site.
In Situ Physical Treatment			
	SVE	Yes	Implemented alone, this component will not address groundwater contamination. Retained as a component of AS and SVE system.
	Air Sparging	Yes	Retained as a component of the AS and SVE system. This is a proven technology for volatile organic compounds such as petroleum hydrocarbons.
	Biosparging	Yes	Retained to promote biodegradation of COCs beneath the site.
	Surfactant Washing	No	Not retained because this technology has the potential to mobilize contaminants from the saturated zone beyond the site boundary.
	Cosolvent Washing	No	Not retained because this technology has the potential to mobilize contaminants from the saturated zone beyond the site boundary.
	Pump and Treat	Yes	Retained for dewatering within the right-of-way to remove dissolved phase contamination during the construction phase of the project.
	DPE	No	Not retained due to restraints for installation of well network and infrastructure in the ROW.
In Situ Thermal			
	Resistive Thermal with SVE	No	Although these in situ thermal technologies generally satisfy the MTCA threshold and modifying evaluation criteria, none are retained because they are difficult to implement and not cost-competitive with other technologies when implemented at this scale. These technologies also present an increased short-term risk of injury during their installation and operation.
	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 all cleanup action alternatives to treat impacted groundwater encountered during the source excavation and excavation beneath the water table.
	Excavation on-Property with Shoring		
	Secant Pile Wall - Impervious Wall	No	Not retained because this shoring technique is not compatible with utilities.
	Sheet Pile Wall - Impervious Wall	No	Not retained because this shoring technique is not compatible with utilities.
	Soil Nail Wall - Non-Impervious Wall	Yes	Retained for as the preferred shoring method for the site.
	Soldier Pile Wall - Non-Impervious Wall	No	Not retained due to an approved soil nail wall design from the geotechnical engineer.
	Excavation off-Property with Shoring		
	Secant Pile Wall - Impervious Wall	No	Not retained because this shoring technique is not compatible with utilities and significant impacts to the ROW.
	Sheet Pile Wall - Impervious Wall	No	Not retained because this shoring technique is not compatible with utilities and significant impacts to the ROW.
	Soil Nail Wall - Non-Impervious Wall	No	Not retained because this shoring technique is not compatible with utilities and significant impacts to the ROW.
	Soldier Pile Wall - Non-Impervious Wall	No	Not retained because this shoring technique is not compatible with utilities and significant impacts to the ROW.
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 because it is not technically feasible to retain the chemical oxidant within the treatment zone that extends beneath the ROW.
	Landfill Disposal	Yes	This technology was retained because the excavated soil will be sent to a Subtitle D landfill.

Table 6
Remedial Component Screening Matrix
SKS Shell Property
3901 Southwest Alaska Street
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	Yes	Retained to oxidize and promote biodegradation of COCs beneath the site.
	Hydrogen Peroxide	Yes	Retained as the activator for the sodium persulfate to oxidize and promote biodegradation of COCs beneath the site.
	Fenton's Reagent	No	These technologies are not retained because the engineer's preferred chemical oxidant for petroleum contaminated groundwater is sodium persulfate activated by hydrogen peroxide.
	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	No	Not retained because the technology reduces the mobility of hazardous substances but not the toxicity or 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	
	Pump and Treat for Hydraulic Containment	No	Not retained due to restraints for installation of well network and infrastructure in the ROW.
Phytoremediation			
	Hydraulic Control	No	Not retained because implementation of these technologies are not compatible with the future land use at the site, 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	Yes	Retained as a technology because groundwater quality data indicates the subsurface is aerobic and attenuation due to bioremediation is evident beneath the ROW.
	Anaerobic Bioremediation	No	Not retained because COCs undergo bioremediation under aerobic conditions.

NOTES:
AS = air sparge
COC = chemical of concern
DPE = dual-phase extraction
MTCA = Washington State Model Toxics Control Act
ROW = right-of-way
SVE = soil vapor extraction

Table 7
Feasibility Level Cost Estimate
Cleanup Action Alternative 1
Excavation of Soil with Right-of-Way Dewatering and Chemical Oxidation
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

CAPITAL COST ITEM	QTY	UNIT	UNIT PRICE	COST	TOTALS
Permitting (includes labor)					
Right-of-way permit fees	1	per permit	$ 5,000	$ 5,000	
Sidewalk and lane closure fees	1	per permit	$ 15,000	$ 15,000	
National Barricade Traffic Control Plan	1	per plan	$ 500	$ 500	
Underground Injection Registration	1	per permit	$ 2,500	$ 2,500	
Subtotal				*$ 23,000*	
Site Work					
Remedial Excavation					
Western Bounding Well - Required by Ecology	1	event	$ 10,000	$ 10,000	
Monitoring Well Decommissioning	12	each	$ 500	$ 6,000	
Hazardous Materials Survey (does not include abatement)	1	lump sum	$ 3,000	$ 3,000	
UST Decommissioning Oversight and Closure Reports	1	lump sum	$ 7,500	$ 7,500	
Excavation to Elevation 247 feet	10,000	ton	$ 45	$ 450,000	
Additional Shoring Costs for Overexcavation on SKS Shell Property	1,020	facing sf	$ 65	$ 66,300	
Additional Excavation to Elevation 240 feet	3,000	ton	$ 65	$ 195,000	
Shoring Installation Cuttings	130	ton	$ 50	$ 6,500	
Placement of CDF Admixture Along ROW	315	cy	$ 125	$ 39,375	
Backfill to Elevation 247 feet (minus CDF already placed)	1,500	ton	$ 30	$ 45,000	
Excavation Trench Dewatering - Sump Pumps and Piping	1	lump sum	$ 5,000	$ 5,000	
Dewatering System					
Pump Test - well installation, 8-hr aquifer test, analysis	1	lump sum	$ 15,000	$ 15,000	
Well Installation - 7, 4-inch diameter pumping wells	7	each	$ 4,200	$ 29,400	
System Design and Installation	1	lump sum	$ 23,000	$ 23,000	
Water Storage Tank Rental - August through November	4	month	$ 700	$ 2,800	
Water Disposal Fees - Vacuum Truck Service - Approximately 55,000 gallons	1	lump sum	$ 32,350	$ 32,350	
System Decommissioning	1	lump sum	$ 3,500	$ 3,500	
Installation of Vertical and Horizontal Impermeable Barrier	10,650	sf	$ 8.50	$ 90,525	
Installation of Compliance Monitoring Wells	3	each	$ 2,000	$ 6,000	
Subtotal				$ 1,036,250	
Groundwater Treatment					
Sodium Persulfate Injection into 9 wells; 2 batches per well	1	event	$ 35,000	$ 35,000	
Pre and Post Injection Sulfate Compliance Samples	1	lump sum	$ 1,200	$ 1,200	
Second Contingency Sodium Persulfate Injection into 9 wells	1	event	$ 35,000	$ 35,000	
Contingency - Sulfate Compliance Samples	1	lump sum	$ 1,200	$ 1,200	
Subtotal				*$ 72,400*	
Labor and Other Direct Costs					
Professional Labor	1	lump sum	$ 72,786	$ 72,786	
Other Direct Costs (reprographics, courier services)	1	lump sum	$ 1,500	$ 1,500	
Equipment (H&S equipment, soil sampling kits)	1	lump sum	$ 12,875	$ 12,875	
Analytical Costs	1	lump sum	$ 16,882	$ 16,882	
Subtotal				*$ 104,043*	
CLEANUP ACTION SUBTOTAL					$ 1,235,700
Mobilization, Contingencies, and Demobilization					
Mobilization (1% of construction subtotal)				$ 1,040	
Bid (3% of construction subtotal)				$ 3,121	
Scope (10% of construction subtotal)				$ 10,404	
Cleanup and Demobilization (1% of construction subtotal)				$ 1,040	
Subtotal				*$ 15,606*	
CLEANUP ACTION TOTAL					$ 1,251,300
Indirect Capital Costs					
Engineering Construction Services (8% of construction total)				$ 100,104	
Subtotal				*$ 100,104*	
TOTAL CAPITAL COST					**$ 1,351,400**

COMPLIANCE MONTORING	ANNUAL COST(1)	Present Worth Cost of Annual Monitoring Real Discount Rate = 0.9%	
		n = 5 years	
Quarterly Groundwater Monitoring and Reporting (5 years)	$ 32,000	$ 155,769	
Well Decommissioning (12 wells)		$ 10,000	
TOTAL PRESENT WORTH MONITORING COST			**$ 165,800**
TOTAL PRESENT WORTH COST OF CLEANUP ACTION ALTERNATIVE 1			**$ 1,517,000**

NOTES:
Permits associated with excavation, shoring, and dewatering are a development related costs.
(1)Annual cost is 2013 year cost.

CDF = control density fill
cy = cubic yard
H&S = health and safety
n = number of years of operation and maintenance
QTY = quantity
ROW = right of way
sf = square feet
UST = underground storage tank

SoundEarth Strategies

Table 8
Feasibility Level Cost Estimate
Cleanup Action Alternative 2
Excavation of Soil with Biosparging of Groundwater
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

CAPITAL COST ITEM	QTY	UNIT	UNIT PRICE	COST	TOTALS
Permitting (excludes labor)					
Right-of-way permit fees	1	per permit	$ 5,000	$ 5,000	
Sidewalk and lane closure fees	1	per permit	$ 15,000	$ 15,000	
National Barricade Traffic Control Plan	1	per plan	$ 500	$ 500	
Subtotal				*$ 20,500*	
Site Work					
Remedial Excavation					
Western Bounding Well - Required by Ecology	1	event	$ 10,000	$ 10,000	
Monitoring Well Decommissioning	12	each	$ 500	$ 6,000	
Hazardous Materials Survey (does not include abatement)	1	lump sum	$ 3,000	$ 3,000	
UST Decommissioning Oversight and Closure Reports	1	lump sum	$ 7,500	$ 7,500	
Excavation to Elevation 247 feet	10,000	ton	$ 45	$ 450,000	
Additional Shoring Costs for Overexcavation on SKS Shell Property	1,020	facing sf	$ 65	$ 66,300	
Additional Excavation to Elevation 240 feet	3,000	ton	$ 65	$ 195,000	
Shoring Installation Cuttings	130	ton	$ 50	$ 6,500	
Placement of CDF Admixture Along ROW	315	cy	$ 125	$ 39,375	
Backfill to Elevation 247 feet (minus CDF already placed)	1,500	ton	$ 30	$ 45,000	
Excavation Trench Dewatering - Sump Pumps and Piping	1	lump sum	$ 5,000	$ 5,000	
Installation of Vertical and Horizontal Impermeable Barrier	10,650	sf	$ 8.50	$ 90,525	
Installation of Compliance Monitoring Wells	3	each	$ 2,000	$ 6,000	
Subtotal				$ 930,200	
Groundwater Treatment					
Drilling Contractor - 16 biosparge wells	16	each	$ 2,500	$ 40,000	
Utility Clearing - Vactor Truck	1	each	$ 4,000	$ 4,000	
Biosparge System and Equipment	1	lump sum	$ 112,500	$ 112,500	
Rental of Parking Spaces for Equipment Enclosure	4	year	$ 4,800	$ 19,200	
Site Restoration					
Patch asphalt and concrete surfaces	1	lump sum	$ 25,000	$ 25,000	
Subtotal				*$ 200,700*	
Labor and Other Direct Costs					
Professional Labor	1	lump sum	$ 80,450	$ 80,450	
Other Direct Costs (Reprographics, Courier Services)	1	lump sum	$ 750	$ 750	
Equipment (H&S equipment, soil sampling kits)	1	lump sum	$ 15,300	$ 15,300	
Analytical Costs	1	lump sum	$ 19,238	$ 19,238	
Subtotal				*$ 115,738*	
CLEANUP ACTION SUBTOTAL					$ 1,267,100
Mobilization, Contingencies, and Demobilization					
Mobilization (3% of construction subtotal)				$ 3,472	
Bid (10% of construction subtotal)				$ 11,574	
Scope (15% of construction subtotal)				$ 17,361	
Cleanup and Demobilization (3% of construction subtotal)				$ 3,472	
Subtotal				*$ 35,879*	
CLEANUP ACTION TOTAL					$ 1,303,000
Indirect Capital Costs					
Engineering Design and Permitting (15% of construction total)				$ 195,450	
Engineering Construction Services (8% of construction total)				$ 104,240	
Subtotal				*$ 299,690*	
TOTAL CAPITAL COST					**$ 1,602,700**

COMPLIANCE MONTORING	ANNUAL COST[1]	Present Worth Cost of Annual Monitoring	
		Real Discount Rate =	0.9%
		n = 4 years	
Quarterly Groundwater Monitoring and Reporting (4 years)	$ 45,000	$ 176,022	
Bimonthly Operation and Maintenance (3 years)	$ 30,000	$ 88,404	
Well Decommissioning (27 wells)		$ 30,000	
TOTAL PRESENT WORTH MONITORING COST			**$ 294,400**
TOTAL PRESENT WORTH COST OF CLEANUP ACTION ALTERNATIVE 2			**$ 1,897,000**

NOTES:
Permits associated with excavation, shoring, and dewatering are a development related cost.
[1]Annual cost is 2013 year cost.
CDF = control density fill
cy = cubic yard
H&S = health and safety
n = number of years of operation and maintenance
QTY = quantity
ROW = right-of-way
sf = square feet
UST = underground storage tank

Table 9
Feasibility Level Cost Estimate
Cleanup Action Alternative 3
Excavation of Soil with Air Sparge and Soil Vapor Extraction
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

CAPITAL COST ITEM	QTY	UNIT	UNIT PRICE	COST	TOTALS
Permitting (excludes labor)					
Right-of-way permit fees	1	per permit	$ 5,000	$ 5,000	
Sidewalk and lane closure fees	1	per permit	$ 15,000	$ 15,000	
Side Sewer Permit Fee	0	per permit	$ 1,000	$ -	
National Barricade Traffic Control Plan	1	per plan	$ 500	$ 500	
Subtotal				*$ 20,500*	
Site Work					
Remedial Excavation					
Western Bounding Well - Required by Ecology	1	event	$ 10,000	$ 10,000	
Monitoring Well Decommissioning	12	each	$ 500	$ 6,000	
Hazardous Materials Survey (does not include abatement)	1	lump sum	$ 3,000	$ 3,000	
UST Decommissioning Oversight and Closure Reports	1	lump sum	$ 7,500	$ 7,500	
Excavation to Elevation 247 feet	10,000	ton	$ 45	$ 450,000	
Additional Shoring Costs for Overexcavation on SKS Shell Property	1,020	facing sf	$ 65	$ 66,300	
Additional Excavation to Elevation 240 feet	3,000	ton	$ 65	$ 195,000	
Shoring Installation Cuttings	130	ton	$ 50	$ 6,500	
Placement of CDF Admixture Along ROW	315	cy	$ 125	$ 39,375	
Backfill to Elevation 247 feet (minus CDF already placed)	1,500	ton	$ 30	$ 45,000	
Excavation Trench Dewatering - Sump Pumps and Piping	1	lump sum	$ 5,000	$ 5,000	
Installation of Vertical and Horizontal Impermeable Barrier	10,650	sf	$ 8.50	$ 90,525	
Installation of Compliance Monitoring Wells	3	each	$ 2,000	$ 6,000	
Subtotal				$ 930,200	
Groundwater Treatment					
Drilling Contractor - 22 Remediation Wells	22	each	$ 2,500	$ 55,000	
Utility Clearing - Vactor Truck	1	each	$ 4,000	$ 4,000	
Air Sparge and Soil Vapor Extraction System and Equipment	1	lump sum	$ 150,000	$ 150,000	
Rental of Parking Spaces for Equipment Enclosure	6	year	$ 4,800	$ 28,800	
Site Restoration					
Patch asphalt and concrete surfaces	1	lump sum	$ 25,000	$ 25,000	
Subtotal				*$ 262,800*	
Labor and Other Direct Costs					
Professional Labor	1	lump sum	$ 84,450	$ 84,450	
Other Direct Costs (reprographics, courier services)	1	lump sum	$ 750	$ 750	
Equipment (H&S equipment, soil sampling kits)	1	lump sum	$ 15,300	$ 15,300	
Analytical Costs	1	lump sum	$ 19,238	$ 19,238	
Subtotal				*$ 119,738*	
CLEANUP ACTION SUBTOTAL					$ 1,333,200
Mobilization, Contingencies, and Demobilization					
Mobilization (3% of construction subtotal)				$ 3,592	
Bid (10% of construction subtotal)				$ 11,974	
Scope (15% of construction subtotal)				$ 17,961	
Cleanup and Demobilization (3% of construction subtotal)				$ 3,592	
Subtotal				*$ 37,119*	
CLEANUP ACTION TOTAL					$ 1,370,300
Indirect Capital Costs					
Engineering Design and Permitting (15% of construction total)				$ 205,545	
Engineering Construction Services (8% of construction total)				$ 109,624	
Subtotal				*$ 315,169*	
TOTAL CAPITAL COST					**$ 1,685,500**

COMPLIANCE MONTORING	ANNUAL COST(1)	Present Worth Cost of Annual Monitoring Real Discount Rate = 0.9%	
		n = 6 years	
Quarterly Groundwater Monitoring and Reporting (6 years)	$ 45,000	$ 261,695	
Monthly Operation and Maintenance and Reporting (5 years)	$ 65,000	$ 316,406	
Well Decommissioning (30 wells)		$ 35,000	
TOTAL PRESENT WORTH MONITORING COST			**$ 613,100**
TOTAL PRESENT WORTH COST OF CLEANUP ACTION ALTERNATIVE 3			**$ 2,299,000**

NOTES:
Permits associated with excavation, shoring, and dewatering are a development-related cost.
(1)Annual cost is 2013 year cost.
CDF = control density fill
cy = cubic yard
H&S = health and safety
n = number of years of operation and maintenance
QTY = quantity
sf = square feet
UST = underground storage tank

Table 10
Cleanup Action Alternatives Screening Summary
SKS Shell Property
3901 Southwest Alaska Street
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. Excavation with ROW Dewatering and Chemical Oxidation	Excavation of on-Property soil and monitored natural attenuation for soil and groundwater beneath the ROW.	9	8	7	6	6	6	**7.0**
2. Excavation with Biosparging of Groundwater	Excavation of on-Property soil and biosparging to promote aerobic degradation of COCs in soil and groundwater beneath the ROW.	8	7	7	6	5	4	**6.3**
3. Excavation with Air Sparge and Soil Vapor Extraction	Excavation of on-Property soil and use of air sparging to volatilize COCs in groundwater and promote biodegradation and soil vapor extraction to recover contaminated vapor.	9	8	7	6	4	4	**6.4**

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. Consideration of Public Concerns are not included in the ranking score.

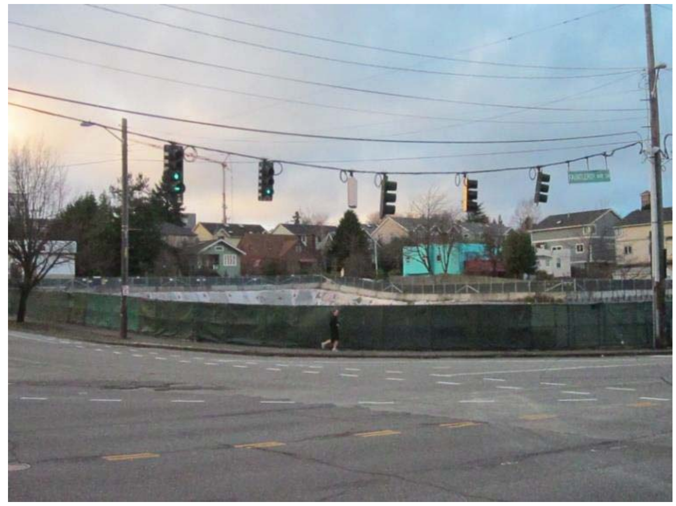
COC = chemical of concern

ROW = right-of-way

PHOTOGRAPHS

Property Photographs

Photograph 1. SKS Shell gasoline service station.



Photograph 2. North-adjoining vacant lot (a 30 to 35 foot-deep excavation).

Photograph 3. Kennedy Funeral Home.

Photograph 4. East-adjoining Les Schwab parking lot.

Photograph 5. Northwest-adjoining Jiffy Lube.

Photograph 6. Northeast-adjoining service station (the BP Arco site, recently rebranded as a Shell).

SoundEarth Strategies	SES Project No.: 0914-004 Date: December 18, 2012 Drawn By: TJZ Chk By: SKB/CER File ID: 0914_Photographs	**PROJECT PHOTOGRAPHS** SKS Shell Property 3901 Southwest Alaska Street Seattle, Washington

Aerial Photographs

0 30 60 120

APPROXIMATE SCALE IN FEET

IMAGE SOURCE: UNIVERSITY OF WASHINGTON LIBRARIES

SoundEarth Strategies
WWW.SOUNDEARTHINC.COM

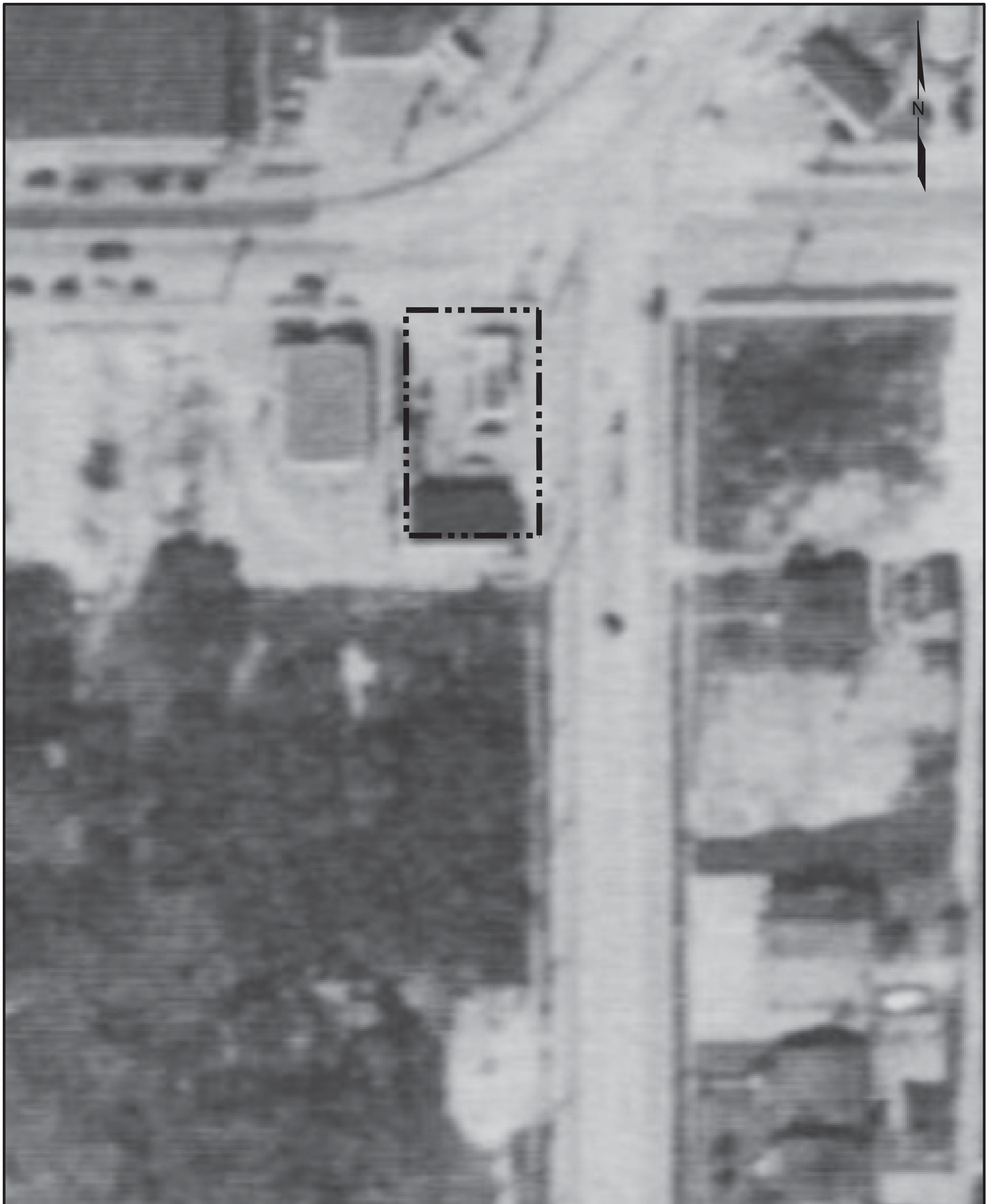
DATE: 04/18/14
DRAWN BY: JQC
CHECKED BY: CER
CAD FILE: 0914-004_1936

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SW ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

1936
AERIAL PHOTOGRAPH

P:\0914 LENNAR SHELL\0914-004 RIFS\CAP\TECHNICAL\CAD\AERIAL PHOTOGRAPHS\0914-004 1936 SKS-SHELL.DWG 6/24/2014

WWW.SOUNDEARTHINC.COM



0 30 60 120

APPROXIMATE SCALE IN FEET

IMAGE SOURCE: UNIVERSITY OF WASHINGTON LIBRARIES

SoundEarth Strategies
WWW.SOUNDEARTHINC.COM

DATE: 04/18/14
DRAWN BY: JQC
CHECKED BY: CER
CAD FILE: 0914-004_1946

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SW ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

1946
AERIAL PHOTOGRAPH

P:\0914 LENNAR SHELL\0914-004 RIFSCAP\TECHNICAL\CAD\AERIAL PHOTOGRAPHS\0914-004 1946 SKS-SHELL.DWG 6/24/2014

WWW.SOUNDEARTHINC.COM

0 30 60 120

APPROXIMATE SCALE IN FEET

IMAGE SOURCE: UNIVERSITY OF WASHINGTON LIBRARIES

SoundEarth Strategies
WWW.SOUNDEARTHINC.COM

DATE: 04/18/14
DRAWN BY: JQC
CHECKED BY: CER
CAD FILE: 0914-004_1965

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SW ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

1965
AERIAL PHOTOGRAPH

IMAGE SOURCE: UNIVERSITY OF WASHINGTON LIBRARIES

SoundEarth Strategies
WWW.SOUNDEARTHINC.COM

DATE: 04/18/14
DRAWN BY: JQC
CHECKED BY: CER
CAD FILE: 0914-004_1970

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SW ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

1970
AERIAL PHOTOGRAPH

P:\0914 LENNAR SHELL\0914-004 RIFSCAP\TECHNICAL\CAD\AERIAL PHOTOGRAPHS\0914-004 1970 SKS-SHELL.DWG 6/24/2014

WWW.SOUNDEARTHINC.COM

0 30 60 120

APPROXIMATE SCALE IN FEET

IMAGE SOURCE: UNIVERSITY OF WASHINGTON LIBRARIES

SoundEarth Strategies
WWW.SOUNDEARTHINC.COM

DATE: 04/18/14
DRAWN BY: JQC
CHECKED BY: CER
CAD FILE: 0914-004_1985

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SW ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

1985
AERIAL PHOTOGRAPH

P:\0914 LENNAR SHELL\0914-004 RIFSCAP\TECHNICAL\CAD\AERIAL PHOTOGRAPHS\0914-004 1985 SKS-SHELL.DWG 6/24/2014

6/24/2014

0 30 60 120

APPROXIMATE SCALE IN FEET

IMAGE SOURCE: UNIVERSITY OF WASHINGTON LIBRARIES

SoundEarth Strategies
WWW.SOUNDEARTHINC.COM

DATE: 04/18/14
DRAWN BY: JQC
CHECKED BY: CER
CAD FILE: 0914-004_1995

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SW ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

1995
AERIAL PHOTOGRAPH

P:\0914 LENNAR SHELL\0914-004 RIFSCAP\TECHNICAL\CAD\AERIAL PHOTOGRAPHS\0914-004 1995 SKS-SHELL.DWG

WWW.SOUNDEARTHINC.COM

0 30 60 120

APPROXIMATE SCALE IN FEET

IMAGE SOURCE: UNIVERSITY OF WASHINGTON LIBRARIES

SoundEarth Strategies
WWW.SOUNDEARTHINC.COM

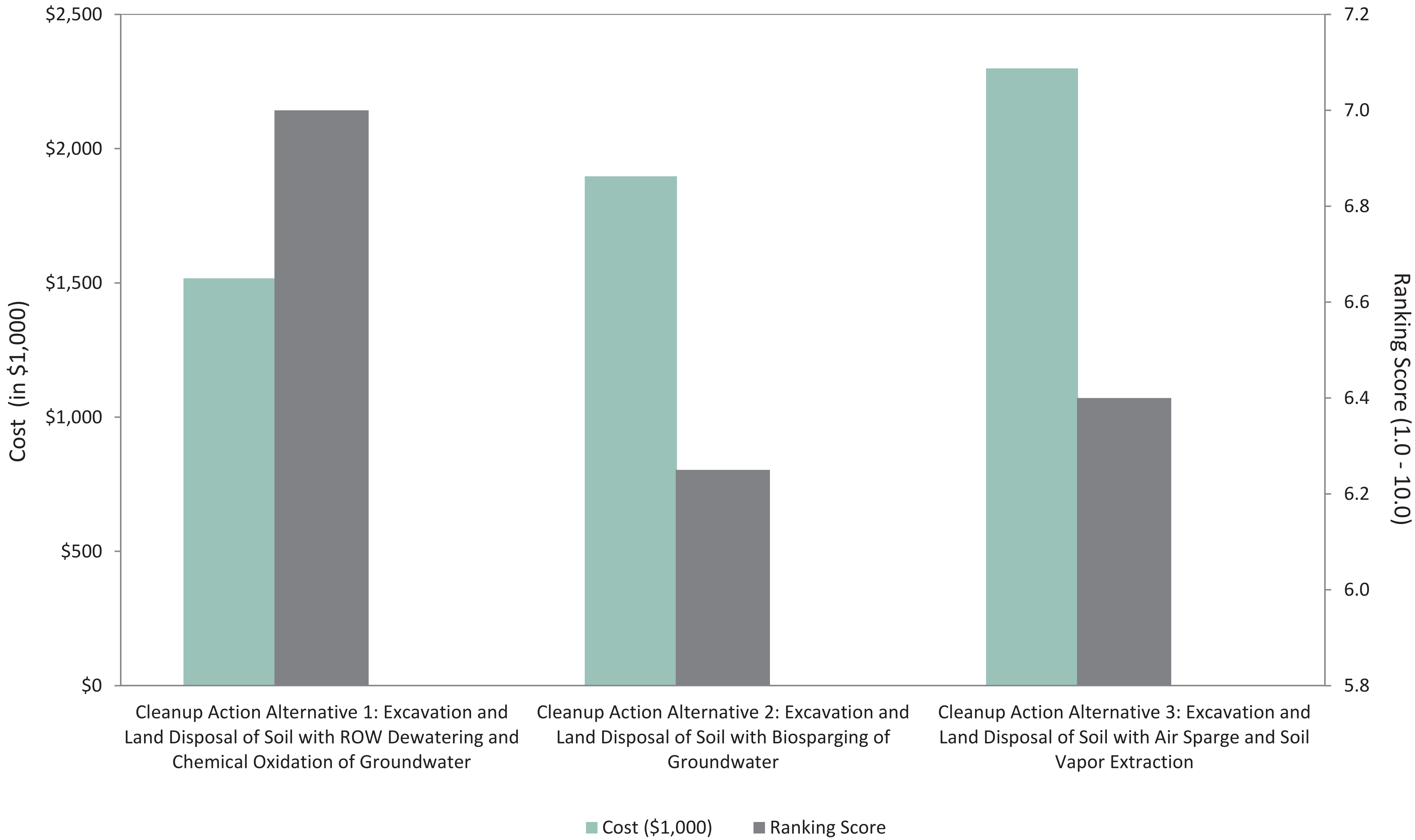
DATE: 04/18/14
DRAWN BY: JQC
CHECKED BY: CER
CAD FILE: 0914-004_2005

PROJECT NAME: SKS SHELL PROPERTY
PROJECT NUMBER: 0914-004
STREET ADDRESS: 3901 SW ALASKA STREET
CITY, STATE: SEATTLE, WASHINGTON

2005
AERIAL PHOTOGRAPH

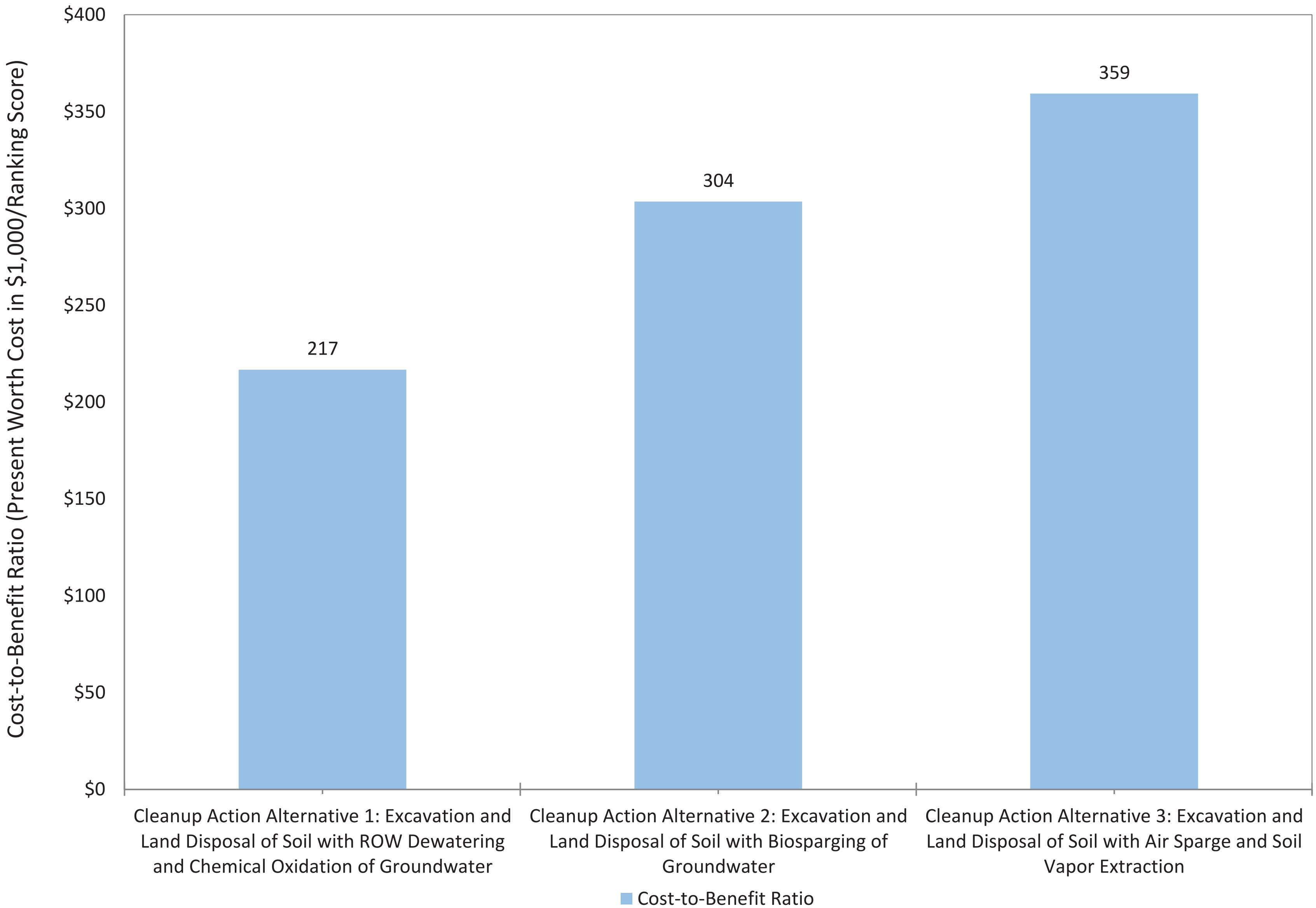
CHARTS

Chart 1
Cost and Relative Ranking of Cleanup Action Alternatives
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington



SoundEarth Strategies

Chart 2
Cost-to-Benefit Ratio for Cleanup Action Alternatives
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington



APPENDIX A
HISTORICAL REFERENCES

King County Assessor Records

FOLIO 3019 | ADDITION Norris to West Seattle | Lots 1 & 2 less por for st | 301

Section 23 Twp. 24 Range 4 Ewm Block 3 Tract or Lot 1

1 & 2

PERMIT No. 373965

DATE 6-20-46

Fee Owner

Condition of Exterior Fair Interior Fair Foundation Fair

USE OFFICE

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

ROOF CONSTRUCTION

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

ROOFING MATERIAL

Tar and Gravel
Or. X T.P.

FLOOR FINISHES

X Fir — Maple
Oak — 2" x 6" T&G
Lino. — 3" x 6" T&G
Cement
Terrazzo
Raecolith
Tile
Or.

Tile / Lino.

Tile Total: Baths, Fl., Walls; Sq. Ft. Floors; Sq. Ft. Walls; Lin. Ft. Dr. Bds.
Lino. Total: Sq. Ft. Floors; Sq. Ft. Walls; Lin. Ft. Dr. Bds.
Kit's. Fl. Walls

PLUMBING

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

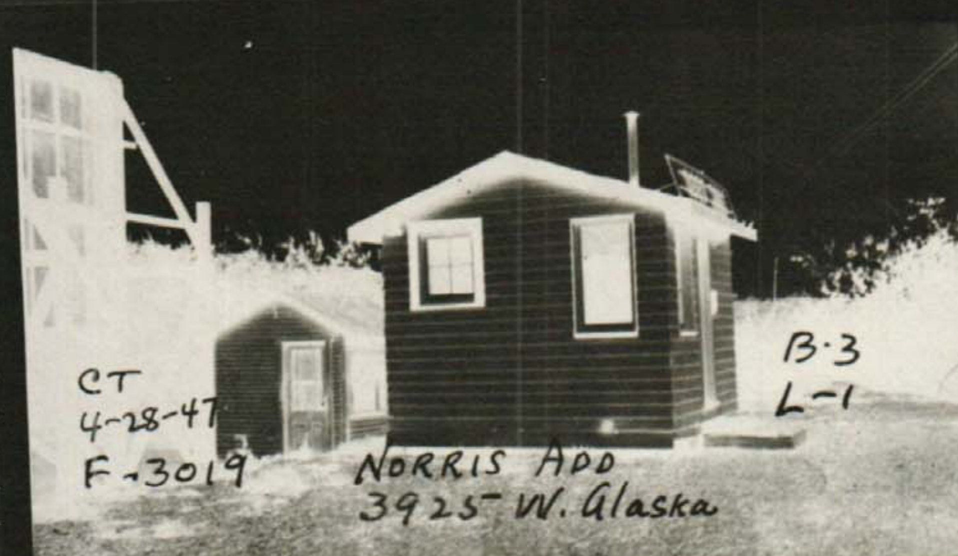
TYPE OF CONSTRUCTION

Frame
X Single Double
Ordinary Masonry
Mill Construction
Class A Rein. Con.
Stru. Steel and Con.
Tile Brick
Con. Rein. Con.
Good Med Cheap

Date Built 1946 [X] Finished Unfinished Remodeled

Effective Age Years Future Life 20 Years

Dep. for Cond. Dep. for Ob. Dep. for Es. Total 15



6000 sq. ft. blacktop added in 1952.

Other Buildings $
Total $
Assessed Value 50% $
Sup. Building A. V. $
Total $

HEATING

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

WIRING

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

ELEVATORS

Pass. Freight
Auto. Elec.
Man. Hyd.
Man.

FOUNDATION

Mud Sills
X Post and Pier
Brick
Concrete
Pile

BASEMENT

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

EXTERIOR WALL CONSTR.

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

INTERIOR WALLS

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

GAS STATIONS

Frame
Metal
Masonry
Plastered or Ceiled
Floors

SERVICE BUILDING

Frame
Metal
Masonry
Plastered or Ceiled
Floors

TANKS, ETC., LIST

Hoists: Elect. Hyd.

DOCKS AND PIERS

Treated Piles and Timbers
Untreated
Treated Piles only
Average Length
Paved

C. H.

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

GROUND FLOOR AREA 100 — 350

TOTAL FLOOR AREA ~~50~~

~~700~~

10
10

EXTERIOR FACING

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

INTERIOR TRIM

X Fir
Mah. Oak
Metal
Doors
Windows
Stained
Varnished
X Painted
Unfinished

FLOOR CONSTRUCTION

Joist Con. Size 2 x 4
O. C. In Bridg.
Mill Construction
Rein. Con.

Other Buildings	Construction	Floor	Roof	Stories	Dimensions	S.F. Area	Factor	Value	% Dep.	Deprec.	Net Value
Garage					x			$		$	$
					x			$		$	$
					x			$		$	$
					x			$		$	$

2M 4-46 53

1 DISTRICT W S

CODE NO. 2

PERMIT NO.

2 ADDITION NORRIS/TO W.S. ADD. NAME

SECTION TWP. N. RANGE EWM: BLOCK 3 TRACT OR LOT NO. 1

DESCRIPTION less por for st.

3 ADDRESS—PROPERTY 3921 W. Alaska CONT. PURCHASER

4 FEE OWNER J. M. COLMAN. CO-(4-29-29)

CONTRACTOR

5 ARCHITECT

ORIG. COST

$

6 BUILDING

office & platform

1 story

1 store

1 room

BASEMENT no

FOUNDATION P&B

ROOF composition

STORE FRONTS no

EXTERIOR frame cedar

Void

EXTRA FEATURES

CONSTRUCTION single; cheap

MISCELLANEOUS

7 CONDITION: EXTERIOR good INTERIOR good FOUND. fair

8 MAIN SUPPORT COLUMN x FOOTING SPAN FT.

9 FIRST FLOOR JOIST INCH CENTERS BRIDGED

10 BUILDING finished

11 GROSS INCOME $ EXPENSE $ NET INCOME $

12 DEPRECIATION: COND. % OBSLSE. % ECON. SUIT. % TOTAL %

YEAR BUILT 1936 REMODELED no

EFFECTIVE AGE YEARS FUTURE LIFE YEARS

DIMENSIONS see below x SQUARE FT. AREA CUBIC FT.

see below

INTERIOR

ceiled; veneer kind

FLOORS 1 fir

FIRE PLACE no

PLUMBING no

TILE WORK no

WIRING

HEATING no

ELEVATORS no

CEILING—HEIGHT 1st floor 7'

IMPROVEMENT VALUE

BUILDING $

LESS DEPRECIATION $

DEPRECIATED VALUE $

OTHER BUILDINGS $ 500

ASSESSED VALUE 50% $ 250

DATE 10/1/37

LAND INFORMATION

1. SIZE x level; on grade

2. STREET—ROAD graded; paved ; no alley

3. SIDEWALK concrete; sewer

4. LANDSCAPING natural

5. TREND static VALUE $

6. USE business

7. DISTRICT poor old

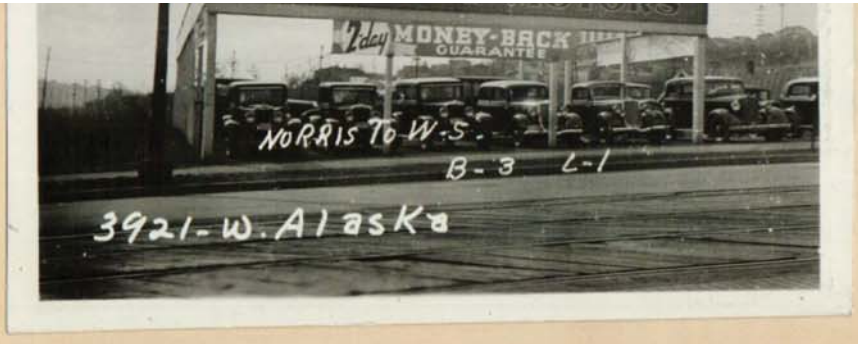
Tile Work no

Wiring

Heating no

Elevators no

Ceiling—Height 1st floor 7'



1. Size x level; on grade
2. Street—Road graded; paved ; no alley
3. Sidewalk concrete; sewer
4. Landscaping natural
5. Trend static Value $
6. Use business
7. District poor old

O C	Other Buildings	Construction	Floor	Roof	Sty.	Dimension	Area	Value

O C	Owner or Contract Purchaser	Date	File No.	Price	Mtge.	Stamp
	Wilcox Motors Inc	11-8-45	3516981	8500		9.35

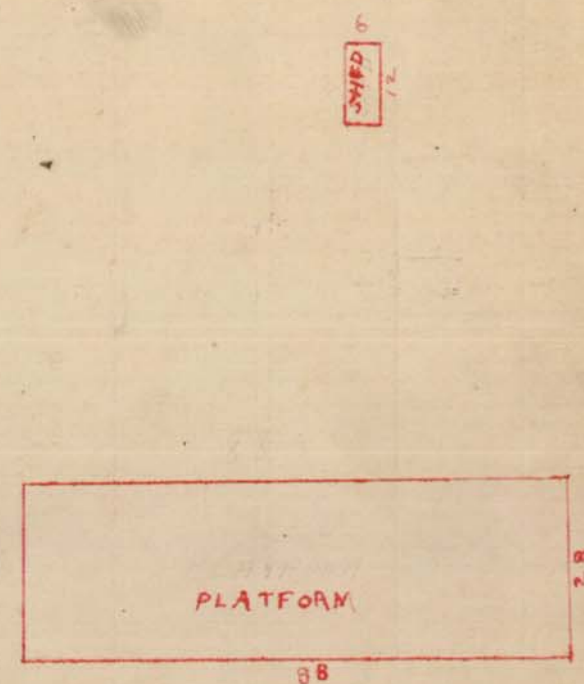
Remarks DIMENSIONS: Shed 6x12 = 72; platform 24 x 88 = 2112; fence 10 x 136 = 1360

Also 3/3 NORRIS Add to W.S.

No Bldg Card.

See Lot 3 for appt AV.

Floor Plan 30' = 1"



YEAR BLT/__ 46 CLASS/__ FRAME
EFF YEAR/__ 46 QUAL/__ LOW COST
LOT COVERAGE/______ 100
NUMBER OF UNITS/___ 0

NET AREA (ALL BLDGS)/______ 100
MULTI-USE/Y_N_ NO
MULTI-PARCEL PROP/Y_N_ YES

(500)++++++++++++++++++++++ INDIVIDUAL BUILDING DETAILS ++++++++++++++++++++++++++++++++

BLD NUM	CL AS	QU AL	DESCRIPTION	NU ST	GROSS AREA	NET AREA	YB/EY	% CMP	HE AT	SP KL
#1	D	C	USED CAR OFC	1	100	100	46 46	100	NO	N
#2	--	-	----------	--	------	------	--/--	--	--	N
#3	--	-	----------	--	------	------	--/--	--	--	N
#4	--	-	----------	--	------	------	--/--	--	--	N

(520)+++++++++++++++++++++++++ INTERIOR SECTION DETAILS ++++++++++++++++++++++++++++++

BLD#	SECT 1 AREA	SECT 1 STR-HT	SECT 2 AREA	SECT 2 STR-HT	SECT 3 AREA	SECT 3 STR-HT	SECT 4 AREA	SECT 4 STR-HT
1	100	8						
E14-OFFICE,SMALL								
	------	-- -/--	------	-- -/--	------	-- -/--	------	-- -/--
2								
	------	-- -/--	------	-- -/--	------	-- -/--	------	-- -/--
3								
	------	-- -/--	------	-- -/--	------	-- -/--	------	-- -/--
4								
	------	-- -/--	------	-- -/--	------	-- -/--	------	-- -/--

(589)+++++++++++++++++++++ACCESSORY IMPROVEMENT SUMMARY +++++++++++++++++++++++++++++

ACT	ENT	DESCRIPTION	ACT	ENT	DESCRIPTION
/__/	(1)	ASPHALT 5000 SQ FT	/__/	(2)	

10

10

33-55 – ACCESSO

SECTION NO.											DE ETER	WALL LENGTH	BIN OUTSIDE DIAMETER	PSI	TOWER HEIGHT	DEPRECIATED VALUE	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
37																	52	19	20
																		19	
																		19	
																		19	
																		19	
																		19	
																		19	
																		19	
																		19	

56 – REMARKS

57 – INCOME DATA

ANNUAL ECONOMIC OR ACTUAL GROSS INCOME	$	4200
LESS VACANCY 390		
ANNUAL EFFECTIVE GROSS INCOME	$	3990
LESS EXPENSES 590		
ANNUAL NET INCOME	$	3790
LAND VALUE (UNIT ___ X UNIT VALUE ___ ÷ ___)		
LAND RATE (INTEREST ___ % + TAXES ___ % = ___ %)		
LESS LAND INCOME (VALUE 33900 X RATE 9.3 %)		3152
NET INCOME TO BUILDING	$	638
÷ BUILDING RATE (INTEREST 7 % + TAXES 2.3 % + RECAPTURE 4 %)		133
BUILDING VALUE	$	4800

PERSONAL PROPERTY VALUE

58 – PERMIT DATA

NUMBER	DATE	VALUE	DATE STARTED	DATE COMPLETED

59 – SALES RECORD

MONTH	YEAR	AMOUNT

60 – STAFF

DATE	ENUMERATOR	CLASSIFIER	CALCULATOR	REVIEWER

Addition: NORRIS TO W. SEATTLE — 4517-3010

Section 23 Twp. 24 Range 3 Ewm. Block 3 Tract or Lot 5 & 6

Less St & Por Vac alley adj

PERMIT No. 345498

DATE 6/26-41

Fee Owner ______ Address of Property 3909-W ALASKA Architect ______

Condition of Exterior G Interior G Foundation G Floor Plan: Good G Accept. ______ Poor ______

USE MORTUARY

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

ROOF CONSTRUCTION

- ✓ Frame Lam ☐
- Mill Construction
- Rein. Concrete
- No. Trusses
- Wood ☐ Steel

ROOFING MATERIAL

- ✓ ~~Tar and Gravel~~ Comp.
- Or. Gal. COPING

FLOOR FINISHES

- X Fir ☐ Maple
- Oak ☐ 2" x 6" T&G
- X Lino. ☐ 3" x 6" T&G
- Cement — 600 ⁰
- Terrazzo
- Rastolith
- ✓ Tile 1000⁰ asph. tile
- Or.

Tile ☐ Lino.

- Baths ☐ Fl. ☐ Walls
- Sq. Ft. Floors
- Sq. Ft. Walls
- Lin. Ft. Dr. Bds.
- Sq. Ft. Floors
- Sq. Ft. Walls
- Lin. Ft. Dr. Bds.
- Kit's. ☐ Fl. ☐ Walls

PLUMBING

- 9 No. Fixtures
- 3 Toilets
- Tubs, Leg or Pem.
- 4 Basins, Ped.
- 1 Sinks
- Urinals
- Showers (Tub) (Stall)
- Laundry Trays
- 1 H. W. Tank Fl. Drains ☐
- Sprink. Sys. No. ______ Hds.

TYPE OF CONSTRUCTION

- X Frame
- Single ☒ Double
- Ordinary Masonry
- Mill Construction
- Class A Rein. Con.
- Stru. Steel and Con.
- Tile ☐ Brick
- Con. ☐ Rein. Con.
- Good X Med. ______ Cheap ______

Date Built 1941 ☒ Finished ☐ Unfinished ☐ Remodeled

Effective Age ______ Years ______ Future Life ______ Years

Dep. For Cond. ______ Dep. For Ob. ______ Dep. For Es. ______ Total ______

REPRODUCTION COST

Other Buildings ______ $

Total ______ $

Assessed Value 50% ______ $

Sup. Building A. V. ______ $

Total ______ $

HEATING

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

900
LLC
509

FOUNDATION

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

BASEMENT

- Full ☐ %
- Sub-Basement
- Size ______ x
- Garage ☐ No. Cars
- Floors
- Plastered
- Living Rooms
- Service Rooms

WIRING

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

ELEVATORS

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

~~2500~~ 3000

EXTERIOR WALL CONSTR.

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

INTERIOR WALLS

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

GAS STATIONS

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

SERVICE BUILDING

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

TANKS, ETC., LIST

Hoists: Elect. ______ Hyd.

DOCKS AND PIERS

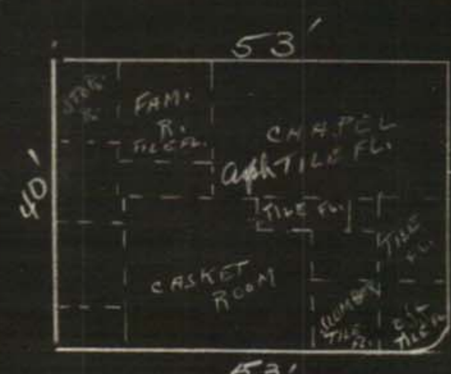
- Treated Piles and Timbers
- Untreated
- Treated Piles only
- Average Length
- Paved

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

GROUND FLOOR AREA 2120

TOTAL FLOOR AREA

~~6000~~



EXTERIOR FACING

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

INTERIOR TRIM

- X Fir
- Mah. ☐ Oak
- Metal
- — Wood Doors
- — Wood Windows
- Stained
- Varnished
- X Painted
- Unfinished

FLOOR CONSTRUCTION

- Joist Con. Size 2 x 10
- O. C. 16" In Bridg. ☐
- Mill Construction
- Rein. Con.

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

107

1. DISTRICT 23-C	2. ADDITION NORRIS ADD TO W. S. BLOCK 3 TRACT OR LOT NO. 5
LIMITS W S	SECTION ___ TWP. ___ N. RANGE ___ EWM ___
CODE NO. 2	DESCRIPTION less por for st

CONTRACT PURCHASER

3. ADDRESS OF PROPERTY

4. FEE OWNER W. G NORRIS (See 1-4-27)

LAND INFORMATION

1. SIZE OF TRACT OR LOT ___ x ___ TOPOGRAPHY level GRADE below 10 FT. 2. STREET-ROAD graded SURFACE paved

ALLEY no 3. SIDEWALK concrete SEWAGE sewer WATER city PUMP ___ DRAINAGE ___

4. LANDSCAPING natural CONDITION ___ 5. TREND static VALUE OF LOT $ ___ FRONT STREET

FACTOR $ ___ SIDE STREET FACTOR $ ___ DEPTH FACTOR $ ___ CREDIT ___

6. USE business 7. DISTRICT poor old

LAND USE	SOIL TYPE	CROPS-TIMBER STAND	NO. ACRES	VALUE ACRE	VALUE
				$	$
					$
					$
					$
		TOTAL			$

C LAND SIZE ___ x ___

C OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE	STAMP
J W Daniels et al	3-18-41				

DISTRICT: ROAD	SCHOOL	WATER	FIRE

ASSESSED VALUE LAND

LOT $

UNIMPROVED ACRES $

IMPROVED ACRES $

OTHER LANDS $

TIMBER $

TOTAL ASSESSED VALUE 50% $

DATE

REMARKS

ASSESSED VALUE YEAR	AC.	LAND	DATE	BY	REASON	LAND DECREASE	LAND INCREASE
1938		900					
19							
19							
19							
19							
19							
19							
19							
19							
19							
19							

VACANT — KING COUNTY ASSESSOR — SEATTLE, WASHINGTON

FRAYN PRINTING CO. SEATTLE

MERGED TO 0485

C/I PROPERTY VALUE SUMMARY RECORD

ACCOUNT NO. : 612660-0475-0

LOG/DATE : 310 01/23/87
STATUS :CURRENT 01/23/87
BLDG.CNT : 00
COMP.TYPE : 0
CNDO/TWN H:

FOLIO NO. : 03019- -
SEC-TWN-RNG : NE-23-24-03
AREA : 310
LEVY CODE : 0010
TAX STATUS : TAXABLE

* ACTION CODE
__1. COST COMP WITHOUT COMP SHEET
__2. COST COMP WITH COMP SHEET
X3. FINAL VALUE/DATA UPDATE
__4. REVIEW WITHOUT VALUE CHANGE
__5. REVIEW WITH VALUE CHANGE
__6. NO VALUE CHANGE,MOVE TO STATIC

* 150 * REVIEW STATUS

MAINTENANCE REVALUE,POST TO __ R

* 130 * VALUE SUMMARY

CONTROL VAL 000078500 SEQ 01 __

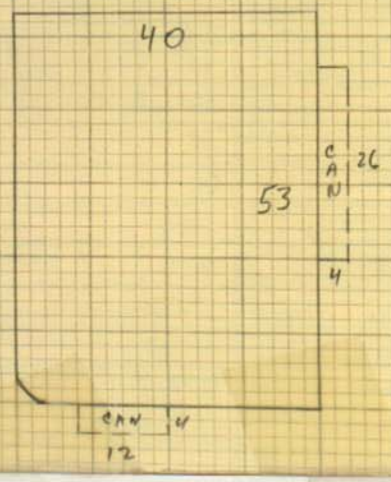
	LAND	IMP	RLYR / TOTAL	DATE	CO#: TYPE	C-I REVAL APR	RVR
ROLL	78000	500	87	06/20/86			
LAST	78000	500	78500	06/16/86	S	999	000
APR	106600	0	106600	04/30/87	S	ONE	-----
RVR	------------	------------	-----------	--/--/--	--	-----	-----

NEW CONSTRUCTION _

* 335 * BUILDING PERMIT ACTIVITY

BLDG:	TYPE	PERMIT DATE	VALUE	% COMPLETE	CALL-BACK
ADD___	___	___/___/___	___________	______ %	___/___

* 504 * ACCESSORY IMPROVEMENT VALUE SUMMARY



33-55 – ACCE…

SECTION NO.											OUTSIDE DIAMETER	WALL LENGTH	BIN OUTSIDE DIAMETER	PSI	TOWER HEIGHT	DEPRECIATED VALUE	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
																		19	%
																		19	%
																		19	%
																		19	%
																		19	%
																		19	%
																		19	%
																		19	%
																		19	%

56 – REMARKS

4-75 owner occ.
BST Rent 254 ft

57 – INCOME DATA E

ANNUAL ECONOMIC OR ACTUAL GROSS INCOME	$ 6360
LESS VACANCY none	
ANNUAL EFFECTIVE GROSS INCOME	$ 6360
LESS EXPENSES 1520	
ANNUAL NET INCOME	$ 5406
LAND VALUE (UNIT ___ X UNIT VALUE ___ - ___)	
LAND RATE (INTEREST ___ % + TAXES ___ % = ___ %)	
3260 9% LESS LAND INCOME (VALUE ___ X RATE ___ %)	3057
NET INCOME TO BUILDING	$ 2349
÷ BUILDING RATE (INTEREST 7 % + TAXES 2.1 % + RECAPTURE 3 %)	

58 – PERMIT DATA

NUMBER	DATE	VALUE	DATE STARTED	DATE COMPLETED

59 – SALES RECORD

MONTH	YEAR	AMOUNT

60 – STAFF

DATE	ENUMERATOR	CLASSIFIER	CALCULATOR	REVIEWER

FOLIO 3019
PERMIT NO.
DATE

ADDITION Norris To W.S.
Section NE 23 Twp. 24 Range 3 Ewm. Block 3 Lot or Tract 7+8 Less por for St
Tax Lot
Address 3901 - W. ALASKA ST

Fee Owner ____ Architect ____ Contractor ____
Condition of Exterior C Interior C Foundation C Floor Plan: Good ____ Accept ✓ Good ____

USE SERVICE STATION

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

TYPE OF CONSTRUCTION

	Frame
	Single ☐ Double
	Ordinary Masonry
	Mill Construction
	Class A Rein. Con.
✓	Stru. Steel and ~~Con.~~
	Tile ☐ Brick
	Con. ☐ Rein. Con.

Good ✓ Med. ____ Cheap ____

ROOF CONSTRUCTION

✓	Frame Lam. ☐
	Mill Construction
	Rein. Concrete
	No. Trusses
	Wood ☒ Steel

ROOFING MATERIAL

	Tar and Gravel
Or	

FLOOR FINISHES

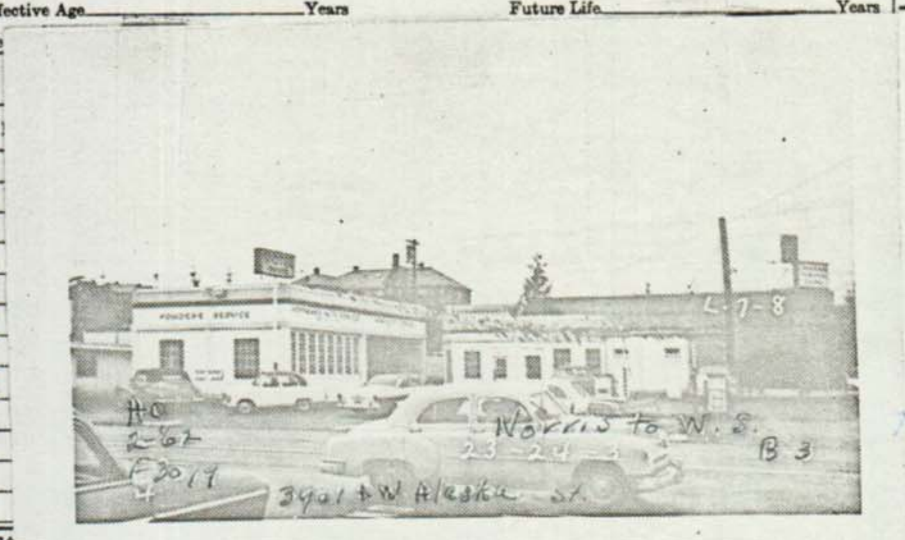
	Fir ☐ Maple
	Oak ☐ 2"x6" T&G
	Lino. ☐ 3"x6" T&G
✓	Cement
	Terrazzo
	Rascolith
	Tile
Or	

Tile ☐ Lino.
Baths ☐ Fl. ☐ Walls
Tile Total: Sq. Ft. ____ Floors; Sq. Ft. ____ Walls; Lin. Ft. ____ Dr. Bds.
Lino. Total: Sq. Ft. ____ Floors; Sq. Ft. ____ Walls; Lin. Ft. ____ Dr. Bds.
Kit's ☐ Fl. ☐ Walls

PLUMBING

4	No. Fixtures
2	Toilets
	Tub, Leg or Pem.
2	Basins, Ped.
	Sinks
	Urinals
	Showers (Tub) (Stall)
2	YARD DRAINS ~~Laundry Trays~~
	H. W. Tank Fl. Drains ☐
	Sprink. Sys. No. ____ Hds.

Date Built 1955 ☑ Finished ☐ Unfinished ☐ Remodeled
Effective Age ____ Years Future Life ____ Years



HEATING

	Stove
	Pipeless Furnace
	Gravity H. A.
	Air Cond., Fan
✓	Suspended Gas, ~~Hot Water~~
	Steam Heat
	Hot Water
	Oil Burner

Year	Assessed Value
1963	3100 AD'62
69	2550 #C29
71	5100
1971	

FOUNDATION

	Mud Sills
	Post and Pier
	Brick
✓	Concrete
	Pile

BASEMENT

	Full ☐ %
	Sub-Basement
	Size
	Garage ☐ No. Cars
	Floors
	Plastered
	Living Rooms
	Service Rooms

TA	
2	4000 GAL
1	A.I.W.W.

Hoists: Elec. 2 Hyd.

Pass. ☐ Freight; Auto. ☐ Elec.; Man. ☐ Hyd.; ☐ Man.

Treated Piles, Timb; Untreated; Treated Piles only; Average Length; Paved

	Knob & Tube
	Flex. Cable
✓	Conduit
	Power Wiring
	Range Wiring
	No. Outlets

EXTERIOR WALL CONST.

	Single ☐ Double
	2" x 4" Stud Walls
	2" x 6" Stud Walls
✓	METAL ~~Brick Walls~~
	Brick with Pilasters
	Concrete Walls
	Con. with Pilasters
	Tile Walls
	Rein. Con. Skel.
	____ Filler Walls
	Laminated Walls

EXTERIOR FACING

	Siding ☐ Shingles
	Shakes ☐ Stucco
	Brick Veneer
✓	METAL Kind
	Stone ☐ Cast S.
	Terra Cotta
	Struc. Glass
	____ Trim

FLOOR CONSTRUCTION

Joist Con. Size ____ x ____
O.C. ____ In Bridg. ☐

	Mill Construction
✓	Rein. Con.

INTERIOR WALLS

	Stud and Plaster
	Lam. ☐ Plastered
	Plywood
	Ceiled
	Plaster Board
✓	Painted
	Stain ☐ Varnish
	Kalsomine
	Whitewashed
	Unfinished

INTERIOR TRIM

	Fir
	Mah. ☐ Oak
	Metal
	____ Doors
	METAL Windows
	Stained
	Varnished
	Painted
	Unfinished

C. H.

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

GROUND FLOOR AREA 1152

TOTAL FLOOR AREA 1468

1935 Const

CAR REPAIR | CAR REPAIR
24
48

1935 Const (Remod 1962)
1962 Const.
29 12
8 OFFICE W/B W/B 7 ← OBs
15 41 14

Other Buildings	Construction	Floor	Roof	Stories	Dimensions	S. F. Area	Factor	Value	% Dep.	Deprec.	Net Value
OFF BLDG ~~Garage~~	METAL	CONC	METAL	1	8 x 29	252	5.83	$1218	40%	$487	$731
LAV-ADD	C.B.	CONC	BU	1	7 x 12	84	3.00	$252	+ 400 plbg		$652
					x			$		$	$1383
					x			$		$	$

5M 1-59

1 DISTRICT
W S
CODE NO. 2
PERMIT NO. 313302
312778
ORIG. COST $

2 ADDITION ~~ADD~~ NORRIS TO W. S. NAME
SECTION TWP. N. RANGE EWM: BLOCK 3 TRACT OR LOT NO. 8 7
DESCRIPTION less por for st

Texaco Co.
3 ADDRESS—PROPERTY 3901 W Alaska CONT. PURCHASER Texas Co. Fil #6800
~~0550~~
4 FEE OWNER J. M. COLMAN (5-3-26)
5 ARCHITECT CONTRACTOR

VOID

6 BUILDING
gas station
1 story
1 store
1 room

BASEMENT no

FOUNDATION concrete

ROOF metal

STORE FRONTS steel sash; metal bulk hd

EXTERIOR metal; metal trim

Shed 470 3/62

EXTRA FEATURES

CONSTRUCTION solid; medium
MISCELLANEOUS
7 CONDITION: EXTERIOR good INTERIOR good FOUND good
8 MAIN SUPPORT COLUMN x FOOTING SPAN FT.
9 FIRST FLOOR JOIST concrete INCH CENTERS BRIDGED
10 BUILDING finished
11 GROSS INCOME $ EXPENSE $ NET INCOME $
12 DEPRECIATION: COND 30-2 % OBSLSE. % ECON. SUIT. % TOTAL %
YEAR BUILT 1935 REMODELED no
EFFECTIVE AGE 4 YEARS FUTURE LIFE 34 YEARS
DIMENSIONS 16 x 33 x SQUARE FT. ~~528~~ 320 AREA CUBIC FT.

INTERIOR
P&B
ceiled; metal; 2 partitions; metal trim
FLOORS concrete
FIRE PLACE no
PLUMBING 4 fixtures; 2 toilet 2 basin; good
TILE WORK no
WIRING ~~conduit; 7 outlets~~
HEATING stove
ELEVATORS no
CEILING—HEIGHT 1st floor 10'

IMPROVEMENT VALUE
BUILDING $
LESS DEPRECIATION $ (MAIN BUILDING)
DEPRECIATED VALUE $ (OTHER BUILDINGS)
OTHER BUILDINGS $ (TOTAL) ~~2420~~
ASSESSED VALUE 50% $ ~~1210~~
DATE ~~10/1/37~~ 1000 1550

LAND INFORMATION
1. SIZE x level; on grade
2. STREET—ROAD graded; paved; no alley
3. SIDEWALK concrete; sewer
4. LANDSCAPING natural
5. TREND static VALUE $
6. USE business
7. DISTRICT poor old

OTHER BUILDINGS CONSTRUCTION

WIRING ~~conduit; 7 outlets~~

HEATING stove

ELEVATORS no

CEILING—HEIGHT 1st floor 10'

2. STREET—ROAD graded; paved; no alley
3. SIDEWALK concrete; sewer
4. LANDSCAPING natural
5. TREND static VALUE $
6. USE business
7. DISTRICT poor old

O C	OTHER BUILDINGS	CONSTRUCTION	FLOOR	ROOF	STY.	DIMENSION	AREA	VALUE

O C	OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE.	STAMP
	Wycoff Co					

REMARKS

Also-1 Tire Battery Shop
Also-1 Repair Shop.
Also $\frac{I}{3}$ Norris Add to W.S.

FLOOR PLAN 10'=1"

61266

~~049~~

ADDITION NORRIS ADD TO WEST SEATTLE

1/4 SECTION 23 TWP. 24 N. RANGE 3 BLOCK 3 LOT 7 & |

~~Less por ft.~~

~~SPLIT VALUATION~~

DESCRIPTION

LIMITS

OWNER OR CONTRACT PURCHASER	DATE	FILE NUMBER	PRICE	REMARKS
				The Texas Co.
				Merge 6/23/59 EH(T) G-423

DISTRICT: ROAD	SCHOOL	WATER	FIRE	SEWER	HOSPITAL	AIRPORT	FERRY				
Seattle-1								METRO			

ASSESSED VALUE

YEAR	ACRES	TIMBER	LAND	BLDGS.	TOTAL	DATE	BY	REASON	SEG. NO.
19				BAL. OF A. V. SEG 0495					
19 58			BAL. OF A. V. SEG 0495	350	350	5-10-57	EH(c)	TANKS	E 284
19									
19									
19									
19									
19									
19									
19									
19									
19									
19									

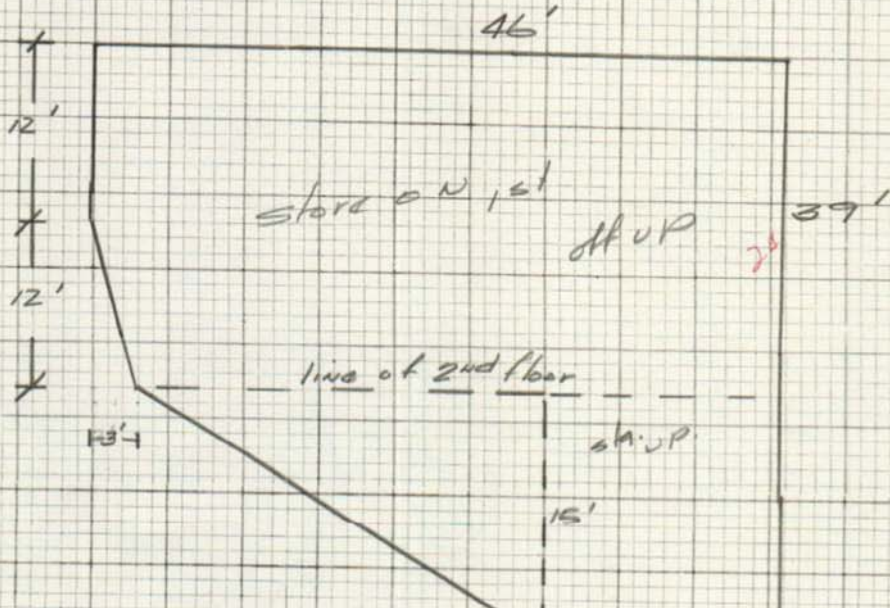
MAJOR 612660 MINOR 0495 SPLIT ______ FOLIO __________ SUBLETTER ________ SUBNUMBER ________

ASSESSOR'S FORM 210 · B

3901- SW ALASKA
Remod
TAPED 8/23/74
wlw

11 04 ofc
255 stg

Area 1419 1st
1014 2nd
stg. 255 2nd
2688



the structure was modified by removing 10' from East side of 1st floor and building out front.

2 canopies added
8 pumps on 2 islands

C/I PROPERTY VALUE SUMMARY RECORD ACCOUNT NO. : 612660-0495-0

LOG/DATE : 310 01/23/87
STATUS :CURRENT 01/23/87
BLDG.CNT : 01
COMP.TYPE : 0
CNDO/TWN H:

FOLIO NO. : 03019- -
SEC-TWN-RNG : NE-23-24-03
AREA : 310
LEVY CODE : 0010
TAX STATUS : TAXABLE

* ACTION CODE
__1. COST COMP WITHOUT COMP SHEET
__2. COST COMP WITH COMP SHEET
X3. FINAL VALUE/DATA UPDATE
__4. REVIEW WITHOUT VALUE CHANGE
__5. REVIEW WITH VALUE CHANGE
__6. NO VALUE CHANGE,MOVE TO STATIC

* 150 * REVIEW STATUS

MAINTENANCE REVALUE,POST TO __ ROLL

* 130 * VALUE SUMMARY CONTROL VAL 000125000 SEQ 01 ___

	LAND	IMP	RLYR / TOTAL	DATE	CO#: / TYPE	C-I REVAL APR	RVR
ROLL	75600	49400	87	06/20/86			
LAST	75600	49400	125000	06/16/86	S	999	000
APR	93400	61500	154900	04/30/87	S	CWE	_____
RVR	___________	___________	___________	__/__/__	__	_____	_____

NEW CONSTRUCTION _

* 335 * BUILDING PERMIT ACTIVITY

BLDG:	TYPE	PERMIT DATE	VALUE	% COMPLETE	CALL-BACK
ADD___	___	___/___/___	___________	______ %	___/___

* SALES ACTIVITY

DATE	AFF.#	SALE PRICE	INST.	REASON	VERIFICATION	CLASS
06/23/75	E 309377	39,000	DEED		02-VERIFIED GOOD	COM. IMP.

CC RCN : CC-RCNLD :

* 504 * BUILDING VALUE SUMMARY
BLDG DESCRIPTION VALUE METHOD
01 SERVICE STATION & STORE $__________ ___
ACT COST : EFF YR: 65 ___ OTH RCN : $___________
SOURCE : COND : 00 ___% MARKET : $___________
ACT TREND : OBSOL : 00 ___% INCOME : $___________
COMPL : 00 ___% OTH RCNLD: $___________
CC RCN : $49168 CC-RCNLD : $39826

* 504 * ACCESSORY IMPROVEMENT VALUE SUMMARY

ENT.	TYPE	ACT.COST SR	RCN	EFYR	COND	RCNLD	VALUE
	70-SERV.STA.ACCSYS						
7001	1-AUTO HOIST		$3140	0	20%	$628	
				---	---%		$________
7002	1-AUTO HOIST		$1570	0	97%	$1523	
				---	---%		$________
7003	4-ISLAND,3 PUMP		$392	0	45%	$176	
				---	---%		$________
7004	6-PUMP PIPING		$1176	0	45%	$529	
				---	---%		$________
7005	7-DSPNSER PIPING		$235	0	45%	$106	
				---	---%		$________
	72-PAVEMENT		$3992	0	20%	$799	$

ASSESSOR'S FORM NO. AP-51 FOLIO NO. 3019 ASSESSOR'S ACCT NO 62660-0495

SERVICE STATION

GRADE	D Avg	USE CODE	14-18	STORY STATISTICS	STORIES	1- 16'
YEAR BUILT	EY 60	CONDITION	Avg		PERIMETER	166
EFFECTIVE AGE	23/30	NO OF UNITS			SQUARE FEET	2832

STORY HGT	ADDITIONS		FLAT ITEMS		BUILDING CALCULATIONS	
BSMT	SF @		PLUMBING		STORIES	1-
1 ST	SF @				BASE	15.94
2 ND	SF @				HGT FAC	.960
3 RD	SF @				AREA FAC	1.083
4 TH	SF @				STY FAC	—
5 TH	SF @				ADJ FAC	1.039
6 TH	SF @				ADJ BASE	16.57
7 TH	SF @				BSMT	
8 TH	SF @				FLOOR	
9 TH	SF @				ROOF	
10 TH	SF @				CEIL	
11 TH	SF @				PART	
					HEAT	
					AIR COND	
					LIGHTS	
					SPRINK	
					TOTAL	
	TOTAL		TOTAL			

STORIES

2832	SF @	16.57	46933
	SF @		
	SF @		
	SF @		
	SF @		

	AREA OR QUANTITY	UNIT COST	REPLACE COST	EFF. AGE	DEPR NET	TOTAL VALUE
MASONRY RESTROOM	316 #	9.00	2844		.10	284
PIPING FOR PUMPS	3	450	1350			135
PIPING FOR TANKS	4	275	1100			110
AUTO HOIST	3	2000	6000			600
8000 GAL UNDG TANK	1	5550	5550			555
4000 GAL UNDG TANK	2	3075	6150			615
280 GAL UNDG TANK	1	525	525			52
ASPHALT	4700 #	.65	3055			305
TOTAL ACCESSORY BUILDINGS & OTHER IMPROVEMENTS						$2116

FLAT ITEMS		
SUB - TOTAL		
ADDITIONS		
TOTAL		46933
COST FACTOR	1.15 / 1.09	1.2535
TOTAL REPLACEMENT COST		$ 58830
PHYSICAL DEPRECIATION (NET)		x .37
TOTAL PHYSICAL VALUE		$ 21767
ECON OR FUNCT OBSOL (NET)	+ AI's	x 2116
FINAL APPRAISED VALUE		$ 23883
PERCENT COMPLETE (NET)		x
PARTIAL VALUE		$

INCOME APPROACH

	ACTUAL	ECONOMIC
ANNUAL POTENTIAL GROSS		
LESS VAC & CREDIT LOSS		
ANNUAL EFFECTIVE GROSS		
LESS EXPENSES		
ANNUAL NET INCOME		

___ + ___ + ___
INT RATE TAX RATE LAND RATE
LESS LAND INCOME
___ x ___ =
LAND VALUE LAND RATE
NET INCOME TO BUILDING
÷ BLDG RATE
___ + ___ + ___ = ___
INT RATE TAX RATE RECAPTURE RATE BUILDING RATE
BUILDING VALUE
PERSONAL PROP VALUE
LAND VALUE
INDIC TOTAL PROPERTY VALUE

INCOME APPROACH # 1 # 2
3. COST APPROACH OR RCN
4. MKT # 1 ___ x ___ =
GRM GROSS
5. MKT # 2 ___ x ___ =
NO UNITS $ PER UNIT
6. MKT # 3 ___ x ___ =
AREA $ PER SQ FT

SELECTED VALUE
APPRAISER SWA LAND 65400
DATE 12-19-83 BLD'S 23800
TOTAL 89200

COMMENTS

Service Station

ASSESSOR'S FORM NO. 250-2 FOLIO NO. 3019 ASSESSOR'S ACCT NO. 612660 - 0495

SERVICE GARAGE

GRADE	D-LC	USE CODE	14/15	STORY STATISTICS	STORIES	1-
YEAR BUILT	35-74	CONDITION	FAIR		PERIMETER	144
EFFECTIVE AGE	17/30	NO. OF UNITS			SQUARE FEET	1152

STORY HGT.	ADDITIONS		FLAT ITEMS		BUILDING CALCULATIONS	
BSMT.	SF @		PLUMBING		STORIES	1-
1 ST	SF @				BASE	9.22
2 ND	SF @				HGT. FAC.	1.041
3 RD	SF @				AREA FAC.	1.468
4 TH	SF @				STY. FAC.	
5 TH	SF @				ADJ. FAC.	1.528
6 TH	SF @				ADJ. BASE	14.08
7 TH	SF @				BSMT.	
8 TH	SF @				FLOOR	
9 TH	SF @				ROOF	
10 TH	SF @				CEIL	
11 TH	SF @				PART	
					HEAT	
	STG MEZZ				AIR COND.	
	1000 SF @ 3.95	3950			LIGHTS	
					SPRINK.	
					TOTAL	14.08
					STORIES	
					1152 SF @ 14.08	16220
					SF @	
					SF @	
					SF @	
	TOTAL	3950	TOTAL		SF @	

te VB60 w/6 off OD

	AREA OR QUANTITY	UNIT COST	REPLACE COST	EFF. AGE	DEPR. NET	TOTAL VALUE		
PIPING FOR PUMPS	3	400	1200		.25	300	FLAT ITEMS	
PIPING FOR TANKS	3	250	750		.25	187	SUB-TOTAL	
" " "	1	250	250		.72	180	ADDITIONS	3950
AUTO HOIST	2	2000	4000		.25	1000	TOTAL	20,170
" "	1	2000	2000		.72	1440	COST FACTOR CC 1.19 LC 1.08	x1.28
UNGAN STG TANK 1-	8000G	4200	4200		.72	3024	TOTAL REPLACEMENT COST	$ 25817
" " " 2	4000G	2650	5300		.25	1325	PHYSICAL DEPRECIATION (NET) 30 YRLF	x x.58
" " " 1	280G	425	425		.25	106	TOTAL PHYSICAL VALUE	$ 14974
ASPHALT PAVING	4700	.55	2585		.25	646	ECON. OR FUNCT OBSOL. (NET)	x
REST ROOM	316		FV			500	FINAL APPRAISED VALUE	$
							PERCENT COMPLETE (NET)	x
TOTAL ACCESSORY BUILDINGS & OTHER IMPROVEMENTS						$ 8709	PARTIAL VALUE	$

INCOME APPROACH

	ACTUAL	ECONOMIC
ANNUAL POTENTIAL GROSS		
LESS VAC. & CREDIT LOSS		
ANNUAL EFFECTIVE GROSS		
LESS EXPENSES		
ANNUAL NET INCOME		
___ + ___ = ___ INT RATE TAX RATE LAND RATE		
LESS LAND INCOME: ___ x ___ = LAND VALUE LAND RATE		
NET INCOME TO BUILDING		
÷ BLDG RATE: ___ + ___ + ___ = ___ INT. RATE TAX RATE RECAPTURE RATE BUILDING RATE		
BUILDING VALUE		
PERSONAL PROP. VALUE		
LAND VALUE		
INDIC TOTAL PROPERTY VALUE		

INCOME APPROACH #1 #2

3. COST APPROACH OR RCN 23682

4. MKT #1: ___ x ___ = ___ (GRM, GROSS)

5. MKT #2: ___ x ___ = ___ (NO. UNITS, $ PER UNIT)

6. MKT #3: ___ x ___ = ___ (AREA, $ PER SQ. FT.)

SELECTED VALUE: LAND 46,700

BLD'S 23,600

TOTAL 70,300

APPRAISER 14

DATE 4/8/80

COMMENTS

SERVICE STATION : AUTO PARTS 3901 SW ALASKA

REMODELED STATION NOW 2 STORY FRAME

BUILT 1935 REMOD. ADD '62 - 74

HRA = 1152 ☐ 1ST FLR + 1000 ☐ 2ND FLR STG

ALSO ~~old~~ MASONRY RESTROOM 316 ☐

MEN & WOMEN FV 500

1 3-PUMP ISLAND

1 8000G UG TANK 1974

2 4000G " "

1 280G " "

2 AUTO HOISTS - 1935 ?

1 AUTO HOIST 1974

'80 LAND AV = 6231 ☐ @ 7.50/☐ = 46732

1962
Conc Blk
Add

W/B | W/B 7

12

Bay

2

Bay 59

24

CESSORY IMPROVEMENTS

SECTION TITLE	TYPE	QUALITY	NUMBER	LENGTH	WIDT	ECT R	NET CONDITION
							%
							%
							%
							%
							%
						19	%
						19	%
						19	%
						19	%

KS

service station
newhat Remodeled.
74 U.G. Tank, 8000 Gal,
$2000 installed

350/mo

57 – INCOME DATA

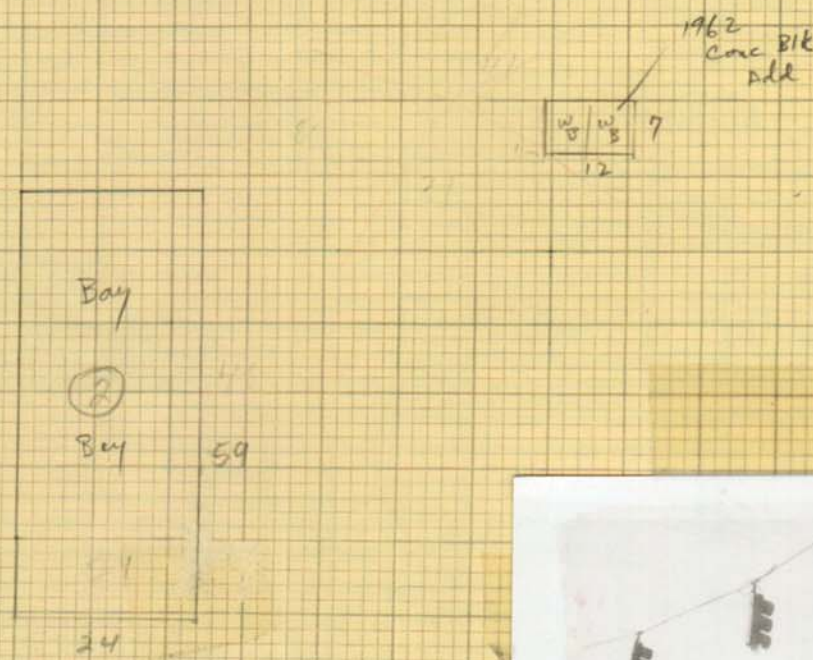
ANNUAL ECONOMIC OR ACTUAL GROSS INCOME	$	4200
LESS VACANCY none		
ANNUAL EFFECTIVE GROSS INCOME	$	
LESS EXPENSES net net except taxes		
ANNUAL NET INCOME	$	4200
LAND VALUE (UNIT___ x UNIT VALUE___-___)		

58 – PERMIT DATA

NUMBER	DATE	VALUE	DATE STARTED	DATE COMPLETED

59 – SALES RECORD

MONTH	YEAR



33-55 – ACCESSORY IMPROVEMENTS

SECTION NO.	SECTION TITLE	TYPE	QUALITY	NUMBER	LENGTH	WID[TH]		[EFF]ECT. [YEA]R	NET CONDITION
									%
									%
									%
									%
									%
								19	%
								19	%
								19	%
								19	%

56 – REMARKS

OLD service station
somewhat Remodeled.
9-74 U.G. Tank, 8000 Gal,
P.U. $2000 installed.

350/mo

57 – INCOME DATA

ANNUAL ECONOMIC OR ACTUAL GROSS INCOME	$ 4200
LESS VACANCY none	
ANNUAL EFFECTIVE GROSS INCOME	$
LESS EXPENSES net net except taxes	
ANNUAL NET INCOME	$ 4200
LAND VALUE (UNIT ___ x UNIT VALUE ___ ÷ ___)	
LAND RATE (INTEREST ___ % + TAXES ___ ÷ ___ %)	
LESS LAND INCOME (VALUE 34200 x RATE 9.1 %)	2930
NET INCOME TO BUILDING	$ 1270
÷ BUILDING RATE (INTEREST 7 % + TAXES 2.1 % + RECAPTURE 5 %)	14.1
BUILDING VALUE	$ 9000
PERSONAL PROPERTY VALUE	
LAND VALUE	34200
INDICATED TOTAL PROPERTY VALUE	$ 43200

58 – PERMIT DATA

NUMBER	DATE	VALUE	DATE STARTED	DATE COMPLETED

59 – SALES RECORD

MONTH	YEAR	AMOUNT

60 – STAFF

DATE	ENUMERATOR	CLASSIFIER	CALCULATOR	REVIEWER
4-75	56	56	56	15

61 – APPRAISAL DATA

YEAR	PRINCIPAL BUILDING	OTHER BUILDINGS	ACCESSORY IMPROVEMENTS	TOTAL IMPROVEMENTS	LAND	TOTAL APPRAISED VALUE	REASON FOR APPRAISAL

					19	%
					19	%
					19	%

41 – DRIVE-IN THEATER SCREEN

QUALITY (A-E)	MEASUREMENTS (WIDTH, HEIGHT)	AREA	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
				19	%

42 – UTILITY BUILDING & GREENHOUSE SHELLS

1 – WOOD UTILITY
2 – WOOD & METAL UTILITY
3 – CONCRETE BLOCK UTILITY
4 – SHED TYPE UTILITY
5 – UNHEATED GREENHOUSE
6 – HEATED GREENHOUSE

BLDG NO.	TYPE	QUALITY (ACE)	MEASUREMENTS (LENGTH, WIDTH)	AREA	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
						19	%
						19	%
						19	%

43 – UTILITY BUILDING & GREENHOUSE FLOORS

1 – WOOD
2 – CONCRETE

BLDG. NO.	TYPE	QUALITY (ACE)	MEASUREMENTS (LENGTH, WIDTH)	AREA	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
						19	%
						19	%
						19	%

44 – FENCING

1 – WOOD FENCE
2 – CONCRETE BLOCK FENCE
3 – BRICK OR STONE FENCE
4 – CHAIN LINK FENCE
5 – CAHIN LINK SWING GATE
6 – CHAIN LINK SLIDING GATE
7 – WOOD SWING GATE
8 – BARBED WIRE TOP OR EXTRA RAIL

TYPE	QUALITY (ACE)	HEIGHT (1-7)	LENGTH	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION

... FLASHER SIGNAL PAIR

TYPE	NUMBER	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
			19	%
			19	%
			19	%
				%

53 – RAILROAD TRACKAGE

LENGTH	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
		19	%
		19	%

54 – STORAGE TANKS

1 – ELEVATED WOOD
2 – ELEVATED STEEL
3 – BULK PETROLEUM-FLAT ROOF
4 – BULK PETROLEUM-FLOATING ROOF
5 – BULK PETROLEUM-DOUBLE ROOF
6 – BELOW GROUND FUEL
7 – ABOVE GROUND FUEL-HORIZONTAL
8 – ABOVE GROUND FUEL-VERTICAL
9 – PROPANE
10 – PRESSURE-HEMISPHERE
11 – PRESSURE-SPHERE

TYPE	CAPACITY	GAL/ BBL	NUMBER	PSI (10-11)	TOWER HEIGHT (1-2)	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
6	8000	G	1			74	19	97 %
6	4000	G	2			62	19	45 %
6	280	G	1			62	19	45 %
							19	%

55 – OTHER ACCESSORY IMPROVEMENTS

SECTION	TYPE	QUALITY	OTHER DESCRIPTION	DEPRECIATED VALUE	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
						19	%
						19	%

KING COUNTY ASSESSOR'S COMMERCIAL - INDUSTRIAL SUPPLEMENTAL PROPERTY RECORD
ACCESSORY IMPROVEMENTS

MAJOR 612660 MINOR 0495 SPLIT ____ FOLIO 3019 SUBLETTER ____ SUBNUMBER ____ CARD 2 OF 3 CARDS

35 – SERVICE STATION ACCESSORIES

1 – AUTO HOIST 2 – TRUCK HOIST 3 – TWO PUMP ISLAND 4 – THREE PUMP ISLAND 5 – FOUR PUMP ISLAND 6 – PIPING FOR PUMP 7 – PIPING FOR DISPENSERS

TYPE	NUMBER	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
1	2	35	19	20 %
1	1	74	19	97 %
4	1	62	19	45 %
6	3	62	19	45 %
7	1	62	19	45 %
			19	%
			19	%
			19	%

36 – SERVICE STATION TYPE CANOPIES

QUALITY (A-E)	MEASUREMENTS (LENGTH, WIDTH)	AREA	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
				19	%
				19	%
				19	%
				19	%

37 – PAVEMENT

1 – CONCRETE 2 – ASPHALT

TYPE	QUALITY (ACE)	MEASUREMENTS (LENGTH, WIDTH)	AREA	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
1	C		4700	35	19	20 %
					19	%

38 – SWIMMING POOLS

1 – RECTANGULAR 2 – IRREGULAR

TYPE	QUALITY (ACE)	MEASUREMENTS (LENGTH, WIDTH)	AREA	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
					19	%
					19	%
					19	%

39 – YARD LIGHTING

1 – WOOD POLE 2 – STEEL POLE 3 – ALUMINUM OR CONCRETE POLE 4 – INCANDESCENT FIXTURE 5 – FLUORESCENT FIXTURE 6 – MERCURY VAPOR FIXTURE

TYPE	QUALITY (ACE)	NUMBER	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
				19	%
				19	%
				19	%
				19	%
				19	%
				19	%

40 – MOBILE HOME PARKS & DRIVE-IN THEATERS

1 – DRIVE-IN THEATER VEHICLE SPACE 2 – MOBILE HOME PARK VEHICLE SPACE

TYPE	QUALITY (A-E)	NUMBER	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
				19	%
				19	%
				19	%

41 – DRIVE-IN THEATER SCREEN

QUALITY (A-E)	MEASUREMENTS (WIDTH, HEIGHT)	AREA	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
				19	%

42 – UTILITY BUILDING & GREENHOUSE SHELLS

1 – WOOD UTILITY 2 – WOOD & METAL UTILITY 3 – CONCRETE BLOCK UTILITY 4 – SHED TYPE UTILITY 5 – UNHEATED GREENHOUSE 6 – HEATED GREENHOUSE

BLDG NO.	TYPE	QUALITY (ACE)	MEASUREMENTS (LENGTH, WIDTH)	AREA	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
						19	%
						19	%
						19	%

43 – UTILITY BUILDING & GREENHOUSE FLOORS

1 – WOOD 2 – CONCRETE

BLDG. NO.	TYPE	QUALITY (ACE)	MEASUREMENTS (LENGTH, WIDTH)	AREA	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
						19	%
						19	%
						19	%

44 – FENCING

1 – WOOD FENCE 2 – CONCRETE BLOCK FENCE 3 – BRICK OR STONE FENCE 4 – CHAIN LINK FENCE 5 – CAHIN LINK SWING GATE 6 – CHAIN LINK SLIDING GATE 7 – WOOD SWING GATE 8 – BARBED WIRE TOP OR EXTRA RAIL

		HEIGHT	LENGTH	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION

45 – MARINE PIERS & MOORAGE ENCLOSURES

1 – SMALL BOAT PIER 2 – MOORAGE ENCLOSURE ROOF 3 – MOORAGE ENCLOSURE WALLS 4 – SHIP PIERS

TYPE	QUALITY (A-E)	MEASUREMENTS (LENGTH, WIDTH, HEIGHT)	AREA	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
					19	%
					19	%
					19	%
					19	%

46 – MARINE BULKHEADS

1 – WOOD 2 – STEEL 3 – CONCRETE

TYPE	QUALITY (A-E)	LENGTH	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
				19	%
				19	%

47 – GRAIN ELEVATORS

NO UPPER HEADH'SE OR CONV. GALLERY	WALL LENGTH	BIN OUTSIDE DIAMETER	HEIGHT	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
					19	%
					19	%

48 – INDUSTRIAL STACKS & CHIMNEYS

1 – BRICK UNLINED 2 – BRICK LINED WITH FIREBRICK 3 – CONCRETE

TYPE	NUMBER	OUTSIDE DIAMETER	HEIGHT	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
					19	%
					19	%

49 – CRANEWAYS

1 – INDOOR 2 – OUTDOOR

TYPE	CAPACITY (TONS)	LENGTH	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
				19	%
				19	%
				19	%

50 – TRUCK SCALES

NUMBER	CAPACITY (TONS)	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
			19	%
			19	%

51 – LOADING DOCKS, RAMPS, & LEVELERS

1 – LIGHT WOOD DOCK 2 – HEAVY TIMBER DOCK 3 – CONCRETE DOCK 4 – DOCK RAMP 5 – FLOOR-TO-FLOOR RAMP 6 – MECHANICAL DOCK LEVELER 7 – HYDRAULIC DOCK LEVELER

TYPE	QUALITY (A-E) (1-5)	NUMBER	MEASUREMENTS (LENGTH, WIDTH)	AREA (1-5)	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
						19	%
						19	%
						19	%
						19	%

52 – RAILROAD ACCESSORIES

1 – BUMPER STOP 2 – SWITCH 3 – FLASHER SIGNAL PAIR

TYPE	NUMBER	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
			19	%
			19	%
			19	%
				%

53 – RAILROAD TRACKAGE

LENGTH	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
		19	%
		19	%

54 – STORAGE TANKS

1 – ELEVATED WOOD 2 – ELEVATED STEEL 3 – BULK PETROLEUM-FLAT ROOF 4 – BULK PETROLEUM-FLOATING ROOF 5 – BULK PETROLEUM-DOUBLE ROOF 6 – BELOW GROUND FUEL 7 – ABOVE GROUND FUEL-HORIZONTAL 8 – ABOVE GROUND FUEL-VERTICAL 9 – PROPANE 10 – PRESSURE-HEMISPHERE 11 – PRESSURE-SPHERE

TYPE	CAPACITY	GAL/ BBL	NUMBER	PSI (10-11)	TOWER HEIGHT (1-2)	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
6	8000	G	1			74	19	97 %
6	4000	G	2			62	19	45 %
6	280	G	1			62	19	45 %
							19	%

55 – OTHER ACCESSORY IMPROVEMENTS

SECTION	TYPE	QUALITY	OTHER DESCRIPTION	DEPRECIATED VALUE	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
						19	%
						19	%
						19	%

date 9-10-11

FOLIO 3019

PERMIT NO. 478940

DATE 7/31/59

ADDITION NORRIS TO W.S.

Section 23 Twp. 24 Range 3 Ewm. Block 3 Lot or ~~Tract 9-11~~ W. 60' of 9 Tax Lot

Address 4715 FAUNTLEROY AVE

Fee Owner RALPH WEAVER Architect

Bldg #2

Condition of Exterior G Interior G Foundation G Floor Plan: Good Accept X Good

USE REPAIR GARAGE

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

ROOF CONSTRUCTION

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

ROOFING MATERIAL

	Tar and Gravel
Or	B.U.

FLOOR FINISHES

	Fir / Maple
	Oak / 2"x6" T&G
	Lino. / 3"x6" T&G
X	Cement
	Terrazzo
	Raccolith
	Tile
Or	

Tile / Lino. — Baths Fl. Walls; Sq. Ft. Floors; Sq. Ft. Walls; Lin. Ft. Dr. Bds.; Sq. Ft. Floors; Sq. Ft. Walls; Lin. Ft. Dr. Bds.; Kit's Fl. Walls

PLUMBING

3	No. Fixtures
1	Toilets
	Tub, Leg or Pem.
1	Basins, Ped.
	Sinks
	Urinals
	Showers (Tub) (Stall)
	Laundry Trays
1	H. W. Tank Fl. Drains
	Sprink. Sys. No. Hds.

TYPE OF CONSTRUCTION

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

Good Med. X Cheap

Date Built 1959 [X] Finished Unfinished Remodeled

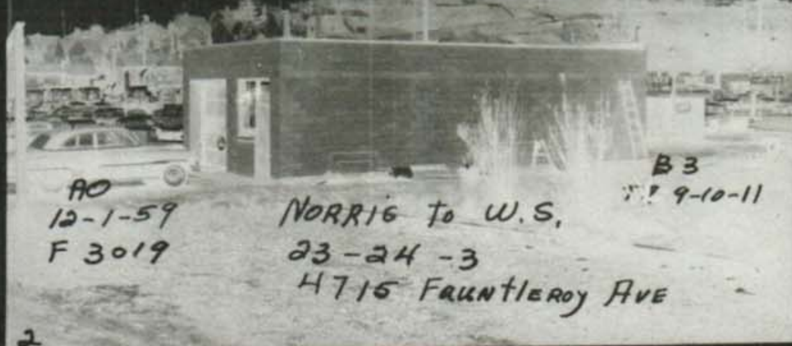
Effective Age Years Future Life Years

Dep. for Cond. Dep. for Ob. Dep. for Ex. 10 Total 10

HEATING

	Stove
	Pipeless Furnace
	Gravity H. A.
	Air Cond., Fan
X	Suspended ~~Gas, Hot Water~~ ELECTRIC HTR.
	Steam Heat
	Hot Water
	Oil Burner

Year	Assessed Value	
1961	1600	AO 59
71	3200	
1971	2200	LL 6950



FOUNDATION

	Mud Sills
	Post and Pier
	Brick
X	Concrete
	Pile

BASEMENT X/O

Full %; Sub-Basement; Size; Garage No. Cars; Floors; Plastered; Living Rooms; Service Rooms

Pass. Freight; Auto. Elec.; Man. Hyd.; Man.

Treated Piles, Timb.; Untreated; Treated Piles only; Average Length; Paved

Knob & Tube; Flex. Cable; X Conduit; Power Wiring; Range Wiring; No. Outlets

Hoists: Elec. Hyd.

EXTERIOR WALL CONST.

	Single Double
	2" x 4" Stud Walls
	2" x 6" Stud Walls
	Brick Walls
	Brick with Pilasters
	Concrete Walls
X	Con. BL. with Pilasters
	Tile Walls
	Rein. Con. Skel.
	Filler Walls
	Laminated Walls

INTERIOR WALLS

	Stud and Plaster
	Lam. Plastered
	Plywood
	Ceiled PL. BD.
	Plaster Board
	Painted
	Stain Varnish
	Kalsomine
	Whitewashed
X	Unfinished

G. H.: B; 1 — 12; 2–22

GROUND FLOOR AREA 1125

TOTAL FLOOR AREA

EXTERIOR FACING

	Siding Shingles
	Shakes Stucco
	Brick Veneer
X	CINC BL Kind
	Stone Cast S.
	Terra Cotta
	Struc. Glass
	Trim

INTERIOR TRIM

	Fir
	Mah. Oak
	Metal
	WOOD Doors
	STEEL Windows
	Stained
	Varnished
	Painted
X	Unfinished

FLOOR CONSTRUCTION

Joist Con. Size x; O.C. In Bridg.

	Mill Construction
X	Rein. Con.

Other Buildings	Construction	Floor	Roof	Stories	Dimensions	S. F. Area	Factor	Value	% Dep.	Deprec.	Net Value
Garage					x			$		$	$
					x			$		$	$
					x			$		$	$


A-1
USED CARS & TRUCKS
WHITE SPOT COFFEE
WHITE SPOT COFFEE SHOP
7up
WHITE SPOT COFFEE SHOP
"Bldg. #1"
LL
9-10-69
F.3019
1.
Norris To West Seattle
23-24-3 B-3 L-9-11
4713-Fauntleroy Ave.

FOLIO 3019

PERMIT No. 423-138

DATE 9-2-53

ADDITION NORRIS

Section 23 Twp. 24 Range 3 ~~Ewn~~ Block 3 ~~Tract~~ or Lot 9 ~~N 22' of~~

~~N 22' of E 34' of Lot 9~~

Lots 9-10-& 11

4713 - Fauntleroy Ave

Bldg #1

Fee Owner ______ Address ______

Condition of Exterior Cheap Interior Cheap Foundation Cheap Floor Pl...

USE Coffee shop

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

ROOF CONSTRUCTION

✓	Frame Lam ☐
	Mill Construction
	Rein. Concrete
	No. Trusses
	Wood ☐ Steel

ROOFING MATERIAL

✓	Tar and Gravel
Or	

FLOOR FINISHES

✓	Fir ☐ Maple
	Oak ☐ 2" x 6" T&G
X	Lino. ☐ 3" x 6" T&G
	Cement
	Terrazzo
	Rasolith
	Tile
Or	

TILE / LINO.

Baths ☐ Fl. ☐ Walls

Tile Total: Sq. Ft. ___ Floors; Sq. Ft. ___ Walls; Lin. Ft. ___ Dr. Bds.

Lino. Total: Sq. Ft. ___ Floors; Sq. Ft. ___ Walls; Lin. Ft. ___ Dr. Bds.

Kit's. ✓ Fl. ☐ Walls

PLUMBING

4	No. Fixtures
1	Toilets
	Tubs, Leg or Pem.
1	Basins, Ped.
1	Sinks
	Urinals
	Showers (Tub) (Stall)
	Laundry Trays
1	H.W.Tank Fl. Drains ☐
	Sprink. Sys. No. ___ Hds.

TYPE OF CONSTRUCTION

✓	Frame
✓	Single ☐ Double
	Ordinary Masonry
	Mill Construction
	Class A Rein. Con.
	Stru. Steel and Con.
	Tile ☐ Brick
	Con. ☐ Rein. Con.

Good ___ Med. ___ Cheap X

Date Built 53 ☒ Finished ☐ Unfinished ☐ Remodeled

Effective Age ______ Years Future Life ______ Years

Dep. for Cond. ______ Dep. for Ob. ______ Dep. for Es. ______ Total 5%

HEATING

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

WIRING

	Knobe & Tube
	Flex Cable Code
✓	Conduit
	Power Wiring
	Range Wiring
	No. Outlets

ELEVATORS

Pass. ☐ Freight

Auto. ☐ Elec.

Man. ☐ Hyd.

☐ Man.

FOUNDATION

	Mud Sills
	Post and Pier
	Brick
✓	Concrete BLK
	Pile

BASEMENT

	Full ☐ %
	Sub-Basement
	Size ___ x ___
	Garage ☐ No. Cars
	Floors
	Plastered
	Living Rooms
	Service Rooms

Main Building ______ $

Other Buildings ______ $

Total ______ $

Assessed Value 50% ______ $

Sup. Building A. V. ______ $

Total ______ $

EXTERIOR WALL CONSTR.

✓	Single ☐ Double
✓	2" x 4" Stud Walls
	2" x 6" Stud Walls
	Brick Walls
	Brick With Pilasters
	Concrete Walls
	Con. With Pilasters
	Tile Walls
	Rein. Con. Skel.
	Filler Walls
	Laminated Walls

INTERIOR WALLS

	Stud and Plaster
	Lam. ☐ Plastered
✓	Ply Wood
	Ceiled
	Plaster Board
✓	Painted
	Stain ☐ Varnish
	Kalsomine
	Whitewashed
	Unfinished

GAS STATIONS

	Frame
	Metal
	Masonry
	Plastered or Ceiled
	Floors

SERVICE BUILDING

	Frame
	Metal
	Masonry
	Plastered or Ceiled
	Floors

TANKS, ETC., LIST

Hoists: Elect. ___ Hyd.

DOCKS AND PIERS

	Treated Piles and Timbers
	Untreated
	Treated Piles only
	Average Length
	Paved

C. H.

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

GROUND FLOOR AREA

TOTAL FLOOR AREA ~~300~~ 576 + 6x6

6

6 | STG

Lav.

Store Room.

1956 Add.

16'

TB

COFFEE SHOP

16

EXTERIOR FACING

	Siding ☐ Shingles
	Shakes ☐ Stucco
	Brick Veneer
✓	Plywood Kind
	Stone ☐ Cast S.
	Terra Cotta
	Struct. Glass
	Trim

INTERIOR TRIM

✓	Fir
	Mah. ☐ Oak
	Metal
	Doors
	Windows
	Stained
	Varnished
	Painted
	Unfinished

FLOOR CONSTRUCTION

Joist Con. Size 2 x 4

O. C. ___ In Bridg. ☐

Mill Construction

Rein. Con.

Other Buildings	Construction	Floor	Roof	Stories	Dimensions	S.F. Area	Factor	Value	% Dep.	Deprec.	Net Value
Garage					x			$		$	$
					x			$		$	$
					x			$		$	$
					x			$		$	$

1. DISTRICT 22C

LIMITS W S

CODE NO. 2

2. ADDITION ADD NORRIS/TO WS ~~4012~~

SECTION ___ TWP. ___ N. RANGE ___ EWM. ___ BLOCK 3 TRACT OR LOT NO. 9

DESCRIPTION

3. ADDRESS OF PROPERTY ___ CONTRACT PURCHASER ___ 05

4. FEE OWNER R L. HAMILTON (9-13-30)

LAND INFORMATION

1. SIZE OF TRACT OR LOT ___ X ___ TOPOGRAPHY level GRADE on FT. 2. STREET-ROAD graded SURFACE paved

ALLEY none 3. SIDEWALK plank SEWAGE sewer WATER city PUMP ___ DRAINAGE ___

4. LANDSCAPING natural CONDITION ___ 5. TREND static VALUE OF LOT $ ___ FRONT STREET FACTOR $ ___ SIDE STREET FACTOR $ ___ DEPTH FACTOR $ ___ CREDIT ___

6. USE business 7. DISTRICT poor old

LAND USE	SOIL TYPE	CROPS-TIMBER STAND	NO. ACRES	VALUE ACRE	VALUE
				$	$
					$
					$
					$
LAND SIZE X		TOTAL			$

ASSESSED VALUE LAND

LOT $

UNIMPROVED ACRES $

IMPROVED ACRES $

OTHER LANDS $

TIMBER $

TOTAL ASSESSED VALUE 50% $

DATE

REMARKS

OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE	STAMP

DISTRICT: ROAD	SCHOOL	WATER	FIRE

YEAR	AC.	LAND	DATE	BY	REASON	DECREASE	INCREASE
1938		110					4/1947
1951		180	11-49	NB			
19							
19							
19							
19							
19							
19							
19							
19							
19							

1. DISTRICT 23-C

LIMITS W S

CODE NO. 2

2. ADDITION NORRIS ADD TO W.S. 0510 112

SECTION ___ TWP. ___ N. RANGE ___ EWM. ___ BLOCK 3 TRACT OR LOT NO. 10

DESCRIPTION

3. ADDRESS OF PROPERTY ___ CONTRACT PURCHASER ___ ~~0565~~

4. FEE OWNER R.L. HAMILTON (9-13-30)

LAND INFORMATION

1. SIZE OF TRACT OR LOT ___ x ___ TOPOGRAPHY level GRADE below 10 FT. 2. STREET-ROAD graded SURFACE paved

ALLEY no 3. SIDEWALK plank SEWAGE sewer WATER city PUMP ___ DRAINAGE ___

4. LANDSCAPING natural CONDITION ___ 5. TREND static VALUE OF LOT $ ___ FRONT STREET FACTOR $ ___ SIDE STREET FACTOR $ ___ DEPTH FACTOR $ ___ CREDIT ___

6. USE business 7. DISTRICT poor old

LAND USE	SOIL TYPE	CROPS-TIMBER STAND	NO. ACRES	VALUE ACRE	VALUE
				$	$
					$
					$
					$
LAND SIZE x		TOTAL			$

OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE	STAMP

DISTRICT: ROAD	SCHOOL	WATER	FIRE

ASSESSED VALUE LAND

LOT $

UNIMPROVED ACRES $

IMPROVED ACRES $

OTHER LANDS $

TIMBER $

TOTAL ASSESSED VALUE 50% $

DATE

REMARKS Merge (See 0505) 1/27/60 acct H-550

YEAR	AC.	LAND	DATE	BY	REASON	DECREASE	INCREASE
1938		110					ck1947
1951		180	11-49	NS			
1957		1230	5/28/56	at	Rev		
19							
19							
19							
19							
19							
19							
19							
19							

0515 113

1. DISTRICT 23-C

LIMITS W S

CODE NO. 2

2. ADDITION NORRIS ADD TO W.S.

SECTION ___ TWP. ___ N. RANGE ___ EWM. ___ BLOCK 3 TRACT OR LOT NO. 11 61266

DESCRIPTION

~~0590~~

3. ADDRESS OF PROPERTY ___ CONTRACT PURCHASER

4. FEE OWNER R. L. HAMILTON (9-13-30)

LAND INFORMATION

1. SIZE OF TRACT OR LOT ___ x ___ TOPOGRAPHY level GRADE below 10 FT. 2. STREET-ROAD graded SURFACE paved

ALLEY no 3. SIDEWALK plank SEWAGE sewer WATER city PUMP ___ DRAINAGE

4. LANDSCAPING natural CONDITION ___ 5. TREND static VALUE OF LOT $ ___ FRONT STREET FACTOR $ ___ SIDE STREET FACTOR $ ___ DEPTH FACTOR $ ___ CREDIT

6. USE business 7. DISTRICT poor old

LAND USE	SOIL TYPE	CROPS-TIMBER STAND	NO. ACRES	VALUE ACRE	VALUE
				$	$
					$
					$
					$
			TOTAL		$

LAND SIZE x

OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE	STAMP

DISTRICT: ROAD	SCHOOL	WATER	FIRE

ASSESSED VALUE LAND

LOT $

UNIMPROVED ACRES $

IMPROVED ACRES $

OTHER LANDS $

TIMBER $

TOTAL ASSESSED VALUE 50% $

DATE

REMARKS Merge (See 0505) 1/27/60 Al(T) H-550

ASSESSED VALUE YEAR	AC.	LAND	DATE	BY	REASON	LAND DECREASE	LAND INCREASE
							CK 1947
1938		110					
1951		180	11-49	NS			
1957		1230	5/28/56	at	Rev		
19							
19							
19							
19							
19							
19							
19							
19							

FOLIO 3019

ADDITION Norris 1st W.S.

Section 23 Twp. 24 Range 3 Ewm Block 3 Tract or Lot 12

PERMIT No. 399995 — 522911

DATE 4-6-50

4721 Fauntleroy

Fee Owner ______ Address of Pr...

Condition of Exterior Good Interior Good Foundation Good Floor Plan: G...

USE ~~Real Estate Office~~
- 1 No. Stories — used car office
- No. Stores
- No. Rooms 1
- Basement
- 2 No. Offices
- No. Apartments
- 1 rm. ☐ 2 rm. ☐ 3 rm.
- 4 rm. ☐ 5 rm. ☐ 6 rm.

ROOF CONSTRUCTION
- ✓ Frame Lam ☐
- Mill Construction
- Rein. Concrete
- No. Trusses
- Wood ☐ Steel

ROOFING MATERIAL
- ✓ Tar and Gravel
- Or.

FLOOR FINISHES
- Fir ☐ Maple
- Oak ☐ 2" x 6" T&G
- Lino. ☐ 3" x 6" T&G
- Cement
- Terrazzo
- Raecolith
- ✓ Tile asphalt
- Or.

Tile / Lino.
- Tile ☐ Lino.
- Baths ☐ Fl. ☐ Walls
- Sq. Ft. ___ Floors
- Sq. Ft. ___ Walls
- Lin. Ft. ___ Dr. Bds.
- Sq. Ft. ___ Floors
- Sq. Ft. ___ Walls
- Lin. Ft. ___ Dr. Bds.
- Kit's. ☐ Fl. ☐ Walls

PLUMBING
- 5 No. Fixtures
- 1 Toilets
- Tubs, Leg or Pem.
- 1 Basins, Ped.
- Sinks
- Urinals
- Showers (Tub) (Stall)
- Laundry Trays
- 1 H.W.Tank Fl. Drains ☐
- Sprink. Sys. No. ___ Hds.

TYPE OF CONSTRUCTION
- ✓ Frame
- Single ☑ Double
- Ordinary Masonry
- Mill Construction
- Class A Rein. Con.
- Stru. Steel and Con.
- Tile ☐ Brick
- Con. ☐ Rein. Con.
- Good ___ Med ✓ Cheap ___

Date Built 1950 ☑ Finished ☐ Unfinished ☐ Remodeled

Effective Age ___ Years Future Life ___ Years

Dep. for Cond. ___ Dep. for Ob. ___ Dep. for Es. 10 Total 36

F 3019

HEATING
- ✓ ~~Stove~~
- Pipeless Furnace
- Gravity H. A.
- ✓ ~~Air Cond., Fan~~ Electric
- Arcola
- 1-Pipe Steam
- 2-Pipe St. or Vapor
- Hot Water
- Oil Burner
- Coal Stoker

FOUNDATION
- Mud Sills
- Post and Pier
- Brick
- ✓ Concrete
- Pile

WIRING
- ✓ Knobe & Tube
- Flex Cable
- Conduit
- Power Wiring
- Range Wiring
- No. Outlets

BASEMENT
- Full ☐ %
- Sub-Basement
- Size ___ x ___
- Garage ☐ No. Cars
- ___ Floors
- Plastered
- Living Rooms
- Service Rooms

Other Buildings ___ $

Total ___ $ 1967 — 900 — HC 866

Assessed Value 50% ___ $

Sup. Building A. V. ___ $

Total ___ $

ELEVATORS ~~800~~ 450
- Pass. ☐ Freight
- Auto. ☐ Elec.
- Man. ☐ Hyd.
- ☐ Man.

EXTERIOR WALL CONSTR.
- Single ☑ Double
- ✓ 2" x 4" Stud Walls
- 2" x 6" Stud Walls
- Brick Walls
- Brick With Pilasters
- Concrete Walls
- Con. With Pilasters
- Tile Walls
- Rein. Con. Skel.
- ___ Filler Walls
- Laminated Walls

INTERIOR WALLS
- Stud and Plaster
- Lam. ☐ Plastered
- Ply Wood
- ✓ Ceiled
- Plaster Board
- Painted
- ✓ Stain ☐ Varnish
- Kalsomine
- Whitewashed
- Unfinished
- X acoustic

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

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

TANKS, ETC., LIST

Hoists: Elect. ___ Hyd. ___

DOCKS AND PIERS
- Treated Piles and Timbers
- Untreated
- Treated Piles only
- Average Length
- Paved

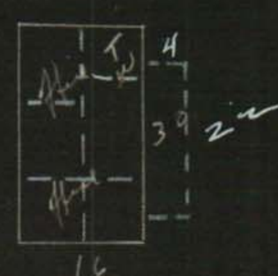
C. H.
- S. B.
- B
- 1 8
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22

GROUND FLOOR AREA

TOTAL FLOOR AREA 480

~~1800 — 71~~

225
446
500



EXTERIOR FACING
- ✓ Siding Drop ☐ Shingles
- Shakes ☐ Stucco
- Brick Veneer
- ___ Kind
- Stone ☐ Cast S.
- Terra Cotta
- Struct. Glass
- ___ Trim

INTERIOR TRIM
- ✓ Fir
- Mah. ☐ Oak
- Metal
- ___ Doors
- ___ Windows
- Stained
- Varnished
- ✓ Painted
- Unfinished

FLOOR CONSTRUCTION
- Joist Con. Size 2 x 8
- O. C. 16 In Bridg. ☑
- Mill Construction
- Rein. Con.

Other Buildings	Construction	Floor	Roof	Stories	Dimensions	S.F. Area	Factor	Value	% Dep.	Deprec.	Net Value
Garage					x			$		$	$
					x			$		$	$
					x			$		$	$
					x			$		$	$

1. DISTRICT 23-C | 2. ADDITION ADD NORRIS TO W.S. 114

LIMITS W S

CODE NO. 2

SECTION ____ TWP. ____ N. RANGE ____ EWM. ____ BLOCK 3 TRACT OR LOT NO. 12

DESCRIPTION

3. ADDRESS OF PROPERTY ____ CONTRACT PURCHASER ____

4. FEE OWNER R. L. HAMILTON (9-13-30)

LAND INFORMATION

1. SIZE OF TRACT OR LOT ____ x ____ TOPOGRAPHY level GRADE below 8 FT. 2. STREET-ROAD graded SURFACE paved

ALLEY no 3. SIDEWALK plank SEWAGE sewer WATER city PUMP ____ DRAINAGE ____

4. LANDSCAPING natural CONDITION ____ 5. TREND static VALUE OF LOT $ ____ FRONT STREET FACTOR $ ____ SIDE STREET FACTOR $ ____ DEPTH FACTOR $ ____ CREDIT ____

6. USE residential 7. DISTRICT poor old

LAND USE	SOIL TYPE	CROPS-TIMBER STAND	NO. ACRES	VALUE ACRE	VALUE
				$	$
					$
					$
					$
LAND SIZE x		TOTAL			$

OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE	STAMP

DISTRICT: ROAD	SCHOOL	WATER	FIRE

ASSESSED VALUE LAND

LOT $

UNIMPROVED ACRES $

IMPROVED ACRES $

OTHER LANDS $

TIMBER $

TOTAL ASSESSED VALUE 50% $

DATE

REMARKS

ASSESSED VALUE			DECREASE OR INCREASE IN ASSESSED VALUATION			LAND	
YEAR	AC.	LAND	DATE	BY	REASON	DECREASE	INCREASE
1938		110					ck 1947
1951		180	11-49	NB			
19							
19							
19							
19							
19							
19							
19							
19							
19							

FOLIO 3019

ADDITION Norris to W. S. 13-16

Section 23 Twp. 24 Range 3 Ewm. Block 3 Lot or Tract 74

Tax Lot

PERMIT NO.

DATE 8-18-58

Address 4739 - Fauntleroy Ave
(used car sales for West Side Ford)

Fee Owner ?

Architect

Condition of Exterior good Interior med Foundation good. Floor Plan: Good Accept Good

USE ~~Office~~

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

ROOF CONSTRUCTION

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

ROOFING MATERIAL

Tar and Gravel T-P.
Or

FLOOR FINISHES

Fir ☐ Maple
Oak ☐ 2"x6" T&G
X Lino. ☐ 3"x6" T&G
Cement
Terrazzo
Rescolith
Tile
Or

Tile ☐ Lino.
Baths ☐ Fl. ☐ Walls
Tile Total: Sq. Ft. Floors; Sq. Ft. Walls; Lin. Ft. Dr. Bds.
Lino Total: Sq. Ft. Floors; Sq. Ft. Walls; Lin. Ft. Dr. Bds.
Kit's ☐ Fl. ☐ Walls

PLUMBING

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

TYPE OF CONSTRUCTION

X Frame
Single ☒ Double
Ordinary Masonry
Mill Construction
Class A Rein. Con.
Stru. Steel and Con.
Tile ☐ Brick
Con. ☐ Rein. Con.
Good Med. X Cheap X

Date Built ? 1953 ☒ Finished ☐ Unfinished ☐ Remodeled

Effective Age Years Future Life Years

Dep. for Cond. Dep. for Ob. Dep. for Es. Total 24

Bldg. moved to B-4 L-1-3 Mi 0800

10/69 Norris to W. Seattle
LL

HEATING

X Stove
Pipeless Furnace
Gravity H. A.
Air Cond., Fan
Suspended Gas. Hot Water
Steam Heat
Hot Water
Oil Burner

Year	Assessed Value
1960	100 - AJK - 58
71	200
1971	1350 LL 69 50

FOUNDATION

Mud Sills
Post and Pier
Brick
X Concrete
Pile

BASEMENT

Full ☐ %
Sub-Basement
Size
Garage ☐ No. Cars
Floors
Plastered
Living Rooms
Service Rooms

TANK

Pass. ☐ Freight
Auto. ☐ Elec.
Man. ☐ Hyd.
☐ Man.
Hoists: Elec. Hyd.

Treated Piles, Timb.
Untreated
Treated Piles only
Average Length
Paved

Knob & Tube
Flex. Cable
X Conduit
Power Wiring
Range Wiring
No. Outlets

EXTERIOR WALL CONST.

Single ☒ Double
X 2" x 4" Stud Walls
2" x 6" Stud Walls
Brick Walls
Brick with Pilasters
Concrete Walls
Con. with Pilasters
Tile Walls
Rein. Con. Skel.
Filler Walls
Laminated Walls

INTERIOR WALLS

Stud and Plaster
Lam. ☐ Plastered
Plywood
X Ceiled
Plaster Board
A Painted
Stain ☐ Varnish
Kalsomine
Whitewashed
Unfinished

C. H.

B
1 7½
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

GROUND FLOOR AREA 140

TOTAL FLOOR AREA

14
10

EXTERIOR FACING

Siding ☐ Shingles
X Shakes ☐ Stucco
Brick Veneer
Kind
Stone ☐ Cast S.
Terra Cotta
Struc. Glass
Trim

INTERIOR TRIM

X Fir
Mah. ☐ Oak
Metal
Doors
Windows
Stained
Varnished
Painted
Unfinished

FLOOR CONSTRUCTION

Joist Con. Size 2 x 8
O.C. In Bridg. ☐
Mill Construction
Rein. Con.

Other Buildings	Construction	Floor	Roof	Stories	Dimensions	S. F. Area	Factor	Value	% Dep.	Deprec.	Net Value
Garage					x			$		$	$
					x			$		$	$
					x			$		$	$
					x			$		$	$

5M 2-56

1. DISTRICT 22-C

LIMITS W S

CODE NO. 2

2. ADDITION ADD NORRIS/TO W.S.

61266 0525/5

SECTION TWP. N. RANGE EWM. BLOCK 3 TRACT OR LOT NO. 13 to 16 incl

DESCRIPTION

3. ADDRESS OF PROPERTY CONTRACT PURCHASER

4. FEE OWNER

LAND INFORMATION

1. SIZE OF TRACT OR LOT x TOPOGRAPHY level GRADE below 10 FT. 2. STREET-ROAD graded SURFACE paved

ALLEY no 3. SIDEWALK plank SEWAGE sewer WATER city PUMP DRAINAGE

4. LANDSCAPING natural CONDITION 5. TREND static VALUE OF LOT $ FRONT STREET

FACTOR $ SIDE STREET FACTOR $ DEPTH FACTOR $ CREDIT

6. USE business 7. DISTRICT poor old

LAND USE	SOIL TYPE	CROPS-TIMBER STAND	NO. ACRES	VALUE ACRE	VALUE
				$	$
					$
					$
					$

LAND SIZE 50 x 27637 TOTAL (8) $

OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE	STAMP
King Co. Tax Deed 12-14-40 No. 16127					
Maj. Geo W. Farwell Post #1713, Inc. Vet. of Foreign Wars	7-31-46		200		
D Overseas Vet of West Seattle Inc.	12-3-56	E 249271	$8,000.00		

DISTRICT: ROAD	SCHOOL	WATER	FIRE

ASSESSED VALUE LAND

LOT $

UNIMPROVED ACRES $

IMPROVED ACRES $

OTHER LANDS $

TIMBER $

TOTAL ASSESSED VALUE 50% $

DATE

REMARKS

YEAR	AC.	LAND	DATE	BY	REASON	DECREASE	INCREASE
1938		~~110~~					CK 1947
1942	EXEMPT	110					
19					~~COUNTY CONT. 11555~~		
1948		110	8-26-46	E M F	Assess 1948 Rolls		
1951		180	11-49	NB			
1956		720	4-54	E.P.	Merged		
1957		3000	5/28/56	ab	Rw		
1958		3000	2/13/57	Lm	~~Exempt~~		
19							
19							
19							

VACANT — KING COUNTY ASSESSOR — SEATTLE, WASHINGTON

FRAYN PRINTING CO. SEATTLE

FOLIO 3019

PERMIT NO.

DATE

ADDITION NORRIS TO W.S
NE Section 23 Twp 24 Range 3 EWM. Block 3 Lot or 17&18
Tax Lot ____ Tract ____
Address 4739 FAUNTLEROY AVE

Fee Owner ____ Architect ____ Contractor ____

Zoning CG Condition of Exterior G Interior G Foundation G Floor Plan: Good ____ Accept. X Poor ____

USE SC

1	No. Stories
	No. Stores
1	No. Rooms
	Basement Unit
	No. Offices Sq. Ft.
	No. Apartmts.
	1 rm. 2 rm. 3 rm.
	4 rm. 5 rm. 6 rm.

ROOF CONSTRUCTION

X	Frame-Joist
	Mill-Deck
	Rein. Conc. GLB
	Steel Fr. Metal Deck
	Trusses Span
	Wood Steel

FLOOR FINISHES

X	Fir EST / Maple
	Oak / 2x6TG
	Lino / 3x6TG
	Cement / Lgtwgt. Conc.
	Terrazzo
	Asphalt Tile / Vinyl Tile
or	

Tile Lino Form.

Bath Floor
Bath Walls
Tub Recess
Drain Bds.
Vanities

PLUMBING NO

No. Fixtures
Toilets ____ Urinals
Tubs Leg. or Pem.
Basins ____ Dr. Ftns.
Sinks
Washers ____ Dryers
Showers (tub) (stall)
H.W. Tanks ____ Ldy.Trays
D.Washers ____ Disposals
Sprinkler Sys.

Date Built 1969 EST SHED Date Add. Built ____ [X] Finished [ ] Unfinished [ ] Remodeled
Effective Age Fence & Parking 1952 Years Future Life ____ Years
Dep. for Cond. ____ Dep for Ob. ____ Dep. for Es. ____ Total 15%

TYPE OF CONSTRUCTION

X	Frame
	Metal-Prefab
	Ordinary Masonry
	Mill Construction
	Class A Rein. Conc.
	Stru. Steel and Conc.
	Struct. Steel, Frame
or	

QUALITY-TYPE L

Good ____ Med. ____ Cheap X

FOUNDATION

Mud Sill [ ] Post Pier [X]
Conc. [ ] Brick
Load Hgt. [ ] Piling

BASEMENT NO

Full ____ % Part.
Sub-Basement
Size
Garage [ ] No. Cars
Floors
Plastered [ ] Pl. Bd.
No. Apartments
Service Rooms

FAC

HEATING NO

Elec. ____ Oil ____ Gas
H.W. ____ St. ____ H.A.
B.Bd. ____ Suspended
FHA ____ Pipeless
A. Cond. ____ Wall Unit
Comb. Unit ____ Custom
Refrig. ____ Convector
Heat Pump ____ Fireplace

YEAR	ASSESSED VALUE
1971	1100 LL-69

MISC. TANKS, Etc.

HOISTS: Elec. Hydr.

ELEVATORS

Pass. ____ Frght
Auto. ____ Elec.
Man. ____ Hydr.
Doors-Auto ____ Man.
Escalators
Stops ____ Speed
Cap'y.

DOCKS AND PIERS

Hvy. ____ Med. ____ Lgt.
Untrtd. Pile Tmbr.
Conc. Piles & Bms
Trtd. Pile Tmbr.
Paved
Dolphins
Deck

WIRING NO

Knob & Tube
Flex. Cable
Conduit
Pwr. Wiring
Range Wiring
Outlets

EXTERIOR WALL CONST.

X	Single [ ] Double
X	Stud Walls 2 SERIES
	Brick ____ Pil.
	Conc. ____ Pil.
	Rein. Conc. Skeleton
	Str. Stl.-Frame
	Pre-Fab Metal
	Tilt-Up
	Filler Wall
	Curtain Wall

EXTERIOR FACING

Siding
Stucco ____ Shakes
Marblecrete
Brick [ ] Veneer
Conc. [ ] Conc. Blk.
FIBERGLASS

FLOOR CONSTRUCTION

Joist ____ x ____ x ____ O.C.
Mill ____ Car Deck
R.Conc. ____ Elev.
Steel ____ GLB.
or WOOD

ROOF COVERING

Blt.-Up ____ Tar.&Gr.
Comp. ____ Metal
or FIBERGLASS

INTERIOR WALLS & CEILING

Stud Wood Metal
Plaster Dry Wall
Acc. Tile Celotex
Ceiled Plywood
Solid Block
Sound Proofed Lamin.
Finished X Unfinished
Painted Varnished

INSULATION

Exter. ____ Partitions
Roof ____ Floor

INTERIOR TRIM

Fir ____ Birch
Mah. ____ Oak
Metal
Wood ____ Metal Doors
Wood ____ Metal Sash
Stained ____ Varnish
Painted X Unfin.

	C.Hgt.
SB	
B	
1	8
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	

GROUND FLOOR AREA 432
TOTAL FLOOR AREA 432

36
12

20M 11/63

FOLIO 3019

ADDITION Norris To W.S.
Section Twp. Range Ewm Block 3 Tract or Lot 17 to 27 INCL.

~~Lots 17 to 20 and~~ Lots 19 + 20

PERMIT No. 416273

DATE 4-3-52

4739-57 Fauntleroy Ave.

Fee Owner West Side Ford, Inc.

Condition of Exterior 9 Interior 9 Foundation 9

USE Sales + Service Garage

1+2	No. Stories
	No. Stores
10	No. Rooms — FORD Agency
	Basement
8	No. Offices
	No. Apartments
	1 rm. 2 rm. 3 rm. 4 rm. 5 rm. 6 rm.

ROOF CONSTRUCTION

X	Frame 2x?? Lam
	Mill Construction
	Rein. Concrete 3x6
	No. Trusses Bow Trg.
X	Wood / Steel

ROOFING MATERIAL

Tar and Gravel

Or X BUILT UP 4 9/4

FLOOR FINISHES

	Fir / Maple
	Oak / 2" x 6" T&G
	Lino. / 3" x 6" T&G
X	Cement
	Terrazzo
	Rescolith
X	Tile Floor

Or X Carpet 300

Tile X / **Lino.**

Baths Fl. Walls

Tile Total: Sq. Ft. 800 Floors; Sq. Ft. Walls; Lin. Ft. Dr. Bds.

Lino. Total: Sq. Ft. Floors; Sq. Ft. Walls; Lin. Ft. Dr. Bds.

Kit's. Fl. Walls

PLUMBING

11	No. Fixtures
4	Toilets
	Tubs, Leg or Pem.
4	Basins, Ped.
1	Sinks 3 Pr.
1	Urinals 5'
	Showers (Tub) (Stall)
	Laundry Trays
1	H.W. Tank Fl. Drains
	Sprink. Sys. No. Hds.

TYPE OF CONSTRUCTION

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

Good X Med. Cheap

Date Built 1952 [X] Finished [ ] Unfinished [ ] Remodeled

Effective Age Years Future Life Years

Dep. for Cond. Dep. for Ob. Dep. for Es. Total 13%

HEATING

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

801
LL
50

FOUNDATION

	Mud Sills
	Post and Pier
	Brick
X	Concrete
X	Pile 71 Untreated 15'

WIRING

	Knobs & Tube
	Flex Cable
X	Conduit
X	Power Wiring ~~$9500~~
	Range Wiring
	No. Outlets

BASEMENT

Full %

Sub-Basement

No.

Size x

Garage No. Cars

Floors

Plastered

Living Rooms

Service Rooms

Other Buildings $

Total $ 99000-71

Assessed Value 50% $

Sup. Building A. V. $

Total $

ELEVATORS

Pass. Freight

Auto. Elec.

Man. Hyd.

Man.

EXTERIOR WALL CONSTR.

	Single / Double
	2" x 4" Stud Walls
	2" x 6" Stud Walls
	Brick Walls
	Brick With Pilasters
X	Concrete Walls 8" 10"
X	Con. With Pilasters
	Tile Walls
	Rein. Con. Skel.
	Filler Walls
	Laminated Walls

INTERIOR WALLS

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

GAS STATIONS

Frame
Metal
Masonry
Plastered or Ceiled
Floors

SERVICE BUILDING

Frame
Metal
Masonry
Plastered or Ceiled
Floors

TANKS, ETC., LIST

6 Hoists: ~~Elect.~~ X Hyd.

C. H.

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

GROUND FLOOR AREA ~~1879~~ 19429

TOTAL FLOOR AREA ~~2179~~ 21760

120

4' Below Main Floor 12x16 Fr Cthd.

all glass Display

Main Room 17'7 clg

2sty Blue Outline

Trusses 16' OC.

5 Hyd. Hoists

Shop Service

14'5 clg

92

50

36

Part'S

70

14x28 Metal Paint Spray

12x16 Fr. O Hd

EXTERIOR FACING

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

INTERIOR TRIM

X	Fir
	Mah. / Oak
	Metal
X	Wood Doors
	Metal Windows
	Stained
	Varnished
X	Painted
	Unfinished

DOCKS AND PIERS

Treated Piles and Timbers
Untreated
Treated Piles only
Average Length
Paved

FLOOR CONSTRUCTION

Joist Con. Size 2 x 14

O. C. 16" 2nd Floor In Bridg.

Mill Construction

X Rein. Con. 1st

Other Buildings	Construction	Floor	Roof	Stories	Dimensions	S.F. Area	Factor	Value	% Dep	Deprec	Net Value
~~Garage~~ Void		~~Fir~~		~~1+2~~	~~10 x 14~~	~~140~~	~~200~~	~~280~~	1927	#	~~280~~
~~Shed~~					~~6 x 8~~	~~48~~	~~1.50~~	~~72~~			~~36~~

4 rm. ☐	5 rm. ☐	6 rm.

Or. X BUILT UP H/4/ Or. X Carmel 300 Kit's. ☐ Fl. ☐ Walls

Laundry Trays

1 H.W.Tank Fl. Drains ☐

Sprink. Sys. No. ____ Hds.

TYPE OF CONSTRUCTION

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

Good X Med. ____ Cheap ____

Date Built 1952 ☒ Finished ☐ Unfinished ☐ Remodeled

Effective Age ____ Years Future Life ____ Years

Dep. for Cond. ____ Dep. for Ob. ____ Dep. for Es. ____ Total 1370

HEATING

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

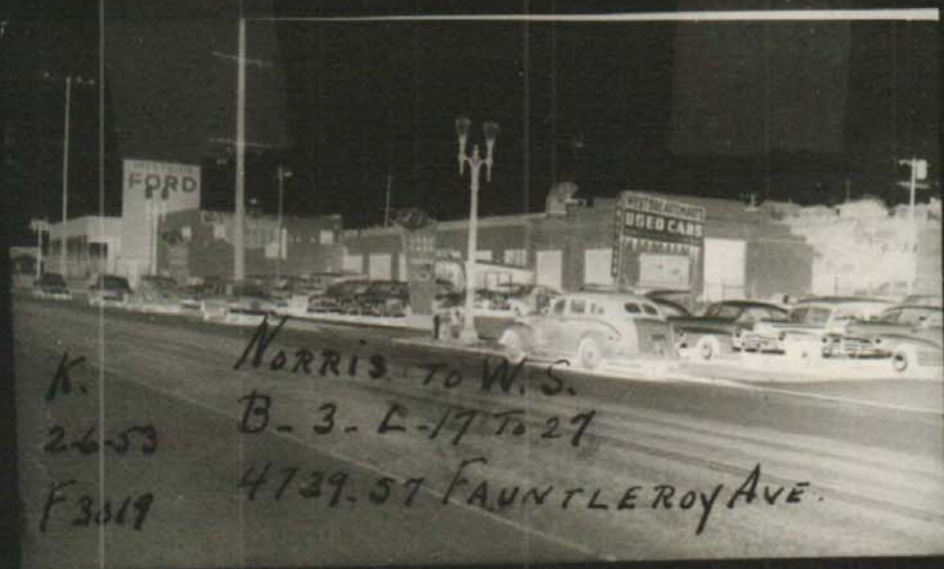
80150

LL 6

50%

FOUNDATION

	Mud Sills
	Post and Pier
	Brick
X	Concrete
X	Pile 71 untreated 25'



WIRING

	Knobe & Tube
	Flex Cable
X	Conduit
X	Power Wiring
	Range Wiring
	No. Outlets

~~49500~~

~~53000~~

BASEMENT

	Full ☐ %
No.	Sub-Basement
	Size ____ x ____
	Garage ☐ No. Cars
	Floors
	Plastered

Other Buildings ____ $

Total ____ $ 79000 - 71

Assessed Value 50% ____ $

Sun. Building A. V. ____ $

ELEVATORS

Pass. ☐	Freight
Auto. ☐	Elec.
Man. ☐	Hyd.

Assessed Value 50% $

Sup. Building A. V. $

Total $

Auto. | Elec.
Man. | Hyd.
Man.

R WALLS

d and Plaster *office area*

n. ☐ Plastered *+ 2nd*

Wood

led

ster Board

nted *all*

in ☐ Varnish

lsomine

itewashed

finished

R TRIM

h. ☐ Oak

tal

wood Doors

metal Windows

ained

rnished

inted

finished

GAS STATIONS

Frame

Metal

Masonry

Plastered or Ceiled

Floors

SERVICE BUILDING

Frame

Metal

Masonry

Plastered or Ceiled

Floors

TANKS, ETC., LIST

6 Hoists: ~~Elect.~~ *X* Hyd.

DOCKS AND PIERS

Treated Piles and Timbers

Untreated

Treated Piles only

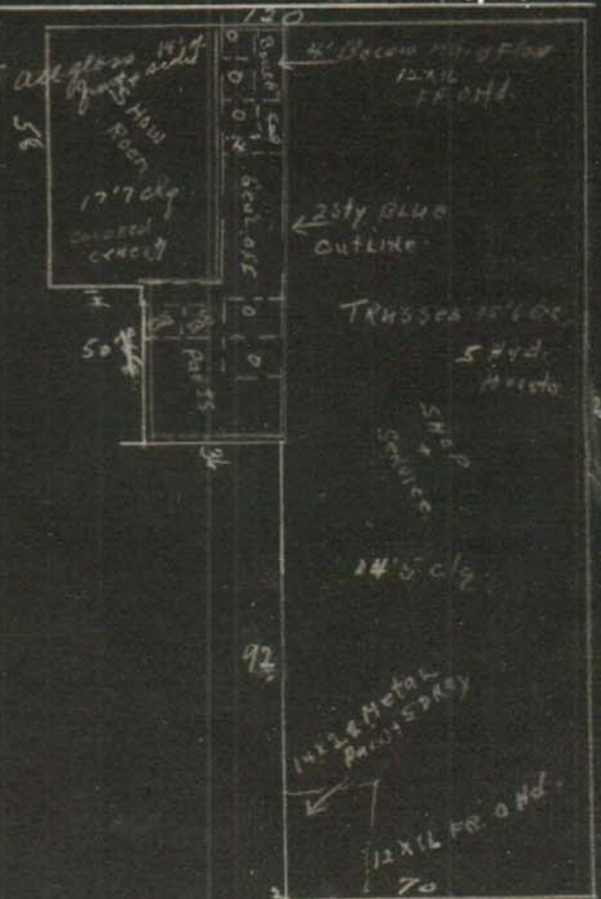
Average Length

Paved

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

GROUND FLOOR AREA ~~[illegible]~~ *19429*

TOTAL FLOOR AREA ~~[illegible]~~ *21760*



Floor	Roof	Stories	Dimensions	S.F. Area	Factor	Value	% Dep.	Deprec.	Net Value
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$ [illegible]	[illegible]	$	$ [illegible]

1. DISTRICT 23-C

2. ADDITION NORRIS ADD TO W.S.

SECTION ____ TWP. ____ N. RANGE ____ EWM. ____ BLOCK 3 TRACT OR LOT NO. 17

L[illegible]S W S

DESCRIPTION

CODE NO. 2

3. ADDRESS OF PROPERTY ____ CONTRACT PURCHASER

4. FEE OWNER SARA[illegible] King Co. Tax Deed #18309 1-3-39 (6-16-30) PRO 66578 (10-1-37)

LAND INFORMATION

1. SIZE OF TRACT OR LOT ____ x ____ TOPOGRAPHY level GRADE below 10 FT. 2. STREET-ROAD graded SURFACE paved

ALLEY no 3. SIDEWALK plank SEWAGE sewer WATER city PUMP ____ DRAINAGE

4. LANDSCAPING natural CONDITION ____ 5. TREND static VALUE OF LOT $ ____ FRONT STREET

FACTOR $ ____ SIDE STREET FACTOR $ ____ DEPTH FACTOR $ ____ CREDIT

6. USE business 7. DISTRICT poor old

LAND USE	SOIL TYPE	CROPS-TIMBER STAND	NO. ACRES	VALUE ACRE	VALUE
				$	$
					$
					$
					$
LAND SIZE T.D. x 245 ro.		TOTAL	(11)		$

ASSESSED VALUE LAND

LOT	$
UNIMPROVED ACRES	$
IMPROVED ACRES	$
OTHER LANDS	$
TIMBER	$
TOTAL ASSESSED VALUE 50%	$
DATE	

OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE	STAMP
Wm E. Lum	5.25.45		1905.		
West Side Masonic Temple Inc	12-30-48	2808/506	(L's 17 to 20 + 35 to 38)		

REMARKS

DISTRICT: ROAD	SCHOOL	WATER	FIRE

YEAR	AC.	LAND	DATE	BY	REASON	DECREASE	INCREASE
~~1938~~		~~110~~					
1939	EXEMPT	110					
1947		110.	7-11-45	D.E.G.	ASSESS 1947 ROLL		ck 1947
1951		180	11-49	NB			
19							
19							
19							
19							
19							
19							
19							

VACANT — KING COUNTY ASSESSOR — SEATTLE, WASHINGTON

FRAYN PRINTING CO. SEATTLE

FOLIO 3019

PERMIT NO. NONE

DATE

ADDITION NORRIS TO WS

Section NE 23 Twp 24 Range 3 EWM. Block 3 Lot or 28-34 INCL

Tax Lot ______ Tract ______

Address 4752 40th AVE SW

Fee Owner ______ Architect ______ Contractor ______

Zoning C-G Condition of Exterior ______ Interior ______ Foundation ______ Floor Plan: Good ______ Accept. ______ Poor ______

USE BLACK TOP PAV

No. Stories
No. Stores
No. Rooms
Basement
No. Offices — Unit Sq. Ft.
No. Apartmts.
1 rm. ☐ 2 rm. ☐ 3 rm.
4 rm. ☐ 5 rm. ☐ 6 rm.

ROOF CONSTRUCTION

Frame-Joist ______
Mill-Deck ______
Rein. Conc. ______ GLB
Steel Fr. ______ Metal Deck
Trusses ______ Span
Wood ______ Steel

FLOOR FINISHES

Fir ☐ Maple
Oak ☐ 2x6TG
Lino ☐ 3x6TG
Cement ☐ Lgtwgt. Conc.
Terrazzo
Asphalt Tile ☐ Vinyl Tile
or

☐ Tile ☐ Lino ☐ Form.

Bath Floor
Bath Walls
Tub Recess
Drain Bds.
Vanities

PLUMBING

No. Fixtures
Toilets ______ Urinals
Tubs Leg. or Pem.
Basins ______ Dr. Ftns.
Sinks
Washers ______ Dryers
Showers (tub) (stall)
H.W. Tanks ______ Ldy.Trays
D-Washers ______ Disposals
Sprinkler Sys.

Date Built 1969 Date Add. Built ______ ☒ Finished ☐ Unfinished ☐ Remodeled

Effective Age ______ Years Future Life ______ Years

Dep. for Cond. ______ Dep for Ob. ______ Dep. for Es. ______ Total ______

TYPE OF CONSTRUCTION

Frame
Metal-Prefab
Ordinary Masonry
Mill Construction
Class A Rein. Conc.
Stru. Steel and Conc.
Struct. Steel, Frame
or

QUALITY-TYPE

Good Med. Cheap

FOUNDATION

Mud Sill ☐ Post Pier
Conc. ☐ Brick
Load Hgt. ☐ Piling

BASEMENT

Full ______ % Part.
Sub-Basement
Size ______
Garage ☐ No. Cars
Floors
Plastered ☐ Pl. Bd.
No. Apartments
Service Rooms

HEATING

Elec. ______ Oil ______ Gas
H.W. ______ St. ______ H.A.
B.Bd. ______ Suspended
FHA ______ Pipeless
A. Cond. ______ Wall Unit
Comb. Unit ______ Custom
Refrig. ______ Convector
Heat Pump ______ Fireplace

YEAR	ASSESSED VALUE
1971	1700 LL-69

MISC. TANKS, Etc.

HOISTS: Elec. Hydr.

ELEVATORS

Pass. ______ Frght.
Auto. ______ Elec.
Man. ______ Hydr.
Doors-Auto ______ Man.
Escalators
Stops ______ Speed
Cap'y.

DOCKS AND PIERS

Hvy. ___ Med. ___ Lgt.
Untrtd. Pile Tmbr.
Conc. Piles & Bms.
Trtd. Pile Tmbr.
Paved
Dolphins
Deck

WIRING

Knob & Tube
Flex. Cable
Conduit
Pwr. Wiring
Range Wiring
Outlets

EXTERIOR WALL CONST.

Single ☐ Double
Stud Walls
Brick ______ Pil. ☐
Conc. ______ Pil. ☐
Rein. Conc. Skeleton
Str. Stl.-Frame
Pre-Fab Metal
Tilt-Up
Filler Wall
Curtain Wall

EXTERIOR FACING

Siding
Stucco ______ Shakes
Marblecrete
Brick ☐ Veneer
Conc. ☐ Conc. Blk.

FLOOR CONSTRUCTION

Joist ___ x ___ x ___ O.C.
Mill ______ Car Deck
R-Conc. ______ Elev.
Steel ______ GLB.
or

ROOF COVERING

Blt.-Up ______ Tar.&Gr.
Comp. ______ Metal
or

INTERIOR WALLS & CEILING

Stud Wood Metal
Plaster Dry Wall
Acc. Tile Celotex
Ceiled Plywood
Solid Block
Sound Proofed Lamin.
Finished Unfinished
Painted Varnished

INSULATION

Exter. ______ Partitions
Roof ______ Floor

INTERIOR TRIM

Fir ______ Birch
Mah. ______ Oak
Metal
Wood ______ Metal Doors
Wood ______ Metal Sash
Stained ______ Varnish
Painted ______ Unfin.

C.Hgt.	
SB	
B	
1	
2	
3	
4	
5	
6	
7	
8	
9	
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22	
23	
24	
25	
26	

GROUND FLOOR AREA

TOTAL FLOOR AREA

BLACK TOP
PAVING ONLY

20M 11/63

NET INC. (91200) ÷ (9.5) OAR =	960000	ACC. IMPS. (SEE BELOW)	
GROSS INC. (120000) X (7.4) GRM. =	888000	TOTAL IMPROVEMENTS	
NO. UNITS ( ) X ( ) /UNIT =		LAND	
AREA (27545) X (40) $/SF =	1101800	TOTAL BY COST APPROACH	
		DATE COSTED TO:	

LAND CALC.: 33000+12000□+3000□+9000□ X $18.00/□

SELECTED VALUE

LAND: 594000
IMPS: 49000
TOTAL: 643000

APPR. RHOP
DATE 2-14-89

ACC. IMPS.	AREA	COST	DEP.	RCNLD
TOTAL				

COMPARABLE SALES

	E NO.	AMOUNT	DATE	DETAILS/REMARKS
1	805259/62	992600	12-84	SUBJECT
2				
3				
4				

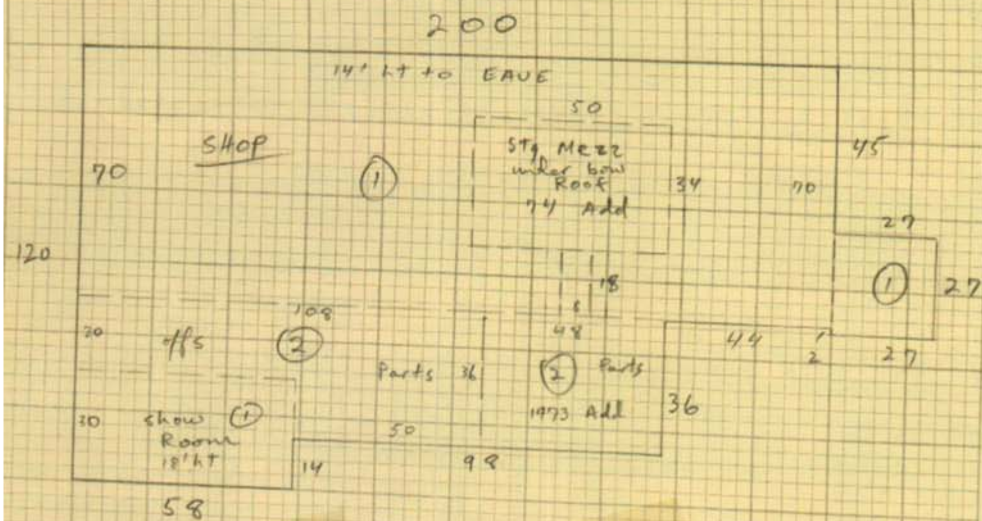
COMMENTS: HART CHEVROLET SALES & SERVICE INCLUDES MINORS 0505, 0520 & 0525 LAND TO BLDG 2 TO 1
FIGURED SHOWROOM @ 60¢ OFFICE @ 75¢ SVC GAR
VALUED TOTAL @ $1075000 BASED ON INCOME

MINOR	LAND	BLDG	TOTAL
0555	594000	49000	643000
0525	216000		216000
0520	5400		54000
0505	162000		162000
TOT	1026000	49000	1075000

MAJOR 612660 MINOR 0555 SPLIT ___ FOLIO 3019 SUBLETTER ___ SUBNUMBER ___

33 – PLAT OF BUILDING

1cm = 20'



34 – CALCULATIONS

4-75 Rents

Parcels 0545, – lot

0555, 0665, 0685 – imp

$2800/mo.

OUTSIDE DIAMETER	WALL LENGTH	BIN OUTSIDE DIAMETER	PSI	TOWER HEIGHT	DEPRECIATED VALUE	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
							19	%
							19	%
							19	%
							19	%
							19	%
							19	%
							19	%
							19	%
							19	%

– REMARKS

1-75 STg Mezz added, P.V $7000. Bldg overlaps 0665, 0685.

LAND

0665 – 39000

0685 – 31500

0555 – 21,000

91500

57 – INCOME DATA

ANNUAL ECONOMIC OR ACTUAL GROSS INCOME	$
LESS VACANCY	
ANNUAL EFFECTIVE GROSS INCOME LONG TERM LEASE	$ 33600
LESS EXPENSES 15%	
ANNUAL NET INCOME	$ 28560
LAND VALUE (UNIT ___ X UNIT VALUE ___ - ___)	
LAND RATE (INTEREST ___ % + TAXES ___ % = ___ %)	
LESS LAND INCOME (VALUE 91500 X 9.1 X RATE ___ %)	8326
NET INCOME TO BUILDING	$ 20234
÷ BUILDING RATE (INTEREST 7 % + TAXES 2.1 % + RECAPTURE 3 %)	12.1
BUILDING VALUE	$

58 – PERMIT DATA

NUMBER	DATE	VALUE	DATE STARTED	DATE COMPLETED

59 – SALES RECORD

MONTH	YEAR	AMOUNT

60 – STAFF

FOLIO 3019

PERMIT NO. 508 084

DATE 7-15-64

ADDITION Norris to West Seattle LOTS 39 TO 42 incl

Section NW 23 Twp. 24 Range 3 Ewm. Block 3 Lot or 39-42 inc.

Tax Lot Tract

Address 4726 - 40 Ave SW

Fee Owner Fiedler Chevrolet Architect Roderick G Parr Contractor

Condition of Exterior G Interior G Foundation G Floor Plan: Good ✓ Accept. Good

USE Auto Body Shop

1	No. Stories CG
	No. Stores
	No. Rooms
	Basement
✓	No. Offices Small
	No. Apartments
	1 rm. ☐ 2 rm. ☐ 3 rm.
	4 rm. ☐ 5 rm. ☐ 6 rm.

TYPE OF CONSTRUCTION

✓	Frame TVN
	Single ☐ Double
	Ordinary Masonry Semi Insulated
	Mill Construction
	Class A Rein. Con.
	Stru. Steel and Con.
	Tile ☐ Brick
	Con. ☐ Rein. Con.

Good ___ Med. ✓ Cheap

FOUNDATION

	Mud Sills
	Post and Pier
	Brick
✓	Concrete
	Pile

BASEMENT

	Full ☐ %
	Sub-Basement
	Size
	Garage ☐ No. Cars ___ Floors
	Plastered
	Living Rooms
	Service Rooms

EXTERIOR WALL CONST.

	Single ☐ Double
	2" x 4" Stud Walls
	2" x 6" Stud Walls
X	~~Brick Walls~~ METAL 3-WALLS
	Brick with Pilasters
✓	~~Concrete Walls~~ Block
	Con. with Pilasters 1 WALL
	Tile Walls
	Rein. Con. Skel.
	Filler Walls
	Laminated Walls

EXTERIOR FACING

	Siding ☐ Shingles
	Shakes ☐ Stucco
	Brick Veneer
✓	Colored Metal Kind
	Stone ☐ Cast S.
	Terra Cotta
	Struc. Glass
✓	Block Trim

FLOOR CONSTRUCTION

Joist Con. Size ___ x ___

O.C. ___ In Bridg. ☐

Mill Construction

4" Rein. Con. ——

ROOF CONSTRUCTION

	Frame Lam. ☐
	Mill Construction
	Rein. Concrete
4	No. Trusses 70'
	Wood ☑ Steel

ROOFING MATERIAL

	Tar and Gravel
Or	26 GA Iron Sheet

FLOOR FINISHES

	Fir ☐ Maple
	Oak ☐ 2"x6" T&G
	Lino. ☐ 3"x6" T&G
✓	Cement
	Terrazzo
	Raecolith
	Tile
Or	

0	Tile ☐	Lino. O
	Baths ☐ Fl. ☐ Walls	
Tile Total	Sq. Ft. ___ Floors	
	Sq. Ft. ___ Walls	
	Lin. Ft. ___ Dr. Bds.	
Lino. Total	Sq. Ft. ___ Floors	
	Sq. Ft. ___ Walls	
	Lin. Ft. ___ Dr. Bds.	
	Kit's ☐ Fl. ☐ Walls	

PLUMBING

6	No. Fixtures
1	Toilets
	Tub, Leg or Pem.
	Basins, Ped.
3	Sinks
1	Urinals
	Showers (Tub) (Stall)
	Laundry Trays
1	H. W. Tank Fl. Drains ☐
	Sprink. Sys. No. ___ Hds.

HEATING

	Stove
	Pipeless Furnace
	Gravity H. A.
	Air Cond., Fan
2	Suspended Gas, Hot Water
	Steam Heat
	Hot Water
✓	Gas FA - ½ Building ~~Oil~~ Burner

Year	Assessed Value
1966	7900 21.Q.G. 12-64
1967	8250 - HCS '65
71	16500
1971	16100 LL6950%

Date Built 1964 ☑ Finished ☐ Unfinished ☐ Remodeled

Effective Age ___ Years Future Life ___ Years

Dep. for Cond. ___ total 2%

Fact

$

TANK

Insulated

Pass.	☐ Freight		Treated Piles, Timb.		Knob & Tube
Auto.	☐ Elec.		Untreated		Flex. Cable
Man.	☐ Hyd.		Treated Piles only	✓	Conduit
	☐ Man.		Average Length		Power Wiring
			Paved		Range Wiring
Hoists: Elec. ___ Hyd.					No. Outlets

INTERIOR WALLS

	Stud and Plaster
	Lam. ☐ Plastered
	Plywood
	Ceiled
	Plaster Board
	Painted
	Stain ☐ Varnish
	Kalsomine
	Whitewashed
✓	Unfinished Conc Blk Area

INTERIOR TRIM

	Fir
	Mah. ☐ Oak
	Metal
✓	Metal Doors
	Alum. Windows
	Stained
	Varnished
	Painted
✓	Unfinished

C. H.	
B	
1	14
2	
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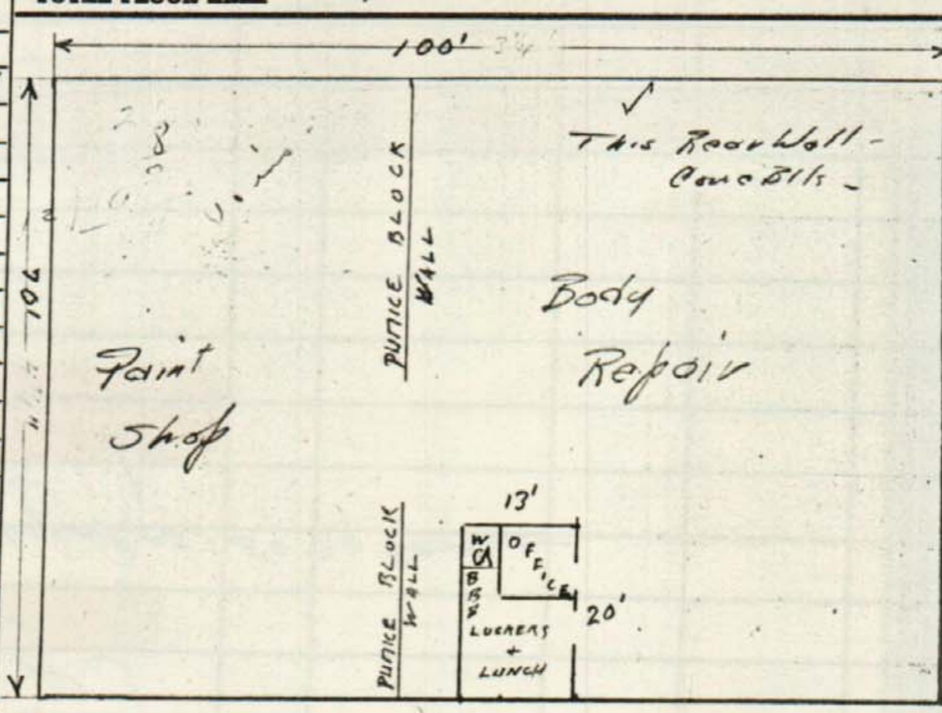
GROUND FLOOR AREA 7000

TOTAL FLOOR AREA 7000



Other Buildings	Construction	Floor	Roof	Stories	Dimensions	S. F. Area	Factor	Value	% Dep.	Deprec.	Net Value
Garage					x			$		$	$
					x			$		$	$
					x			$		$	$
					x			$		$	$

5M 2-61

C. B. wall

100

70

33-55 – ACCES

SECTION NO.	SIDE METER	WALL LENGTH	BIN OUTSIDE DIAMETER	PSI	TOWER HEIGHT	DEPRECIATED VALUE	YEAR BUILT	EFFECTIVE YEAR	NET CONDITION
37							64	19	55
44							64	19	55 %
44							64	19	55 %
								19	%
								19	%
								19	%
								19	%
								19	%
								19	%

56 – REMARKS

4-75 owner occ
insulated walls & ceiling.

Est 11 d 7

57 – INCOME DATA

ANNUAL ECONOMIC OR ACTUAL GROSS INCOME	$ 9240
LESS VACANCY 5%	
ANNUAL EFFECTIVE GROSS INCOME	$ 8778
LESS EXPENSES 10%	
ANNUAL NET INCOME	$ 7900
LAND VALUE (UNIT ___ X UNIT VALUE ___)	
LAND RATE (INTEREST ___% + TAXES ___%)	
LESS LAND INCOME (VALUE 40300 X RATE 9.1)	3667
NET INCOME TO BUILDING	$ 4233
÷ BUILDING RATE (INTEREST 7% + TAXES 2.1% + RECAPTURE 3%)	12.1
BUILDING VALUE	$ 34983
PERSONAL PROPERTY VALUE	
LAND VALUE	40300
INDICATED TOTAL PROPERTY VALUE	$ 75283

58 – PERMIT DATA

NUMBER	DATE	VALUE	DATE STARTED	DATE COMPLETED

59 – SALES RECORD

MONTH	YEAR	AMOUNT

60 – STAFF

DATE	ENUMERATOR	CLASSIFIER	CALCULATOR	REVIEWER
4-75	56	56	56	15

1. DISTRICT 23-C

L S
W S

CODE NO. 2

2. ADDITION NORRIS ADD TO W.S.

SECTION ___ TWP. ___ N. RANGE ___ EWM. ___ BLOCK 3 TRACT OR LOT NO. ___

DESCRIPTION

612660-078

3. ADDRESS OF PROPERTY KING Co. TAX Deed No 11950 (8-2-37) CONTRACT PURCHASER

4. FEE OWNER

LAND INFORMATION

1. SIZE OF TRACT OR LOT ___ x ___ TOPOGRAPHY level GRADE below 10 FT. 2. STREET-ROAD gr

ALLEY no 3. SIDEWALK plank SEWAGE sewer WATER city PUMP

4. LANDSCAPING natural CONDITION ___ 5. TREND static VAL

FACTOR $ ___ SIDE STREET FACTOR $ ___ DEPTH FACTOR $ ___ CREDIT

6. USE business 7. DISTRICT

LAND USE	SOIL TYPE	CROPS-TIMBER STAND	NO. ACRES	VALUE ACRE	VALUE
				$	$
					$
					$
					$
C LAND SIZE T.D. x 27965		TOTAL	13		$

LOT
UNIMPR
IMPROV
OTHER L
TIMBER
TOTAL A
DATE
REMARKS

C OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE	STAMP
Wm C. Lum	9-27-46		880-		

DISTRICT: ROAD	SCHOOL	WATER	FIRE	
Seattle 1				METRO

ASSESSED VALUE			DECREASE OR INCREASE IN ASSESSED VALUATION			LAND	
YEAR	AC.	LAND	DATE	BY	REASON	DECREASE	INCREASE
1938		60			~~Exempt~~		
1946		50	4/10/65	Peter			
19					~~CO. CONTRACT~~ 13018		
1948		50	10-21-46	DEJ.	assess 1948		
1951		80	11-49	NB			
1956		160					
1957		750	5-28-56	at	Rw		
1962		1500	5-24-61	Bls	Rr		
1968		2750	1-16-67	Wel	Rc		

71 L . 5500 B T 5500*612660-0780-0 8/9

VACANT — KING COUNTY ASSESSOR — SEATTLE, WASHINGTON FRAYN PRINTING CO. SEATTLE

DISTRICT 23-C

2. ADDITION NORRIS ADD TO W.S. 61266 0780 145

43 444

SECTION TWP. N. RANGE EWM. BLOCK 3 TRACT OR LOT NO.

DESCRIPTION

612660-0780 1500 0010

0735

W S

CODE NO. 2

ADDRESS OF PROPERTY KING Co. TAX Deed No 11950 (8-2-37) CONTRACT PURCHASER

FEE OWNER

LAND INFORMATION

SIZE OF TRACT OR LOT x TOPOGRAPHY level GRADE below 10 FT. 2. STREET-ROAD graded SURFACE gravel

ALLEY no 3. SIDEWALK plank SEWAGE sewer WATER city PUMP DRAINAGE

LANDSCAPING natural CONDITION 5. TREND static VALUE OF LOT $ FRONT STREET

FACTOR $ SIDE STREET FACTOR $ DEPTH FACTOR $ CREDIT

USE business 7. DISTRICT poor old

LAND USE	SOIL TYPE	CROPS-TIMBER STAND	NO. ACRES	VALUE ACRE	VALUE
				$	$
					$
					$
					$
LAND SIZE T.D. x 27965		TOTAL		13	$

OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE	STAMP
Wm E. Lunn	9-27-46		880-		

ASSESSED VALUE LAND

LOT $

UNIMPROVED ACRES $

IMPROVED ACRES $

OTHER LANDS $

TIMBER $

TOTAL ASSESSED VALUE 50% $

DATE

REMARKS

DISTRICT: ROAD	SCHOOL	WATER	FIRE
Seattle 1			

METRO

YEAR	AC.	LAND	DATE	BY	REASON	LAND DECREASE	LAND INCREASE
1938		60	4/10/45	Peter	~~Exempt~~		
1946		50			~~CO. CONTRACT~~ 17018		
19							
1948		50	10-21-46	DEG.	assess 1948		
1951		80	11-49	NB			
1956		160					
1957		750	5-28-56	at	Rw		
1962		1500	5-29-61	Bls	Rr		
1968		2750	1-10-67	wsl	RJ		

71 L 5500 B T 5500*612660-0780-0 8/9

VACANT — KING COUNTY ASSESSOR — SEATTLE, WASHINGTON FRAYN PRINTING CO. SEATTLE

ADDITION Norris Add to W.S. **612660** 0780

NE 1/4 SECTION 23 TWP. 24 N. RANGE 3 BLOCK 3 LOT 43 & 44

Folio 3019

LIMITS

DESCRIPTION

OWNER OR CONTRACT PURCHASER	DATE	FILE NUMBER	PRICE	REMARKS
Wm. E. Lum	9-27-46		880—	

DISTRICT: ROAD	SCHOOL	WATER	FIRE	SEWER	FLOOD ZONE	HOSPITAL	PARK & REC. DIST.	AIRPORT	METRO		LEVY CODE
Seattle 1									✓		0010

ASSESSED VALUE

YEAR	ACRES	TIMBER	LAND	BLDGS.	TOTAL	DATE	BY	REASON	SEG. NO.
1971			5500		5500	8/69	VT	50% Conv	
1972			12320		12320	5/28/71	VT	RV 1	
19		72 L	9782 B		0 T	9782*612660-0780-0 9/71			
19		73 L	12320 B		0 T	12320*612660-0780-0 9/71			
19									
19									
19									
19									
19									
19									
19									
19									

20M 7-69 48

61266

45 7 4C 0790 1.4.7

1. DISTRICT W.S. CODE NO. 2

2. ADDITION NORRIS ADD TO W.S. SECTION TWP. N. RANGE EWM. BLOCK 3 TRACT OR LOT NO.

DESCRIPTION

612660-0790 1500 0010

Less por for alley

~~0745~~

COUNTY CONT. 11053

3. ADDRESS OF PROPERTY ~~KING Co. TAX Deed No 11950 (8-2-37)~~ CONTRACT PURCHASER

4. FEE OWNER

LAND INFORMATION

1. SIZE OF TRACT OR LOT x TOPOGRAPHY level GRADE below 10 FT. 2. STREET-ROAD graded SURFACE gravel

ALLEY no 3. SIDEWALK plank SEWAGE sewer WATER city PUMP DRAINAGE

4. LANDSCAPING natural CONDITION 5. TREND static VALUE OF LOT $ FRONT STREET

FACTOR $ SIDE STREET FACTOR $ DEPTH FACTOR $ CREDIT

6. USE business 7. DISTRICT poor old

LAND USE	SOIL TYPE	CROPS-TIMBER STAND	NO. ACRES	VALUE ACRE	VALUE
				$	$
					$
					$
					$
LAND SIZE	TDA 31929		TOTAL		$

ASSESSED VALUE LAND

LOT $

UNIMPROVED ACRES $

IMPROVED ACRES $

OTHER LANDS $

TIMBER $

TOTAL ASSESSED VALUE 50% $

DATE

REMARKS

OWNER OR CONTRACT PURCHASER	DATE	FILE NO.	PRICE	MTGE.	STAMP
Wallace E. Cole	6-22-50		275	mH.	

DISTRICT:	ROAD	SCHOOL	WATER	FIRE
Seattle 1				

METRO

ASSESSED VALUE — DECREASE OR INCREASE IN ASSESSED VALUATION

YEAR	AC.	LAND	DATE	BY	REASON	LAND DECREASE	LAND INCREASE
1938		60			Exempt		
1946		5	4/6/45	Pelett	COUNTY CONT. 11053		
1949		50	8-47	W		COUNTY CONT. 11053	
1951		80	11-49	NB			
1956		160	4-54	E.P.	Merged		
1957		750	5-28-56	at	Rlw		
1962		1500	5-29-61	BLS	Rr		
1968		2750	1-16-67	WD	RJ		
71	L	5500 B		T	5500*612660-0790-0 8/9		
1974		4960	10/6/70	PA(S)	Cty av + lgl (Ord 99299-9/24/70)		

N 12322

A-6919

ADDITION Norris Add to W.S. 612660 . 0790

NE 1/4 SECTION 23 TWP. 24 N. RANGE 3 BLOCK 3 LOT 45

Less Por for alley

Folio 3019

LIMITS

DESCRIPTION

OWNER OR CONTRACT PURCHASER	DATE	FILE NUMBER	PRICE	REMARKS
Wallace E Cole	6-22-50	XD#31929	275	

DISTRICT: ROAD	SCHOOL	WATER	FIRE	SEWER	FLOOD ZONE	HOSPITAL	PARK & REC. DIST.	AIRPORT	METRO		LEVY CODE
Seattle 1									✓		0010

ASSESSED VALUE

YEAR	ACRES	TIMBER	LAND	BLDGS.	TOTAL	DATE	BY	REASON	SEG. NO.
19 71			4960		4960	10/6/70	DH(S)	Chg Av & Legal (Ord #99299-9/24/70)	
19 72			12260		12260	5/28/71	UT	Rv	
19		72 L	9734 B	0 T	9734*612660-0790-0 9/71				
19		73 L	12260 B	0 T	12260*612660-0790-0 9/71				
19									
19									
19									
19									
19									
19									
19									
19									

20M 7-69 48

RVI150-18 (DATA ENTRY: RVI100-J)
C/I DATA COLLECTION AND DISPLAY FORM (100) ACCOUNT NO: 612660-0780-0
LOG/DATE: EB5 04/17/95 FOLIO: 03019- -
LEVY CODE: 0010 LAST UPDATE: 04/17/95 BY: OME
TAX STATUS: TAXABLE APPR ID:____ MO__DA__YR__ AREA: 310
Q/SC/TW/RG: NE/23/24/03 __/__/__/__/ WEST SEATTLE

LAND USE: 401 PROP NAME: STORAGE LOT
ASSOCIATED PAR (105)
PROPERTY ADDRESS: 4712 4TH AV SW
(110)
RB NUM FR PR STREET NAME TY SU

(112)++++++++++++++++++++ COMMERCIAL/INDUSTRIAL LAND RECORD +++++++++++++++++++++++++

ZONING JURIS/__ SEATTLE % USABLE/__ 100
ZONE ACTUAL/__ C1 65 TOPOGRAPHY/_ LEVEL
ZONE CODE/__ COMML SHAPE/_ REGULAR
LOT SIZE/_________ 11,469.00 ACCESS/_ STANDARD
UNIT/S_A_ SQFT VISUAL EXPOSURE/_ STANDARD
CORNER LOT/Y_N_ NO OPEN SPACE CLASS. NO
WATERFRONT ON/_ NONE RESTRICTIVE CONDITIONS/Y_N_ NO
CONTAMINATED PROP NO_ HW_ HC_ UT_ AS_ NO

(335)++++++++++++++++++++++++++++ PERMIT ACTIVITY ++++++++++++++++++++++++++++++++++++

ACT BLDG: TYPE PERMIT DATE VALUE % COMPLETE
--- % ___%
--- % ___%
ADD ___ ____ __/__/__ _________ % ___%
___%

(510)++DEL ALL BLDGS /__/+++++++ PROPERTY WIDE IMPROVEMENTS SUMMARY ++++++++++++++++

DESC:
TOTAL BLDGS ON PROPERTY/ __ 0
YEAR BLT/__ 0 CLASS/ __ GROSS AREA (ALL BLDGS)/ ______ 0
EFF YEAR/__ 0 QUAL/__ NET AREA (ALL BLDGS)/ ______ 0
LOT COVERAGE/___ MULTI-USE/Y_N_
NUMBER OF UNITS/___ 0 MULTI-PARCEL PROP/Y_N_
0

(500)++++++++++++++++++++ INDIVIDUAL BUILDING DETAILS ++++++++++++++++++++++++++++++

BLD NUM	CL AS	QU AL	DESCRIPTION	NU ST	GROSS AREA	NET AREA	YB/EY	% CMP	HE AT	SP KL
#1	--	-	----------------------	--	------	------	__/__	--	--	N
#2	--	-	----------------------	--	------	------	__/__	--	--	N
#3	--	-	----------------------	--	------	------	__/__	--	--	N
#4	--	-	----------------------	--	------	------	__/__	--	--	N

(520)+++++++++++++++++++++++++ INTERIOR SECTION DETAILS ++++++++++++++++++++++++++++++

BLD#	SECT 1 AREA	SECT 1 STR-HT	SECT 2 AREA	SECT 2 STR-HT	SECT 3 AREA	SECT 3 STR-HT	SECT 4 AREA	SECT 4 STR-HT
1	------	-- _/__	------	-- _/__	------	-- _/__	------	-- _/__
2	------	-- _/__	------	-- _/__	------	-- _/__	------	-- _/__
3	------	-- _/__	------	-- _/__	------	-- _/__	------	-- _/__
4	------	-- _/__	------	-- _/__	------	-- _/__	------	-- _/__

(589)++++++++++++++++++++++ACCESSORY IMPROVEMENT SUMMARY ++++++++++++++++++++++++++++

ACT ENT DESCRIPTION ACT ENT DESCRIPTION
/__/ (1) ---------------------- /__/ (2) ----------------------
(160)+++++++++++

Building Plans

609037

MASTER USE AND CONSTRUCTION APPLICATION AND PERMIT

CITY OF SEATTLE

Department of Construction and Land Use

Permit Number

Master Use Application Number 8

Kroll Map Page 61E

Microfilm

Application made: 6-24 1983

Address of Project: 4713 FAUNTLEROY WAY SW (4713-21)

Also known as

Legal Description: Lot 9-12 Block 3

NORRIS Addition

Lot Size 100'x120' Street Widths 80' Alley Width 16'

Receipt Number	Amount
B18C48	1320.00
5-20725	1793.26

Description of Project: FOR THE RECORD, DEMOLISH ~~[illegible]~~ OFFICE BUILDING, RESTAURANT BUILDING AND REPAIR GARAGE BUILDING AND CONSTRUCT MINOR AUTO REPAIR BUILDING PER PLANS.

[illegible]

MUP 83-292

APPROVALS REQUESTED	Action* Referral	Fee
Construction Components		
	6-24-83	2219.00
	6-24-83	60.00
	PAVEMENT	156.26
		438.00
	6-24-83	240.00
Overtime Fee		
Penalty Fee		
Total Construction Fees		3113.26
Master Use Components		
Total Land Use Fees		
Master Use Street Use Components	6-24-83	SP Permit
Total Street Use Fees:		
Total Permit Fees:		3113.26

NA

200,000

200,000

414,297

8/4

NA

1

X CG Automobile Repair Minor

X

X

Owner's Name SAFE INVESTMENTS

Contact Person JOHN SERKLAND

Relationship to project: ARCH. Phone: 523-5519

Address 5229 ROOSEVELT WAY NE Zip: 98105

Contractor TITAN CONST Phone:

LICENSE NO. TI-TA-NC-C 1197 BL.

X [signature] ARCH.

Applicant's Signature — Relationship of Applicant to Project

[signature]

10 6 83 Date of Expiration 10 6 84

Other Approvals Required This Permit

NA

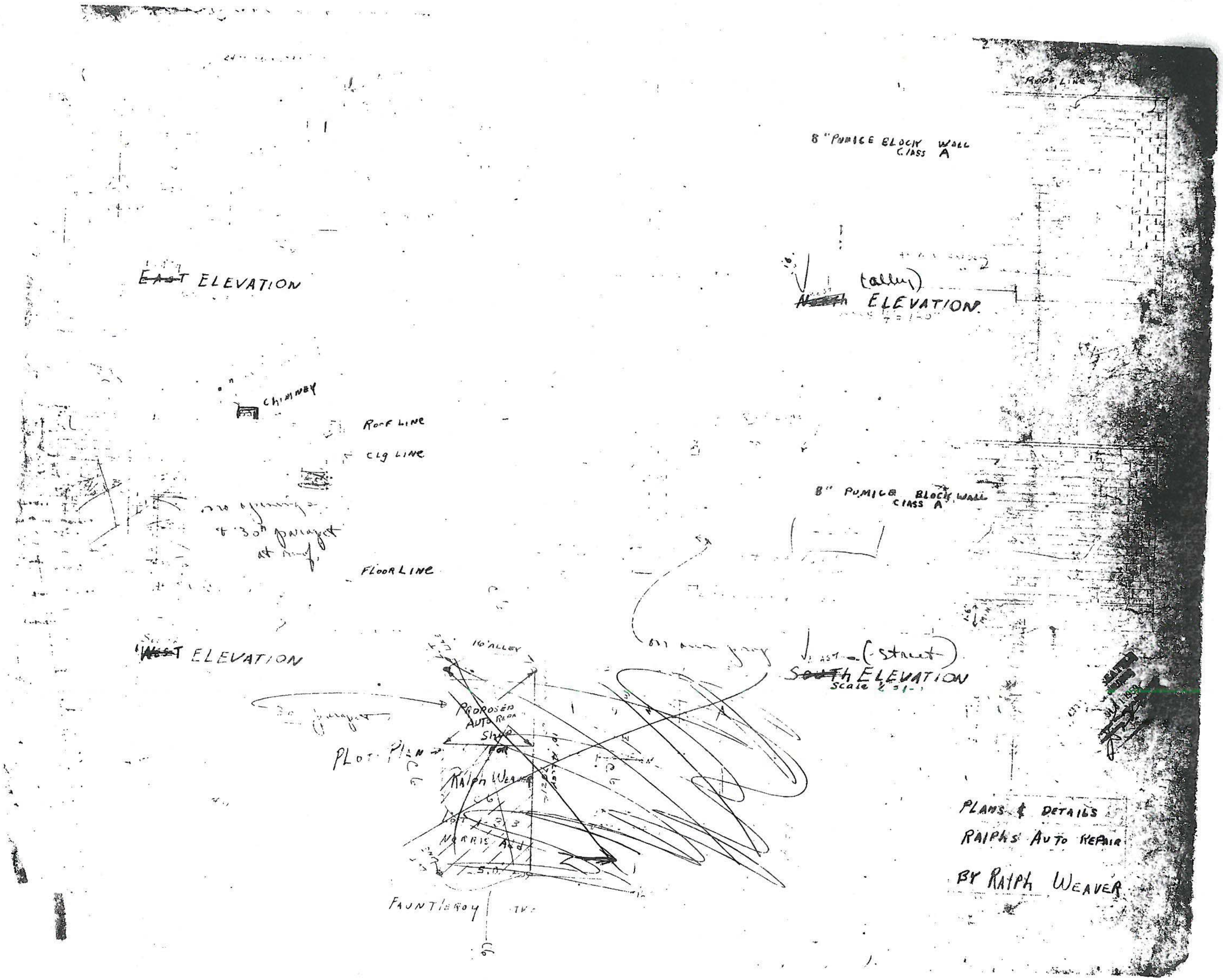
Other

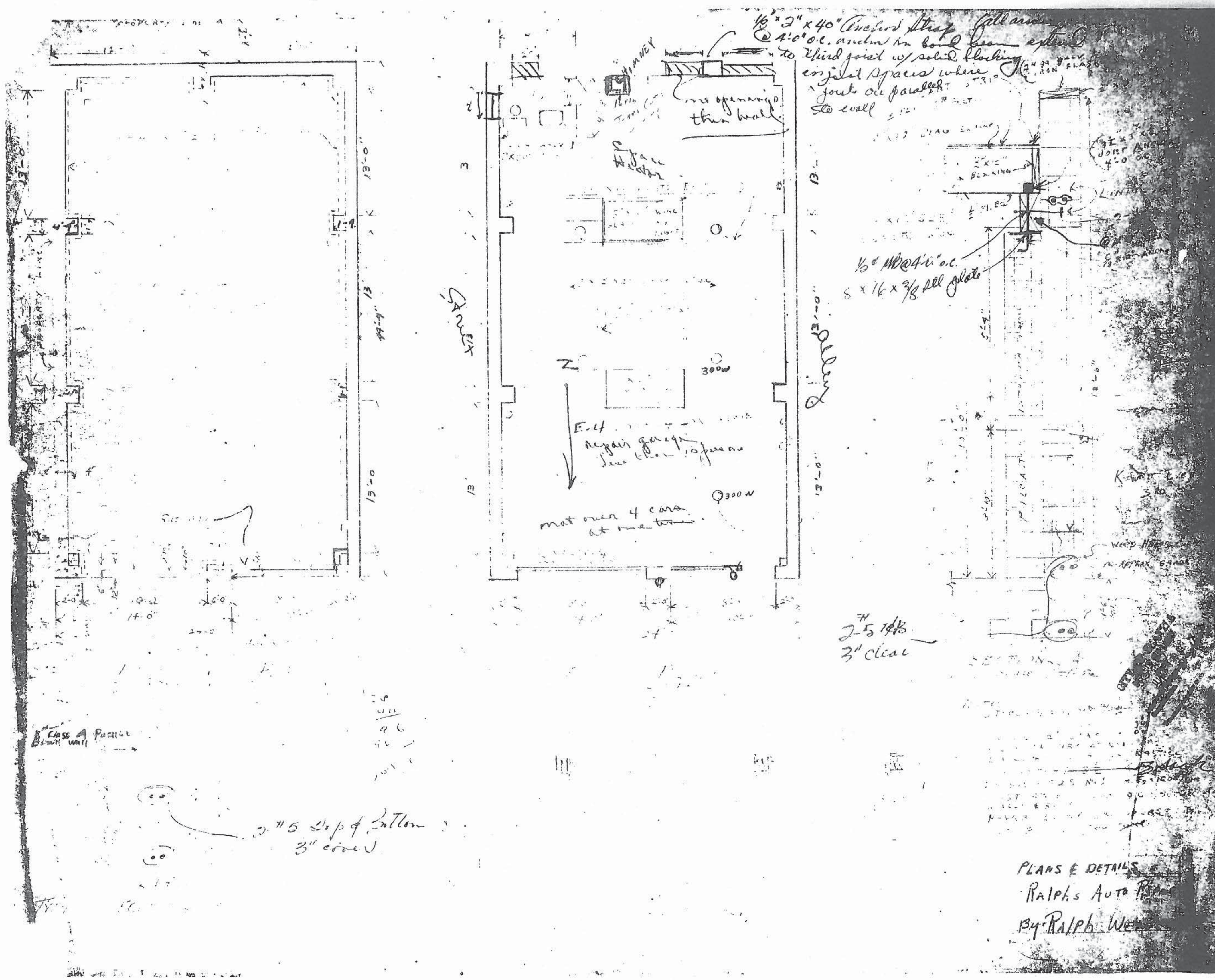
Misc. Notes — Dept. Use Only

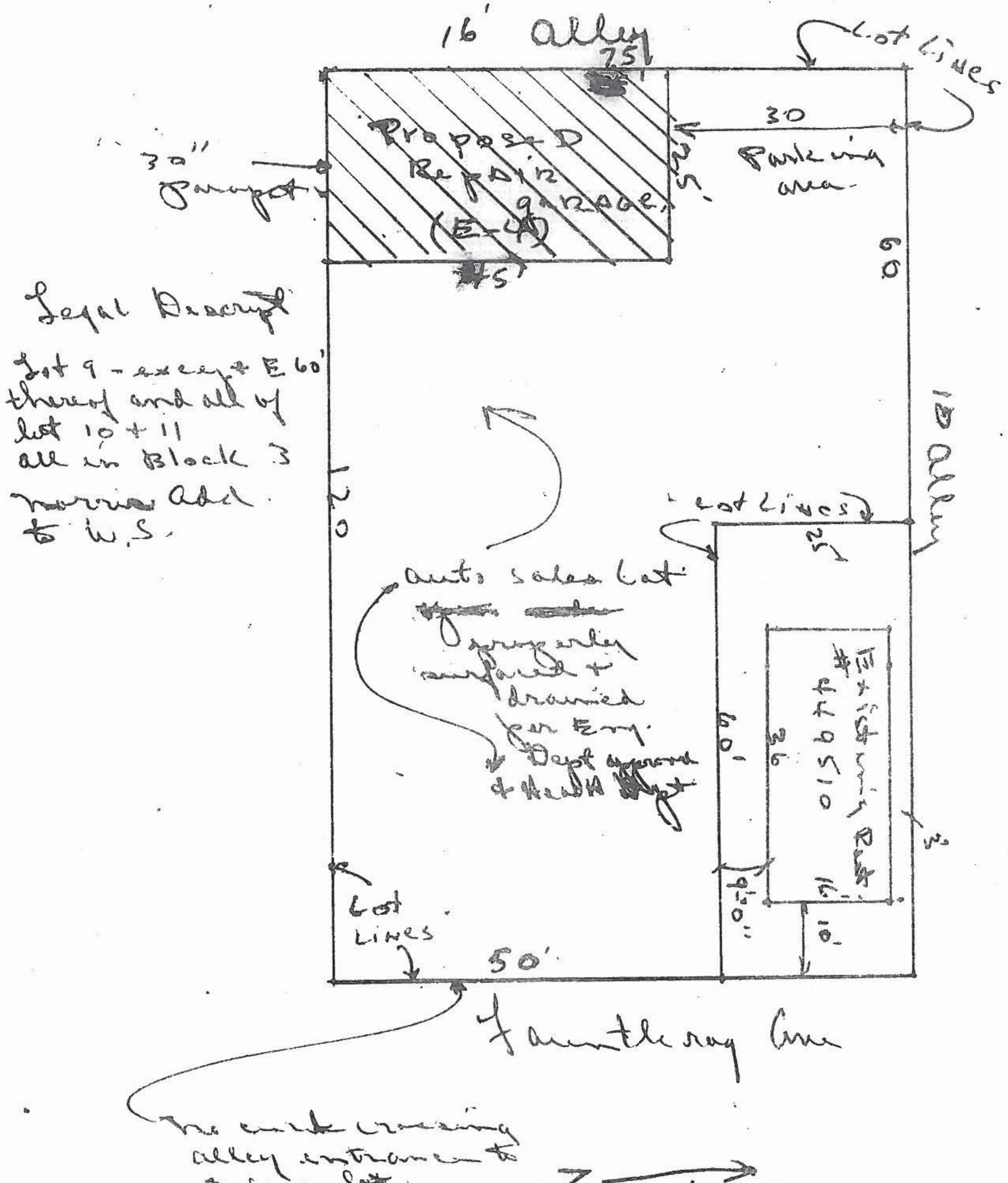
Caution: Work on a substantial progress toward construction of a project for which a Master Use Permit or construction permit has been granted must be undertaken prior to the expiration date. ... Penalty fees will be assessed to reinstate an expired permit.

Not valid unless signed by the DIRECTOR OF THE DEPARTMENT OF CONSTRUCTION AND LAND USE. Starting construction without a building permit is punishable by fine and/or imprisonment. All work shall be done in accordance with this permit and approved plans. Call for inspection before placing any concrete or installing any piling on private property. Phone 625-2301.

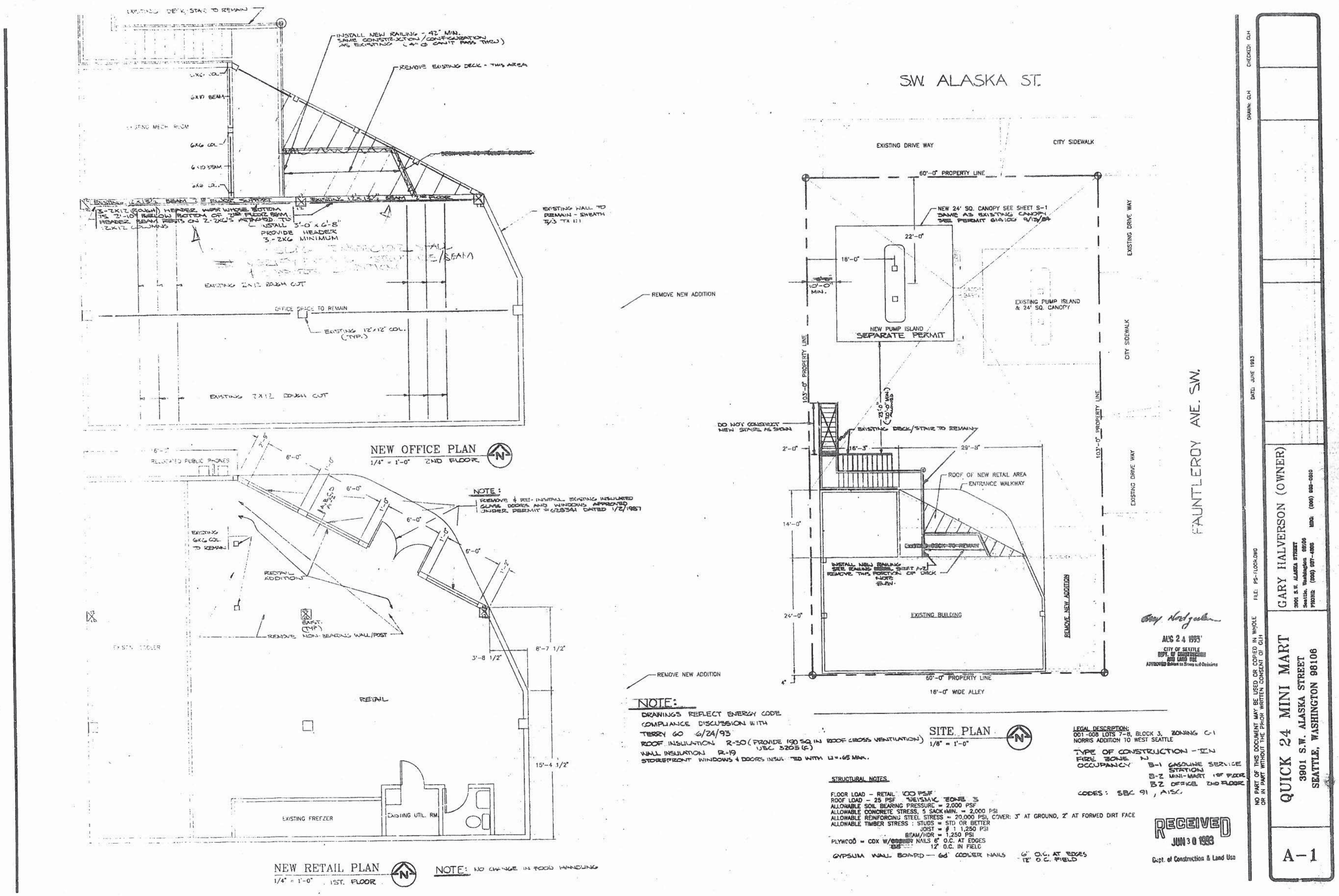
CS 5.249 REVISED 10/81


ROOF LINE
8" PUMICE BLOCK WALL CLASS A
~~East~~ ELEVATION
(alley)
~~North~~ ELEVATION
CHIMNEY
ROOF LINE
CLG LINE
FLOOR LINE
8" PUMICE BLOCK WALL CLASS A
~~West~~ ELEVATION
(street)
~~South~~ ELEVATION
16' ALLEY
PROPOSED AUTO REPAIR SHOP FOR Ralph Weaver
PLOT PLAN
NORRIS ADD
FAUNTLEROY
PLANS & DETAILS
RALPHS AUTO REPAIR
BY RALPH WEAVER

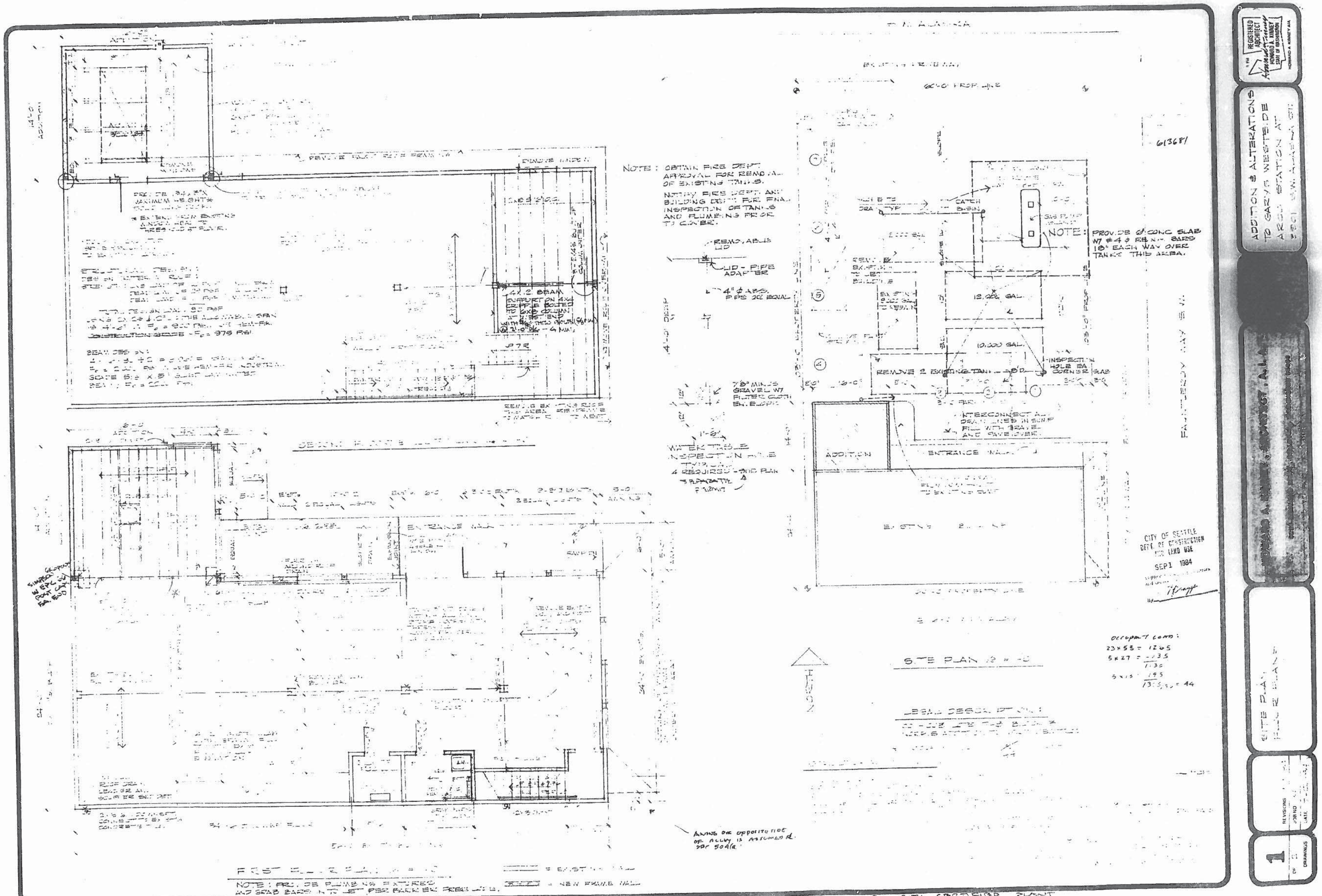

1/2" x 2" x 40" Anchor Strap @ 4'-0" o.c. anchor in bond beam extend to third joist w/ solid blocking in joist spaces where joists are parallel to wall
1/2" ø AB @ 4'-0" o.c.
8 x 16 x 3/8 stl plate
2-5 ##
3" clear
Street
Alley
not over 4 cars at one time
300W
300W
no openings thru wall
Plans & Details
Ralphs Auto Re
By: Ralph We


16' Alley
7.5'
Lot Lines
30
Parking area
30" parapet
Proposed Repair garage (E-4)
7.5'
60
Legal Descript
Lot 9 - except E 60' thereof and all of lot 10 + 11 all in Block 3 Morris Add to W.S.
120
10 Alley
Lot Lines
Auto sales lot
properly surfaced + drained for Eng. Dept approval & Health Dept
60'
36
4450
Lot Lines
50'
Fauntleroy Ave
No curb crossing alley entrance to sales lot
N

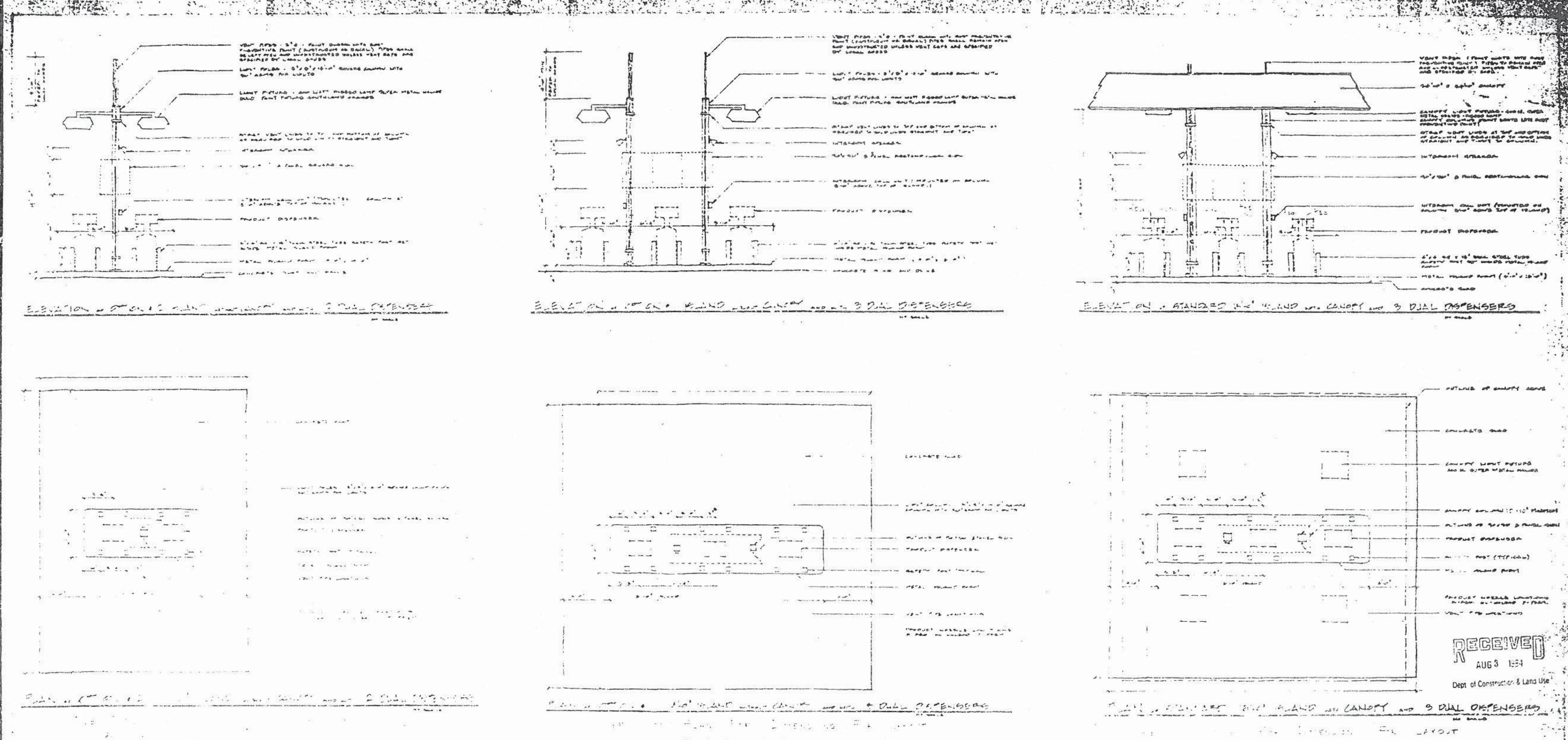
Plat Plan

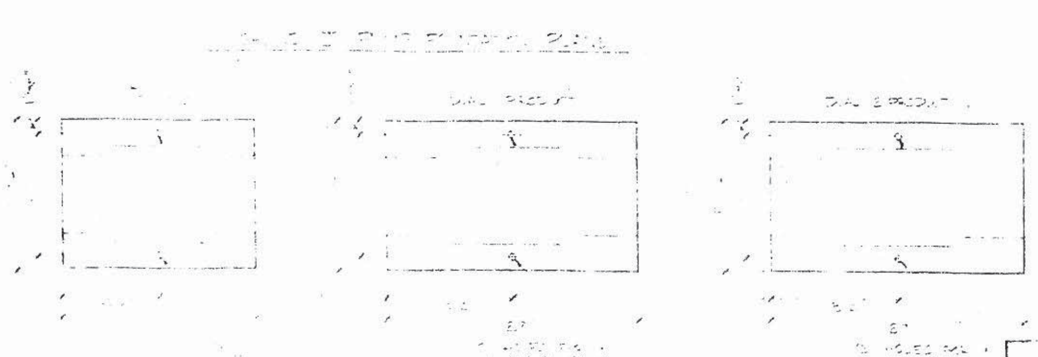


INSTALL NEW RAILING - 42" MIN. SAME CONSTRUCTION/CONFIGURATION AS EXISTING (4" Ø CAN'T PASS THRU)
REMOVE EXISTING DECK - THIS AREA
EXISTING WALL TO REMAIN - SHEATH
EXISTING 2X12 ROUGH CUT
OFFICE SPACE TO REMAIN
EXISTING 12"x12" COL. (TYP.)
EXISTING 2X12 ROUGH CUT
REMOVE NEW ADDITION
NEW OFFICE PLAN
1/4" = 1'-0" 2ND FLOOR
RELOCATED PUBLIC PHONES
NOTE: REMOVE & RE-INSTALL EXISTING INSULATED GLASS DOORS AND WINDOWS APPROVED UNDER PERMIT #628341 DATED 1/2/1987
RETAIL ADDITION
REMOVE NON-BEARING WALL/POST
RETAIL
EXISTING FREEZER
EXISTING UTIL. RM.
NEW RETAIL PLAN
1/4" = 1'-0" 1ST. FLOOR
NOTE: NO CHANGE IN FOOD HANDLING
S.W. ALASKA ST.
EXISTING DRIVE WAY
CITY SIDEWALK
60'-0" PROPERTY LINE
NEW 24' SQ. CANOPY SEE SHEET S-1 SAME AS EXISTING CANOPY SEE PERMIT 614100 9/13/84
EXISTING PUMP ISLAND & 24' SQ. CANOPY
NEW PUMP ISLAND SEPARATE PERMIT
103'-0" PROPERTY LINE
DO NOT CONSTRUCT NEW STAIRS AS SHOWN
EXISTING DECK/STAIR TO REMAIN
ROOF OF NEW RETAIL AREA
ENTRANCE WALKWAY
EXISTING BUILDING
REMOVE NEW ADDITION
60'-0" PROPERTY LINE
16'-0" WIDE ALLEY
FAUNTLEROY AVE. S.W.
NOTE:
DRAWINGS REFLECT ENERGY CODE COMPLIANCE DISCUSSION WITH TERRY GO 6/24/93
ROOF INSULATION R-30 (PROVIDE 190 SQ IN ROOF CROSS VENTILATION) UBC 3205(E)
WALL INSULATION R-19
STOREFRONT WINDOWS & DOORS INSULATED WITH U=.65 MAX.
SITE PLAN
1/8" = 1'-0"
LEGAL DESCRIPTION: 001-008 LOTS 7-8, BLOCK 3, ZONING C-1 NORRIS ADDITION TO WEST SEATTLE
TYPE OF CONSTRUCTION - V-N
FIRE ZONE N
OCCUPANCY B-1 GASOLINE SERVICE STATION
B-2 MINI-MART 1ST FLOOR
B2 OFFICE 2ND FLOOR
CODES: SBC 91, AISC
STRUCTURAL NOTES
FLOOR LOAD - RETAIL 100 PSF
ROOF LOAD - 25 PSF SEISMIC ZONE 3
ALLOWABLE SOIL BEARING PRESSURE = 2,000 PSF
ALLOWABLE CONCRETE STRESS, 5 SACK MIN. = 2,000 PSI
ALLOWABLE REINFORCING STEEL STRESS = 20,000 PSI, COVER: 3" AT GROUND, 2" AT FORMED DIRT FACE
ALLOWABLE TIMBER STRESS: STUDS = STD OR BETTER
JOIST = # 1 1,250 PSI
BEAM/HDR = 1,250 PSI
AUG 24 1993
CITY OF SEATTLE
RECEIVED
JUN 30 1993
Dept. of Construction & Land Use
NO PART OF THIS DOCUMENT MAY BE USED OR COPIED IN WHOLE OR IN PART WITHOUT THE PRIOR WRITTEN CONSENT OF GLH
QUICK 24 MINI MART
3901 S.W. ALASKA STREET
SEATTLE, WASHINGTON 98106
GARY HALVERSON (OWNER)
DATE: JUNE 1993
DRAWN: GLH
CHECKED: GLH
A-1



NOTE: OBTAIN FIRE DEPT. APPROVAL FOR REMOVAL OF EXISTING TANKS.
NOTIFY FIRE DEPT. AND BUILDING DEPT. FOR FINAL INSPECTION OF TANKS AND PLUMBING PRIOR TO COVER.
NOTE: PROVIDE 6" CONC SLAB W/ #4 @ REBAR BARS 18" EACH WAY OVER TANKS THIS AREA.
12,000 GAL.
10,000 GAL.
INSPECTION HOLE EA CORNER SLAB
INTERCONNECT ALL DRAIN LINES IN SUMP FILL WITH GRAVEL AND PAVE OVER.
ADDITION
ENTRANCE WALL
EXISTING BUILDING
4x2 BEAM
WATER TABLE INSPECTION HOLE
ADDITION & ALTERATIONS TO GARY'S WESTSIDE ARCO STATION AT
CITY OF SEATTLE DEPT. OF CONSTRUCTION AND LAND USE
SEP 1 1984
SITE PLAN
FIRST FLOOR PLAN
NOTE: PROVIDE PLUMBING FIXTURES AND GRAB BARS IN TOILET FOR BARRIER FREE REG.
= NEW FRAME WALL
* GLB BY CITY CERTIFIED PLANT
REGISTERED ARCHITECT
1
24x





NOTE: ALL DISPENSERS ARE TO BE ANCHORED.

... ALL ISLANDS
... ISLAND FORMS ... FIXTURE COLUMNS
... PRESERVATIVE PAINT
... IN ISLAND FOR DIP STICK
... FOR DRAINAGE
... ISLANDS
... ISLAND SHALL
... AS CANOPY COLUMN ... LIGHTS.
... INSTALLED ON THE BUILDING OR FREE STANDING
... BE PAINTED ... AS THE BUILDING.

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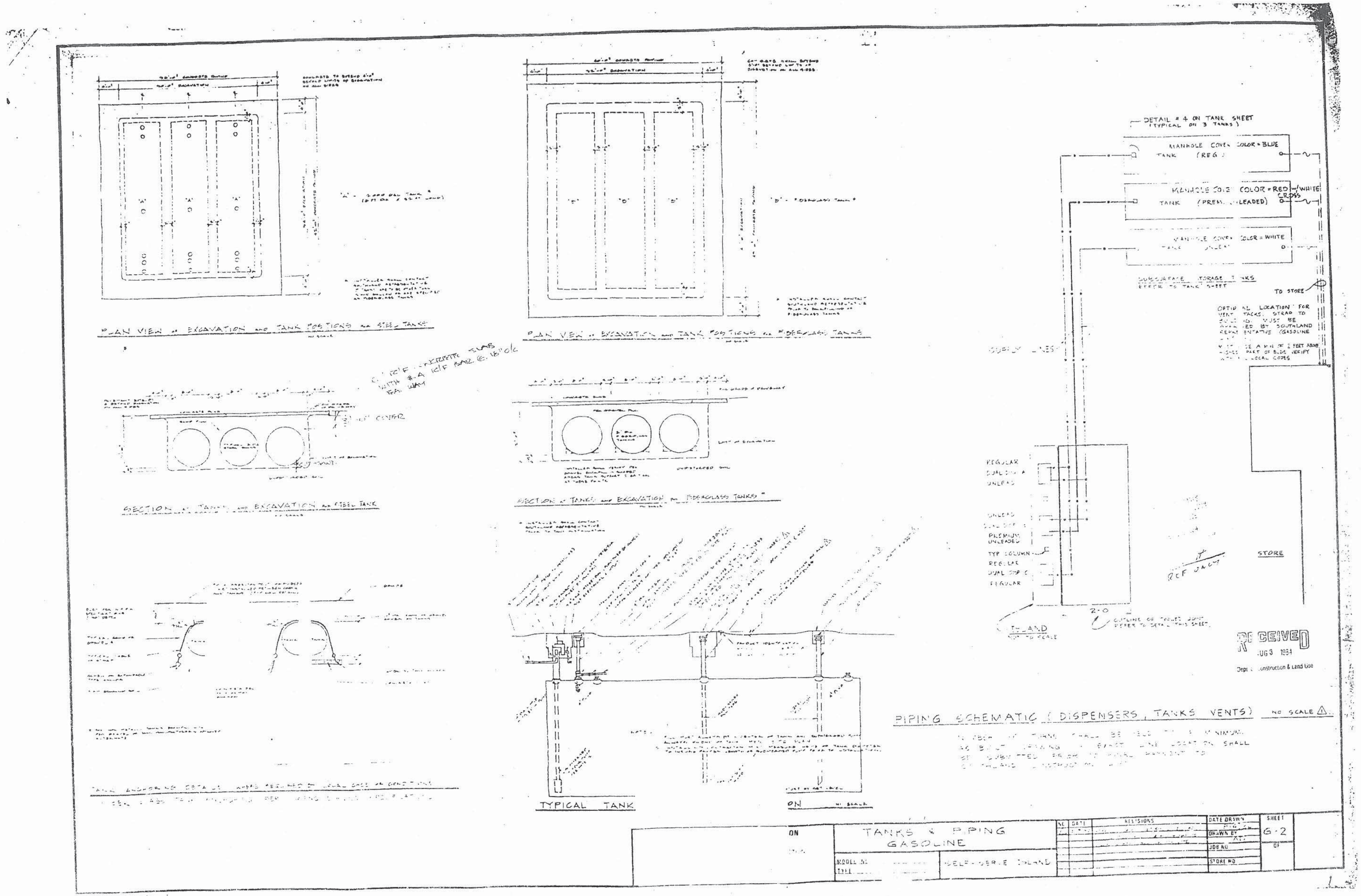
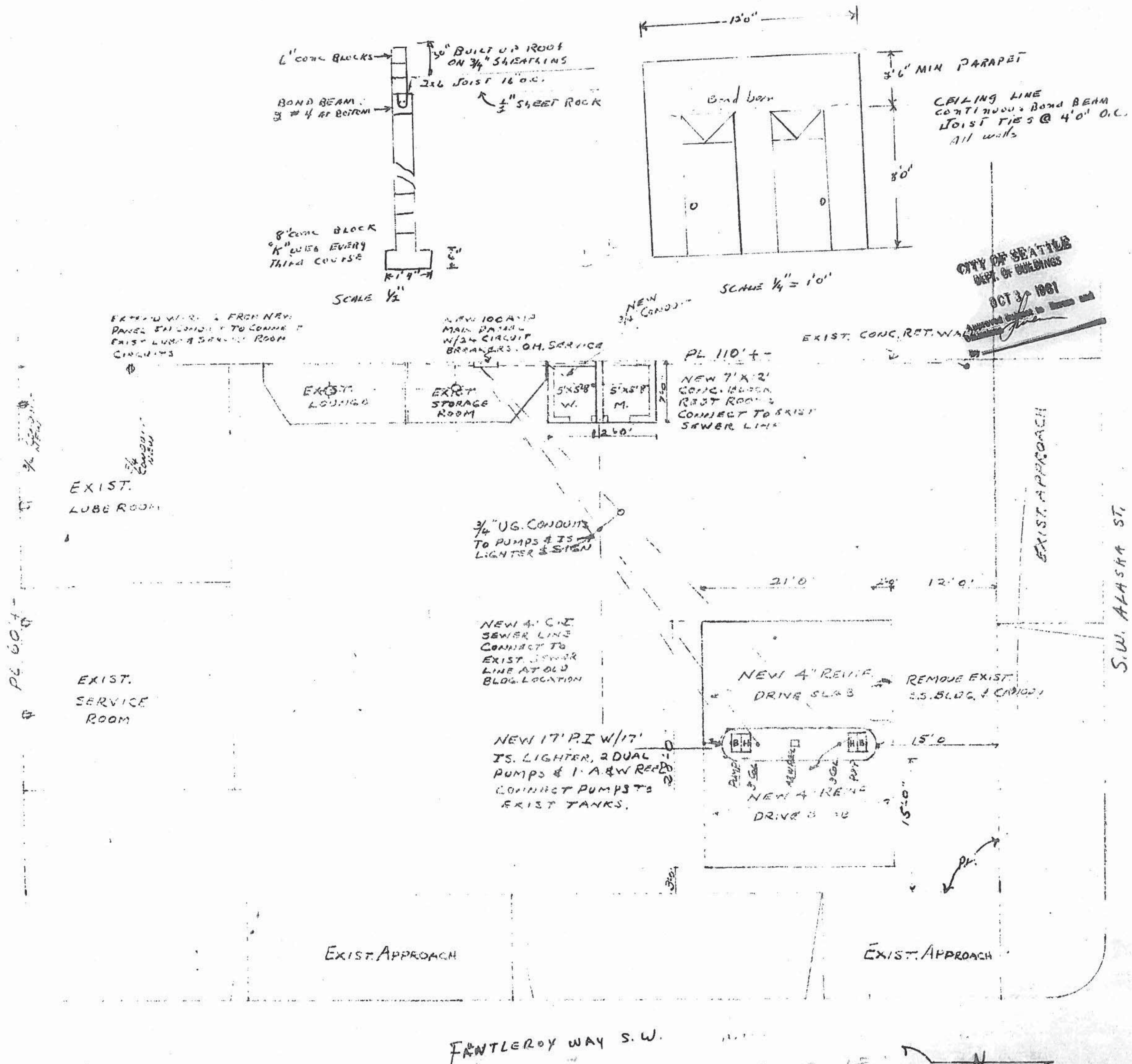
AUG 3 1994
Dept. of Construction & Land Use

TYPICAL ISLAND LAYOUTS		NO. / DATE / REVISIONS	DATE DRAWN / DRAWN BY	SHEET G-1
MODEL NO. TYPE	... SERVE ISLAND		JOB NO. / STORE NO.	OF

24x


PLAN VIEW OF EXCAVATION AND TANK POSITIONS FOR STEEL TANKS
PLAN VIEW OF EXCAVATION AND TANK POSITIONS FOR FIBERGLASS TANKS
SECTION OF TANKS AND EXCAVATION FOR STEEL TANK
SECTION OF TANKS AND EXCAVATION FOR FIBERGLASS TANKS
TYPICAL TANK
DETAIL # 4 ON TANK SHEET (TYPICAL ON 3 TANKS)
MANHOLE COVER COLOR = BLUE
TANK (REG)
MANHOLE COVER COLOR = RED W/WHITE CROSS
TANK (PREM. UNLEADED)
MANHOLE COVER COLOR = WHITE
SUBSURFACE STORAGE TANKS REFER TO TANK SHEET
TO STORE
SUPPLY LINES
REGULAR
UNLEADED
PREMIUM UNLEADED
TYP COLUMN
REGULAR
STORE
REF ONLY
ISLAND
RECEIVED
AUG 3 1994
Dept. of Construction & Land Use
PIPING SCHEMATIC (DISPENSERS, TANKS VENTS) NO SCALE
TANKS & PIPING
GASOLINE
SELF-SERVE ISLAND
G-2

24x



SCOPE OF WORK

1. REMOVE EXIST. S.S. BLDG & CAN...
2. REMOVE EXIST P.I. & PUMPS
3. CONSTR NEW 17' P.I. & DRIVE SLAB...
4. INSTALL NEW 17' IS LIGHTER ...
5. INSTALL 2 NEW DUAL PUMPS. CONN... EXIST. TANKS, INSTALL A&W REEL CONNECT TO EXIST. WATER LINE
6. CONSTR. NEW 7'X12' CONC BLOCK R.R FACILITIES W/2 LAVATORIES, 2 TOILETS, 1-WALL HUNG URINAL.
7. INSTALL NEW 100 AMP. MAIN PANEL W/DISCONNECT SWITCH & 24 CIRCUIT QO SQ. "D" BREAKER PANEL. INSTALL NECESSARY CONDUIT AND CIRCUITS TO ENERGIZE EXISTING OUTLETS AND FOR NEW FACILITIES.
8. CONNECT NEW R.R.S' TO EXIST. SEWER LINE.
9. PATCH YARD PAVING WHERE DISTURBED BY NEW WORK AND OTHER LOW SPOTS NECESSARY FOR EVEN GRADE.
10. PROVIDE WATER SERVICE FOR NEW R.RS PROVIDE AIR LINE TO NEW A&W. REEL.
11. INSTALL MIRRORS, BORAXO, TOILET & PAPER TOWEL DISPENSER IN BOTH NEW R.R.S.

OWNER TO FURNISH FOLLOWING EQUIPMENT
2- DUAL PUMPS
1- 17' IS LIGHTER
1- A&W. REEL

LEGAL -
LOTS 7+8 BLOCK 3
NORRIS ADDITION TO
WEST SEATTLE

POWDERS S.S. REMODEL
ALASKA & FAUNTLEROY
3901 SW ALASKA ST.
SEATTLE, WASHINGTON
SCALE 1/8"=1'0"
9-11-61

3901 SW Alaska St
49991
3 Oct 61

Sanborn Maps

West Seattle Development
3901 SW Alaska Street
Seattle, WA 98116

Inquiry Number: 3452196.3
November 09, 2012

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

11/09/12

Site Name:	Client Name:
West Seattle Development	Sound Earth Strategies
3901 SW Alaska Street	2811 Fairview Avenue East
Seattle, WA 98116	Seattle, WA 98102
EDR Inquiry # 3452196.3	Contact: Rob Roberts

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Sound Earth Strategies were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name:	West Seattle Development
Address:	3901 SW Alaska Street
City, State, Zip:	Seattle, WA 98116
Cross Street:	
P.O. #	0914-004
Project:	West Seattle Development
Certification #	5254-423C-9DB5

Maps Provided:

1968

1950

1929

1917

Sanborn® Library search results
Certification # 5254-423C-9DB5

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Sanborn Sheet Thumbnails

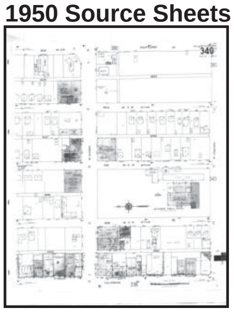
This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1968 Source Sheets

Volume 3, Sheet 380

Volume 3, Sheet 340

1950 Source Sheets



Volume 3, Sheet 340

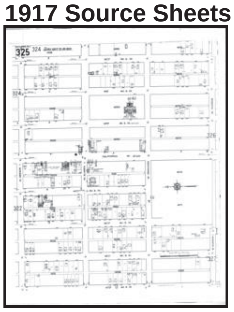
Volume 3, Sheet 380

1929 Source Sheets

Volume 3, Sheet 340

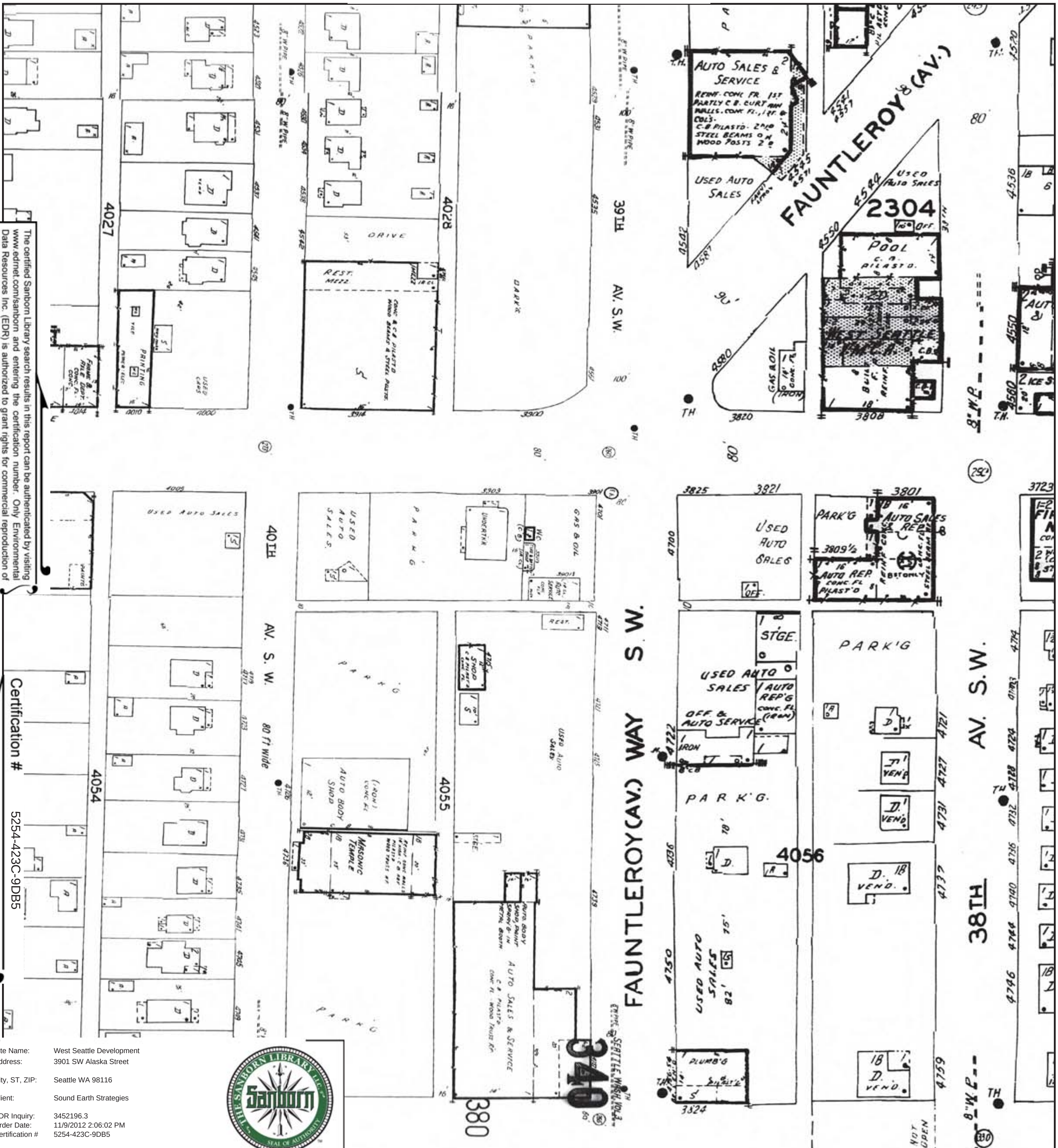
Volume 3, Sheet 380

1917 Source Sheets



Volume 3, Sheet 325

1968 Certified Sanborn Map



Certification # 5254-423C-9DB5

Site Name:	West Seattle Development
Address:	3901 SW Alaska Street
City, ST, ZIP:	Seattle WA 98116
Client:	Sound Earth Strategies
EDR Inquiry:	3452196.3
Order Date:	11/9/2012 2:06:02 PM
Certification #	5254-423C-9DB5
Copyright:	1968

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

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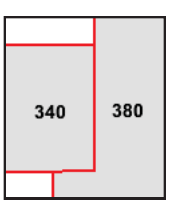

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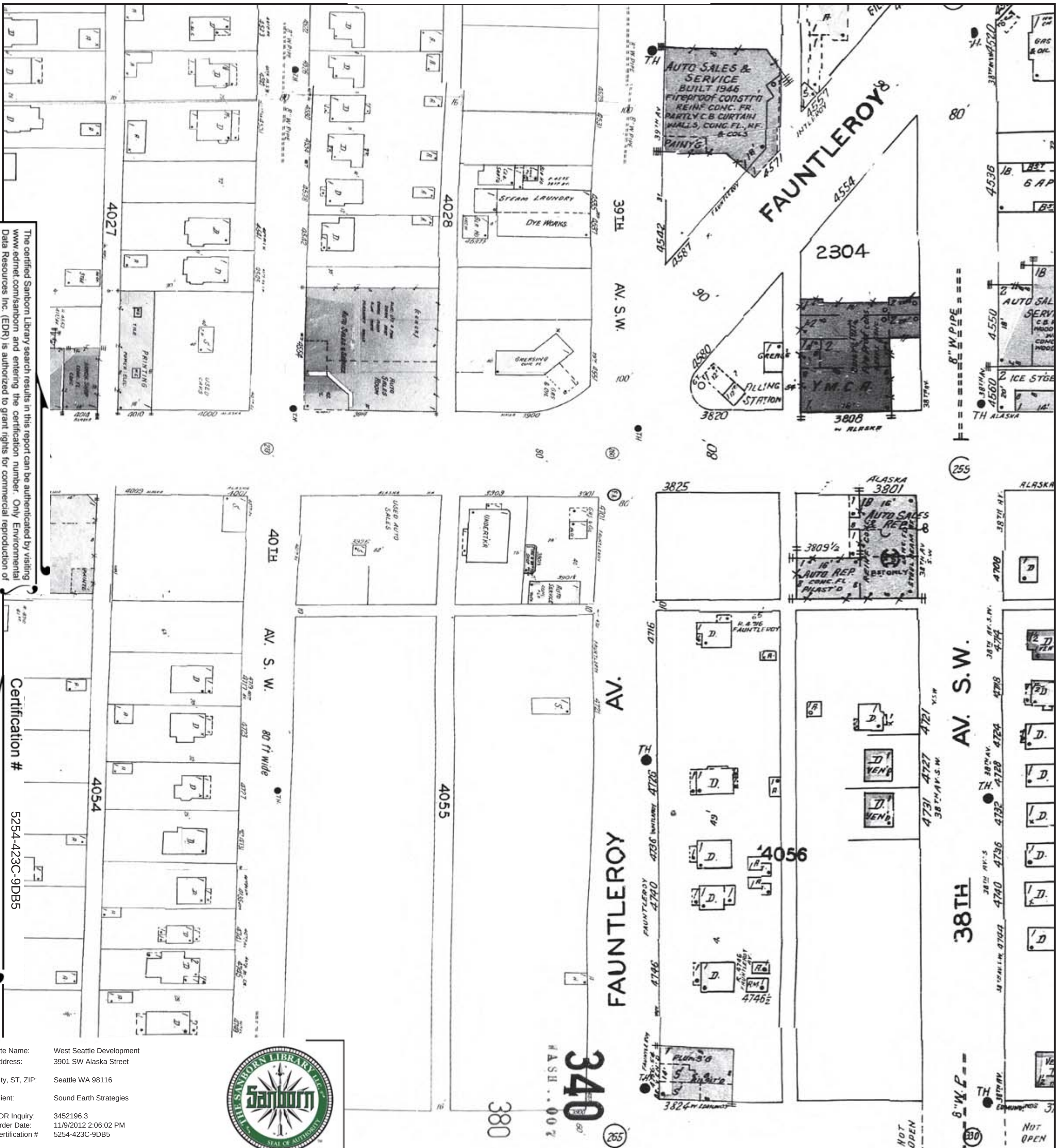
Volume 3, Sheet 340

N

1950 Certified Sanborn Map



Certification # 5254-423C-9DB5

Site Name:	West Seattle Development
Address:	3901 SW Alaska Street
City, ST, ZIP:	Seattle WA 98116
Client:	Sound Earth Strategies
EDR Inquiry:	3452196.3
Order Date:	11/9/2012 2:06:02 PM
Certification #	5254-423C-9DB5
Copyright:	1950

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

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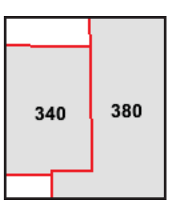

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Volume 3, Sheet 380

N

1929 Certified Sanborn Map

Site Name: West Seattle Development
Address: 3901 SW Alaska Street
City, ST, ZIP: Seattle WA 98116
Client: Sound Earth Strategies
EDR Inquiry: 3452196.3
Order Date: 11/9/2012 2:06:02 PM
Certification # 5254-423C-9DB5
Copyright: 1929

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

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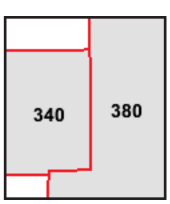

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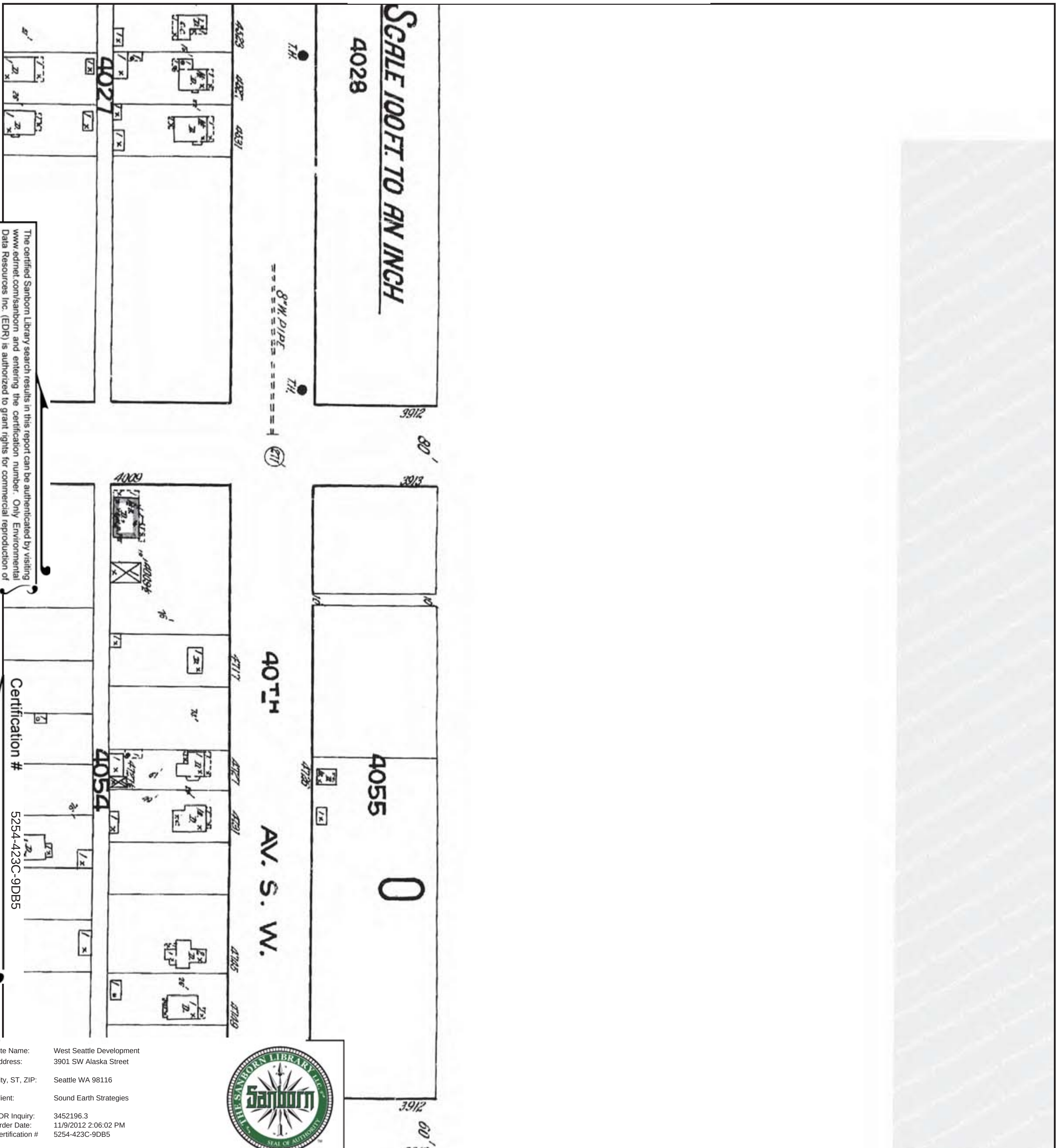
Volume 3, Sheet 380

N

1917 Certified Sanborn Map

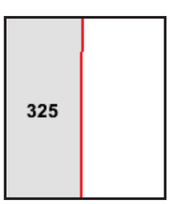


Certification # 5254-423C-9DB5

Site Name:	West Seattle Development
Address:	3901 SW Alaska Street
City, ST, ZIP:	Seattle WA 98116
Client:	Sound Earth Strategies
EDR Inquiry:	3452196.3
Order Date:	11/9/2012 2:06:02 PM
Certification #	5254-423C-9DB5
Copyright:	1917

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600



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APPENDIX B

BORING LOGS

SoundEarth Strategies

Project:	LENNAR SKS ROW
Project Number:	0914-001
Logged by:	LRN
Date Started:	8/5/12
Surface Conditions:	Concrete
Well Location N/S:	--
Well Location E/W:	--
Reviewed by:	CER/CCC
Date Completed:	8/5/12

BORING LOG MW-101

Site Address: 3901 SW ALASKA STREET
SEATTLE, WASHINGTON

Water Depth At Time of Drilling	25	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 Construction Detail
0								**Concrete**	
						SM		**Damp, clayey SAND, with some gravel, both rounded/angular**	
5									
						SM		**Damp, light brown, silty fine SAND (cuttings).**	
10									
15									

Drilling Co./Driller:	Boretec		Well/Auger Diameter:	2	inches
Drilling Equipment:	--		Well Screened Interval:	20 to 30	feet bgs
Sampler Type:	Split Spoon		Screen Slot Size:	10	inches
Hammer Type/Weight:	140	lbs	Filter Pack Used:	10/20	
Total Boring Depth:	55	feet bgs	Surface Seal:	Concrete	
Total Well Depth:	30	feet bgs	Annular Seal:	Bentonite	
State Well ID No.:	1-BCB-549		Monument Type:	Flush-mount	

Notes/Comments:

SoundEarth Strategies

Project: LENNAR SKS ROW
Project Number: 0914-001
Logged by: LRN
Date Started: 8/5/12
Surface Conditions: Concrete
Well Location N/S: --
Well Location E/W: --
Reviewed by: CER/CCC
Date Completed: 8/5/12

BORING LOG MW-101

Site Address: 3901 SW ALASKA STREET, SEATTLE, WASHINGTON

Water Depth At Time of Drilling: 25 feet bgs
Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Lithologic Description
15	26 17 26	50			SM	**Damp, silty fine SAND, light brown.**
	18 16 18	50			SM	**Dry, silty fine SAND with rounded gravels, more sands than previous, no sheen.**
20	13 20 28	50	0.2		SM	**Dry, silty fine SAND, light brown with gray streaks, no sheen.**
	15 21 27	60	--	MW101-22.5	SM	**Moist, silty fine SAND, light brown with gray streaks, no sheen, no odor.**
25	18 25 28	50	0.00	MW101-25.0	SM	**Wet, silty fine SAND, light brown with gray streaks, no sheen, no odor.**
	13 22 27	60	1.5	MW101-27.5	SM	**Wet, silty fine SAND, light brown with gray streaks, no sheen, no odor.**
30						

Drilling Co./Driller: Boretec
Drilling Equipment: --
Sampler Type: Split Spoon
Hammer Type/Weight: 140 lbs
Total Boring Depth: 55 feet bgs
Total Well Depth: 30 feet bgs
State Well ID No.: 1-BCB-549

Well/Auger Diameter: 2 inches
Well Screened Interval: 20 to 30 feet bgs
Screen Slot Size: 10 inches
Filter Pack Used: 10/20
Surface Seal: Concrete
Annular Seal: Bentonite
Monument Type: Flush-mount

Notes/Comments:

SoundEarth Strategies

Project:	LENNAR SKS ROW
Project Number:	0914-001
Logged by:	LRN
Date Started:	8/5/12
Surface Conditions:	Concrete
Well Location N/S:	--
Well Location E/W:	--
Reviewed by:	CER/CCC
Date Completed:	8/5/12

BORING LOG MW-101

Site Address: 3901 SW ALASKA STREET
SEATTLE, WASHINGTON

Water Depth At Time of Drilling: 25 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 Construction Detail
30		16 18 32	50		MW101-30	**SM**		**Wet, silty fine SAND, light brown with gray streaks, no sheen, no odor.**	
35		12 15 35	50		MW101-35	**ML**		**Wet, SILT with fine sand, gray, no sheen.**	
40		12 20 28	60	0.0	MW101-40	**ML**		**Wet, SILT with fine sand, gray, no sheen.**	
45									

Drilling Co./Driller:	Boretec		**Well/Auger Diameter:**	2	inches
Drilling Equipment:	--		**Well Screened Interval:**	20 to 30	feet bgs
Sampler Type:	Split Spoon		**Screen Slot Size:**	10	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	10/20	
Total Boring Depth:	55	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	1-BCB-549		**Monument Type:**	Flush-mount	

Notes/Comments:

SoundEarth Strategies

Project:	LENNAR SKS ROW
Project Number:	0914-001
Logged by:	LRN
Date Started:	8/5/12
Surface Conditions:	Concrete
Well Location N/S:	--
Well Location E/W:	--
Reviewed by:	CER/CCC
Date Completed:	8/5/12

BORING LOG MW-101

Site Address: 3901 SW ALASKA STREET
SEATTLE, WASHINGTON

Water Depth At Time of Drilling: 25 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 Construction Detail
45		8 12 20	50	0.1	MW101-45	ML		**Wet, SILT with fine sand, gray, no sheen.**	
50		10 20 21		0.0	MW101-50	ML		**Wet, SILT with fine sand, gray, no sheen.**	
55		12 17 18		0.1	MW101-55			**Wet, SILT with fine sand, gray, no sheen.** **Boring terminated at 55 feet below ground surface (bgs). screened from 20 to 30 feet and completed as monitoring well MW-101.**	
60									

Drilling Co./Driller:	Boretec	
Drilling Equipment:	--	
Sampler Type:	Split Spoon	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	55	feet bgs
Total Well Depth:	30	feet bgs
State Well ID No.:	1-BCB-549	

Well/Auger Diameter:	2	inches
Well Screened Interval:	20 to 30	feet bgs
Screen Slot Size:	10	inches
Filter Pack Used:	10/20	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flush-mount	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/2/12
Surface Conditions:	Concrete
Well Location N/S:	17.3' N of light pole on the SE corner of Fauntleroy way and Alasks St.
Well Location E/W:	17.0' W of light pole on the SE corner of Fauntleroy way and Alasks St.
Reviewed by:	
Date Completed:	11/2/12

BORING LOG **MW102** MW102

Site Address: 4755 Fauntleroy Way Southwest, Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
0								**Concrete 8" thick**	
5								**Clear boring location with a vactor truck to a depth of 7.5' bgs.**	
10									
15					MW102-15				

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	20 to 30	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK621		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/2/12
Surface Conditions:	Concrete
Well Location N/S:	17.3' N of light pole on the SE corner of Fauntleroy way and Alasks St.
Well Location E/W:	17.0' W of light pole on the SE corner of Fauntleroy way and Alasks St.
Reviewed by:	
Date Completed:	11/2/12

BORING LOG | MW102
MW102

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
15		11 13 20	100	0.0		SP		**Damp, medium dense, fine SAND with silt, light brown, no hydrocarbon odor. (10-90-0)**	
20		16 19 21	100	0.4	MW102-20	SP		**Damp, medium dense, fine SAND with silt, light brown, no hydrocarbon odor. (10-90-0)**	
25		15 16 25	100	0.4	MW102-25	SM		**Wet, medium dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**	
30									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	20 to 30	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK621		**Monument Type:**	Flush mount	

Notes/Comments:

Project:	Huling Kennedy	
Project Number:	0914-002	
Logged by:	RAH	
Date Started:	11/2/12	
Surface Conditions:	Concrete	
Well Location N/S:	17.3' N of light pole on the SE corner of Fauntleroy way and Alasks St.	
Well Location E/W:	17.0' W of light pole on the SE corner of Fauntleroy way and Alasks St.	
Reviewed by:		
Date Completed:	11/2/12	

BORING LOG MW102

MW102

Site Address: 4755 Fauntleroy Way Southwest, Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
30		17 20 29	100	0.1	MW102-31	SM		Wet, medium dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)	
								Boring terminated at 31.5 feet below ground surface (bgs), screened from 20 to 30 feet and completed as monitoring well MW102.	
35									
40									
45									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	20 to 30	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK621		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/2/12
Surface Conditions:	Concrete
Well Location N/S:	Well located in traffic median on Fauntleroy Way E
Well Location E/W:	of westbound lane to Alaska St
Reviewed by:	
Date Completed:	11/2/12

BORING LOG **MW103** MW103

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 26 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 Construction Detail
0								**Concrete 2' thick.**	
5								**Clear boring location with a vactor truck to a depth of 7.5' bgs.**	
10									
15					MW103-15				

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	20 to 30	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK622		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/2/12
Surface Conditions:	Concrete
Well Location N/S:	Well located in traffic median on Fauntleroy Way E
Well Location E/W:	of westbound lane to Alaska St
Reviewed by:	
Date Completed:	11/2/12

BORING LOG **MW103** MW103

Site Address: 4755 Fauntleroy Way Southwest Seattle, Washington

Water Depth At Time of Drilling: 26 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 Construction Detail
15		8 9 10	20	0.0		SM		**Moist, loose, silty medium SAND with trace gravel, grey, no hydrocarbon odor. (30-65-5)**	
20		10 12 15	80	0.0	MW103-20	SM		**Moist, medium dense, silty fine to medium SAND with trace gravel, light brown, no hydrocarbon odor. (25-70-5)**	
25		8 7 8	90	0.1	MW103-25	SM		**Wet, loose, silty fine SAND, light brown, no hydrocarbon odor. (20-80-0)**	
30									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	20 to 30	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK622		**Monument Type:**	Flush mount	

Notes/Comments:

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/2/12
Surface Conditions:	Concrete
Well Location N/S:	Well located in traffic median on Fauntleroy Way E
Well Location E/W:	of westbound lane to Alaska St
Reviewed by:	
Date Completed:	11/2/12

BORING LOG **MW103**

MW103

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 26 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 Construction Detail
30		13 17 20	90	0.0	MW103-31	SM		**Wet, medium dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**	
								Boring terminated at 31.5 feet below ground surface (bgs), screened from 20 to 30 feet and completed as monitoring well MW103.	
35									
40									
45									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	20 to 30	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK622		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project: Huling Kennedy
Project Number: 0914-002
Logged by: RAH
Date Started: 11/2/12
Surface Conditions: Concrete
Well Location N/S: 23.6' S of utility pole at the SW corner of Fauntleroy way and Alasks St
Well Location E/W: 4' W of utility pole at the SW corner of Fauntleroy way and Alasks St
Reviewed by:
Date Completed: 11/2/12

BORING LOG **MW104**
MW104

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 23 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 Construction Detail
0								**Concrete 8" thick**	
5								**Clear boring location with a vactor truck to a depth of 7.5' bgs.**	
10									
15									

Drilling Co./Driller:	Boretec/Bob	
Drilling Equipment:	HSA LAR	
Sampler Type:	SPT	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	36.5	feet bgs
Total Well Depth:	30	feet bgs
State Well ID No.:	BHK623	

Well/Auger Diameter:	2/4.25 ID	inches
Well Screened Interval:	20 to 30	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Colorado silica sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flush mount	

Notes/Comments:
PID may be inaccurate due to atmospheric conditions.

SoundEarth Strategies

Project: Huling Kennedy
Project Number: 0914-002
Logged by: RAH
Date Started: 11/2/12
Surface Conditions: Concrete
Well Location N/S: 23.6' S of utility pole at the SW corner of Fauntleroy way and Alasks St
Well Location E/W: 4' W of utility pole at the SW corner of Fauntleroy way and Alasks St
Reviewed by:
Date Completed: 11/2/12

BORING LOG **MW104**

MW104

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 23 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 Construction Detail
15									
20		17 22 25	80	578	MW104-20	SP		**Damp, dense, fine SAND with silt, grey, strong hydrocarbon odor. (10-90-0)**	
		11 14 22	90	40.9	MW104-23	SM		**Wet, dense, silty fine SAND, grey, moderate hydrocarbon odor. (20-80-0)**	
25		16 19 23	80	20.5	MW104-25	SM		**Wet, dense, silty fine SAND, grey, slight hydrocarbon odor. (20-80-0)**	
		12 20 24	90	56.0	MW104-28	SM		**Wet, dense, silty fine SAND, grey, no hydrocarbon odor. (20-80-0)**	
30					MW104-30				

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	20 to 30	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	36.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK623		**Monument Type:**	Flush mount	

Notes/Comments:

PID may be inaccurate due to atmospheric conditions.

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/2/12
Surface Conditions:	Concrete
Well Location N/S:	23.6' S of utility pole at the SW corner of Fauntleroy way and Alasks St
Well Location E/W:	4' W of utility pole at the SW corner of Fauntleroy way and Alasks St
Reviewed by:	
Date Completed:	11/2/12

BORING LOG **MW104** MW104

Site Address: 4755 Fauntleroy Way Southwest, Seattle, Washington

Water Depth At Time of Drilling: 23 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 Construction Detail
30		10 15 18	80	0.0		SM		**Wet, medium dense, silty fine SAND, grey, no hydrocarbon odor. (20-80-0)**	
		6 18 27	90	57.7	MW104-33	SM		**Wet, dense, silty fine SAND, grey, no hydrocarbon odor. (20-80-0)**	
35		13 22 31	100	0.0	MW104-35	SM		**Wet, dense, silty fine SAND, grey, no hydrocarbon odor. (20-80-0)**	
								Boring terminated at 36.5 feet below ground surface (bgs), screened from 20 to 30 feet and completed as monitoring well MW104.	
40									
45									

Drilling Co./Driller:	Boretec/Bob	
Drilling Equipment:	HSA LAR	
Sampler Type:	SPT	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	36.5	feet bgs
Total Well Depth:	30	feet bgs
State Well ID No.:	BHK623	

Well/Auger Diameter:	2/4.25 ID	inches
Well Screened Interval:	20 to 30	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Colorado silica sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flush mount	

Notes/Comments:

PID may be inaccurate due to atmospheric conditions.

SoundEarth Strategies

Project:	SKS SHELL REDEVELOPMENT
Project Number:	0914-004
Logged by:	EBF
Date Started:	12/12/12
Surface Conditions:	Concrete
Well Location N/S:	
Well Location E/W:	
Reviewed by:	DRAFT
Date Completed:	11/2/12

BORING LOG MW105

Site Address: 4724 40TH AVENUE SOUTHWEST
Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
0								**Air knifed to 9' bgs prioor to drilling.**	
5									
10									
15									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2	inches
Drilling Equipment:	HSA		**Well Screened Interval:**	22-32	feet bgs
Sampler Type:	California Sample Type		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	34.5	feet bgs	**Surface Seal:**		
Total Well Depth:	36.5	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	--		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project:	SKS SHELL REDEVELOPMENT
Project Number:	0914-004
Logged by:	EBF
Date Started:	12/12/12
Surface Conditions:	Concrete
Well Location N/S:	
Well Location E/W:	
Reviewed by:	DRAFT
Date Completed:	11/2/12

BORING LOG MW105

Site Address: 4724 40TH AVENUE SOUTHWEST
Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
15		36 50/5	0	0.2		SM		**Limited recovery, moist and dense, silty fine SAND with some gravel, brown-gray, no hydrocarbon odor. (20-70-10)**	
20		9 13 14	70	0.0	MW105-20	SP		**Moist, medium dense, fine SAND with some silt, brownm, no hydrocarbon odor. (10-90-0)**	
25		12 14 20	80	0.4	MW105-25	SP-SM		**Wet, dense, fine SAND with silt, brown, no hydrocarbon odor. (15-85-0)**	
30					MW105-30				

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2	inches
Drilling Equipment:	HSA		**Well Screened Interval:**	22-32	feet bgs
Sampler Type:	California Sample Type		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	34.5	feet bgs	**Surface Seal:**		
Total Well Depth:	36.5	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	--		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project:	SKS SHELL REDEVELOPMENT
Project Number:	0914-004
Logged by:	EBF
Date Started:	12/12/12
Surface Conditions:	Concrete
Well Location N/S:	
Well Location E/W:	
Reviewed by:	DRAFT
Date Completed:	11/2/12

BORING LOG MW105

Site Address: 4724 40TH AVENUE SOUTHWEST
Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
30		11 13 15	75	0.2		SP-SM		**Wet, fine SAND with silt, brown-gray, no hydrocarbon odor. (15-85-0)**	
35		12 14 22		0.0	MW105-30	SM		**Moist, wet, silty fine SAND, brown-gray, no hydrocarbon odor. (20-80-0)**	
								MW105 completed at 36.5', backfill to 32' and well screen 22-32' bgs.	
40									
45									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2	inches
Drilling Equipment:	HSA		**Well Screened Interval:**	22-32	feet bgs
Sampler Type:	California Sample Type		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	34.5	feet bgs	**Surface Seal:**		
Total Well Depth:	36.5	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	--		**Monument Type:**	Flush mount	

Notes/Comments:

Project: SKS SHELL REDEVELOPMENT		**BORING LOG** **MW106**
Project Number: 0914-004		
Logged by: EBF		
Date Started: 12/12/12		**Site Address:** 4724 40TH AVENUE SOUTHWEST Seattle, Washington
Surface Conditions: Much		
Well Location N/S:		
Well Location E/W:		**Water Depth At Time of Drilling:** 25 feet bgs
Reviewed by: DRAFT		
Date Completed: 11/2/12		**Water Depth After Completion:** -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
0						**SM**		**Much**	
5								**Soil nothings and brown, sily fine SAND with gravel, no hydorcarbon odor. Moist, loose (25-65-10), trace orgnics.**	
10						**SP-SM**			
15					MW106-15			**Moist, brown, fine SAND with silt, no hydrocarbon odor. (15-35-0)**	

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2	inches
Drilling Equipment:	HSA		**Well Screened Interval:**	22-32	feet bgs
Sampler Type:	California Sample Type		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	2/12 (20-33)	
Total Boring Depth:	34.5	feet bgs	**Surface Seal:**		
Total Well Depth:	36.5	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK 641		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project:	SKS SHELL REDEVELOPMENT
Project Number:	0914-004
Logged by:	EBF
Date Started:	12/12/12
Surface Conditions:	Much
Well Location N/S:	
Well Location E/W:	
Reviewed by:	DRAFT
Date Completed:	11/2/12

BORING LOG MW106

Site Address: 4724 40TH AVENUE SOUTHWEST
Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
15		3 4 4	75	1.0		ML		**Moist, medium dense, silt with fine SAND, gray-brown, no hydrocarbon odor. (80-20-0).**	
20		9 15 15	75	4.8	MW106-20	SP-SM		**Moist, medium dense, fine to medium SAND with silt, gray, ho hydrocarbon odor (15-85-0)**	
25		8 10 13	80	5.0	MW106-25	SM		**Wet, medium dense, silty fine SAND, gray-brown, no hydrocarbon odor (15-85-0)**	
30					MW106-30				

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2	inches
Drilling Equipment:	HSA		**Well Screened Interval:**	22-32	feet bgs
Sampler Type:	California Sample Type		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	2/12 (20-33)	
Total Boring Depth:	34.5	feet bgs	**Surface Seal:**		
Total Well Depth:	36.5	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK 641		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project:	SKS SHELL REDEVELOPMENT
Project Number:	0914-004
Logged by:	EBF
Date Started:	12/12/12
Surface Conditions:	Much
Well Location N/S:	
Well Location E/W:	
Reviewed by:	DRAFT
Date Completed:	11/2/12

BORING LOG MW106

Site Address: 4724 40TH AVENUE SOUTHWEST
Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
30		7 8 10	75	5.8		SM		**Moist, wet, medium dense, silty fine SAND, dense of sand, orange oxdahon at 31' bgs, brown-gray, no hydrocarbon odor (20-80-0)**	
35		8 13 15	75	7.5	MW106-35			**Moist, wet, medium dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**	
								MW106 completed at 36.5', backfill with chips to 33', 1' sand , get well at 32' bgs with 10' screen.	
40									
45									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2	inches	**Notes/Comments:**
Drilling Equipment:	HSA		**Well Screened Interval:**	22-32	feet bgs	
Sampler Type:	California Sample Type		**Screen Slot Size:**	0.010	inches	
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	2/12 (20-33)		
Total Boring Depth:	34.5	feet bgs	**Surface Seal:**			
Total Well Depth:	36.5	feet bgs	**Annular Seal:**	Bentonite		
State Well ID No.:	BHK 641		**Monument Type:**	Flush mount		

SoundEarth Strategies

Project:	Huling Kennedy	BORING LOG	**SB201**
Project Number:	0914-002		
Logged by:	RAH		
Date Started:	11/3/12	**Site Address:**	4755 Fauntleroy Way Southwest, Seattle, Washington
Surface Conditions:	Concrete		
Well Location N/S:	64' S of utility pole at the SW corner of Fauntleroy way and Alasks St		
Well Location E/W:	2' W of utility pole at the SW corner of Fauntleroy way and Alasks St		
Reviewed by:		**Water Depth At Time of Drilling:**	23 feet bgs
Date Completed:	11/3/12	**Water Depth After Completion:**	-- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
0								**Concrete 8" thick**	
5									
10									
15					SB201-15				

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	--	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	--	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	--	
Total Boring Depth:	36.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	--	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	--		**Monument Type:**	--	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/3/12
Surface Conditions:	Concrete
Well Location N/S:	64' S of utility pole at the SW corner of Fauntleroy way and Alasks St
Well Location E/W:	2' W of utility pole at the SW corner of Fauntleroy way and Alasks St
Reviewed by:	
Date Completed:	11/3/12

BORING LOG SB201

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 23 feet bgs
Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Lithologic Description
15	10 18 24	40	0.0		SP	**Damp, medium dense, fine SAND with silt, brown, no hydrocarbon odor. Color changes to grey at 16.3'. (10-90-0)**
20	15 25 36	80	233	SB201-20	SP	**Damp, dense, fine SAND with silt, grey, strong hydrocarbon odor. (10-90-0)**
	15 18 19	90	328	SB201-23	SM	**Wet, medium dense, silty fine SAND, grey, moderate hydrocarbon odor. (15-85-0)**
25	13 17 23	80	0.0	SB201-25	SM	**Wet, medium dense, silty fine SAND, grey, no hydrocarbon odor. (20-80-0)**
	26 35 34	90	0.0	SB201-28	SM	**Wet, dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**
30				SB201-30		

Drilling Co./Driller:	Boretec/Bob	
Drilling Equipment:	HSA LAR	
Sampler Type:	SPT	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	36.5	feet bgs
Total Well Depth:	--	feet bgs
State Well ID No.:	--	

Well/Auger Diameter:	2/4.25 ID	inches
Well Screened Interval:	--	feet bgs
Screen Slot Size:	--	inches
Filter Pack Used:	--	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	--	

Notes/Comments:

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/3/12
Surface Conditions:	Concrete
Well Location N/S:	64' S of utility pole at the SW corner of Fauntleroy way and Alasks St
Well Location E/W:	2' W of utility pole at the SW corner of Fauntleroy way and Alasks St
Reviewed by:	
Date Completed:	11/3/12

BORING LOG SB201

Site Address: 4755 Fauntleroy Way Southwest, Seattle, Washington

Water Depth At Time of Drilling: 23 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 Construction Detail
30		12 18 24	80	0.0		SM		**Wet, medium dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**	
		13 19 29	90	0.0	SB201-33	SM		**Wet, dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**	
35		10 21 32	100	0.0	SB201-35	SM		**Wet, dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**	

Boring terminated at 36.5 feet below ground surface (bgs), and backfilled with bentonite and finished to grade with concrete.

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	--	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	--	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	--	
Total Boring Depth:	36.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	--	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	--		**Monument Type:**	--	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/3/12
Surface Conditions:	Concrete
Well Location N/S:	1' N of the NW property boundary of the gas station
Well Location E/W:	24.5' E of the NW property boundary of the gas station
Reviewed by:	
Date Completed:	11/3/12

BORING LOG SB202

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
0								**Concrete 8" thick**	
5									
10									
15									

Drilling Co./Driller:	Boretec/Bob	
Drilling Equipment:	HSA LAR	
Sampler Type:	SPT	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	36.5	feet bgs
Total Well Depth:	--	feet bgs
State Well ID No.:	--	

Well/Auger Diameter:	2/4.25 ID	inches
Well Screened Interval:	--	feet bgs
Screen Slot Size:	--	inches
Filter Pack Used:	--	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	--	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/3/12
Surface Conditions:	Concrete
Well Location N/S:	1' N of the NW property boundary of the gas station
Well Location E/W:	24.5' E of the NW property boundary of the gas station
Reviewed by:	
Date Completed:	11/3/12

BORING LOG SB202

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
15									
20		7 13 18	90	INOP	SB202-20	SP		**Damp, medium dense, fine SAND with silt, brown, no hydrocarbon odor. (10-90-0)**	
		10 12 15	90	INOP	SB202-23	SP		**Moist, loose, fine SAND with silt, brown, slight hydrocarbon odor. (10-90-0)**	
25		10 17 22	90	INOP	SB202-25	SM		**Wet, medium dense, silty fine SAND, grey, no hydrocarbon odor. (20-80-0)**	
		14 15 16	90	INOP	SB202-28	SM		**Wet, medium dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**	
30					SB202-30				

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	--	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	--	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	--	
Total Boring Depth:	36.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	--	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	--		**Monument Type:**	--	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	RAH
Date Started:	11/3/12
Surface Conditions:	Concrete
Well Location N/S:	1' N of the NW property boundary of the gas station
Well Location E/W:	24.5' E of the NW property boundary of the gas station
Reviewed by:	
Date Completed:	11/3/12

BORING LOG SB202

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 25 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 Construction Detail
30		11 15 19	90	INOP		SM		**Wet, medium dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**	
		15 25 30	100	INOP	SB202-33	SM		**Wet, dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**	
35		18 32 33	100	INOP	SB202-35	SM		**Wet, dense, silty fine SAND, brown, no hydrocarbon odor. (20-80-0)**	

Boring terminated at 36.5 feet below ground surface (bgs), and backfilled with bentonite and finished to grade with concrete.

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	--	feet bgs
Sampler Type:	SPT		**Screen Slot Size:**	--	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	--	
Total Boring Depth:	36.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	--	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	--		**Monument Type:**	--	

Notes/Comments:

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	DMM
Date Started:	8/29/12
Surface Conditions:	Asphalt
Well Location N/S:	20.5' S of SW corner of SKS shell BLD
Well Location E/W:	27' E of SW corner of SKS shell BLD
Reviewed by:	CER
Date Completed:	8/29/12

BORING LOG **SMW03**

Site Address: 4755 Fauntleroy Way Southwest
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 Construction Detail
0								**Approximately 4 inches asphalt at surface.**	
								Cutting appear as damp, silty SAND with gravel, brown.	
5		3 2 2	33	1.1	SMW03-05	**SM**		**Damp, loose, silty fine SAND with gravel, brown with orange, mottling, no hydrocarbon odor (35-55-10).**	
10		2 3 10	50	0.2	SMW03-10	**SM**		**Wet, loose, silty fine SAND trace gravel and asphalt, debris, brown with orange mottling, no hydrocarbon odor (30-65-5).**	
15									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	20 to 30	feet bgs
Sampler Type:	Dames & Moore		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK 577		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	DMM
Date Started:	8/29/12
Surface Conditions:	Asphalt
Well Location N/S:	20.5' S of SW corner of SKS shell BLD
Well Location E/W:	27' E of SW corner of SKS shell BLD
Reviewed by:	CER
Date Completed:	8/29/12

BORING LOG SMW03

Site Address: 4755 Fauntleroy Way Southwest
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 Construction Detail
15		23 24 40	10	Insufficient volume	SMW03-15	SM		**Damp, very dense, silty fine SAND with gravel, wood debris with organic material, brown, no hydrocarbon odor (30-60-20).**	
20		13 13 13	60	0.0	SMW03-20	SM		**Damp, medium dense, silty fine SAND, brown, no hydrocarbon odor (20-80-0).**	
25		9 11 14	80	0.0	SMW03-25	SM		**Damp, medium dense, silty fine SAND, brown, no hydrocarbon odor (20-80-0).**	
30									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	20 to 30	feet bgs
Sampler Type:	Dames & Moore		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK 577		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	DMM
Date Started:	8/29/12
Surface Conditions:	Asphalt
Well Location N/S:	20.5' S of SW corner of SKS shell BLD
Well Location E/W:	27' E of SW corner of SKS shell BLD
Reviewed by:	CER
Date Completed:	8/29/12

BORING LOG **SMW03**

Site Address: 4755 Fauntleroy Way Southwest
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 Construction Detail
30		15 25 25	66	0.0	SMW03-30	**SM**		**Wet, dense, silty fine SAND, brown, no hydrocarbon odor (20-80-0).**	
								Boring terminated at 31.5 feet below ground surface (bgs), screened from 20 to 30 feet and completed as monitoring well SMW03.	
35									
40									
45									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches	**Notes/Comments:**
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	20 to 30	feet bgs	
Sampler Type:	Dames & Moore		**Screen Slot Size:**	0.010	inches	
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand		
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete		
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite		
State Well ID No.:	BHK 577		**Monument Type:**	Flush mount		

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	DMM
Date Started:	8/29/12
Surface Conditions:	Soil
Well Location N/S:	1.5' S of NE corner of funeral home
Well Location E/W:	6' E of NE corner of funeral home
Reviewed by:	CER
Date Completed:	8/29/12

BORING LOG **SMW04**

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 30 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 Construction Detail
0									
5		4 3 2	5	Insufficient volume	SMW04-05	**SM**		**Damp, loose, silty fine SAND with rootlets, wood debris, brown, no hydrocarbon odor.**	
10		3 3 5	0			**SM**		**No recovery.**	
15									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	23 to 33	feet bgs
Sampler Type:	Dames & Moore		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	36.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	33	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK 578		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project:	Huling Kennedy
Project Number:	0914-002
Logged by:	DMM
Date Started:	8/29/12
Surface Conditions:	Soil
Well Location N/S:	1.5' S of NE corner of funeral home
Well Location E/W:	6' E of NE corner of funeral home
Reviewed by:	CER
Date Completed:	8/29/12

BORING LOG SMW04

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 30 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 Construction Detail
15		10 13 18	100	0.0	SMW04-15	**SM**		**Damp, medium dense, silty fine SAND with gravel and asphalt debris, brown, no hydrocarbon odor (30-60-10).**	
20		17 22 32	100	34.3	SMW04-20	**SP**		**Damp, dense, fine SAND with silt, gray, faint hydrocarbon odor (gas) (10-90-0).**	
25		7 8 13	50	302	SMW04-25	**SP**		**Damp, medium dense, fine SAND with silt, gray, strong hydrocarbon odor (gas) (10-90-0).**	
30									

Drilling Co./Driller:	Boretec/Bob		**Well/Auger Diameter:**	2/4.25 ID	inches
Drilling Equipment:	HSA LAR		**Well Screened Interval:**	23 to 33	feet bgs
Sampler Type:	Dames & Moore		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	Colorado silica sand	
Total Boring Depth:	36.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	33	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHK 578		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project: Huling Kennedy
Project Number: 0914-002
Logged by: DMM
Date Started: 8/29/12
Surface Conditions: Soil
Well Location N/S: 1.5' S of NE corner of funeral home
Well Location E/W: 6' E of NE corner of funeral home
Reviewed by: CER
Date Completed: 8/29/12

BORING LOG SMW04

Site Address: 4755 Fauntleroy Way Southwest
Seattle, Washington

Water Depth At Time of Drilling: 30 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 Construction Detail
30		10 13 20	60	29.7	SMW04-30	SP		**Wet, dense, fine SAND with silt, brown, no hydrocarbon odor (10-90-0).**	
35		19 27 39	60	1.6	SMW04-35			**Wet, dense, fine SAND with silt, brown, no hydrocaron odor (10-90-0).**	
								Boring terminated at 36.5 feet below ground surface (bgs), screened from 23 to 33 feet and completed as monitoring well SMW04.	
40									
45									

Drilling Co./Driller:	Boretec/Bob	
Drilling Equipment:	HSA LAR	
Sampler Type:	Dames & Moore	
Hammer Type/Weight:	140	lbs
Total Boring Depth:	36.5	feet bgs
Total Well Depth:	33	feet bgs
State Well ID No.:	BHK 578	

Well/Auger Diameter:	2/4.25 ID	inches
Well Screened Interval:	23 to 33	feet bgs
Screen Slot Size:	0.010	inches
Filter Pack Used:	Colorado silica sand	
Surface Seal:	Concrete	
Annular Seal:	Bentonite	
Monument Type:	Flush mount	

Notes/Comments:

BORING B-1

Depth/ Sample	Moisture Content (%) Water Table	Blows/ Foot	USCS	DESCRIPTION	H.C. Head-space Analysis (ppm)
0				Surface - Concrete 6", 3" gravel.	
			SP	Fill of Gravelly Sand with Silt, brown, damp.	
5					
1		24	ML	Silt with Sand, trace of organics, grayish brown, very stiff, damp.	000
10					
2		>50	SM	Silty Sand (fine grained) trace of gravel, grayish brown, very dense, damp, slight hydrocarbon odor.	40
15					
3		>50	SM	Silty Sand (fine grained) with gravel, grayish brown, very dense, damp, strong hydrocarbon odor.	>4,300
20					

* Boring drilled to 17.5 feet, sampled to 19.0 feet on May 25, 1995.
* No groundwater was encountered at the time of drilling.
* HC headspace analysis measured using Gastec GT 201 Organic Vapor Meter.
* Strong hydrocarbon odors in sample # 3, no visual indications of contamination in soil.

ENVIRONMENTAL
ASSOCIATES, INC.

2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

BORING LOG

Arco Station
3901 Southwest Alaska Street
Seattle, Washington

Job Number:	Date:	Logged by:	Plate:
JN 5138	June 1995	T.A.J.	4

BORING B-2

Depth/ Sample	Moisture Content (%) Water Table	Blows/ Foot	USCS	DESCRIPTION	HC Head-space Analysis (ppm)
0				Surface - Concrete 6", 3" gravel.	
			SP	Fill of Gravelly Sand with Silt, brown, damp.	
5					
1		>50	SM	No Sample - Silty Sand with gravel in nose cone of sampler, very dense, damp.	
10					
2		>50	ML	Silt with Sand (fine grained) and clay, brown, very dense, damp.	000
15					
3		>50	SM	Silty Sand (fine grained) with trace of gravel, gray, very dense, damp, strong hydrocarbon odor.	300
20					
4		>50	SM	Silty Sand (fine grained), gray, very dense, damp, strong hydrocarbon odor.	>4,000
25					

* Boring drilled to 22.5 feet, sampled to 24.0 feet on May 25, 1995.
* No groundwater was encountered at the time of drilling.
* HC headspace analysis measured using Gastec GT 201 Organic Vapor Meter.
* Strong hydrocarbon odors in sample # 3 and #4, no visual indications of contamination in soil.

ENVIRONMENTAL
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Bellevue, Washington 98004

BORING LOG

Arco Station
3901 Southwest Alaska Street
Seattle, Washington

Job Number:	Date:	Logged by:	Plate:
JN 5138	June 1995	T.A.J.	5

BORING B-3

Depth/ Sample	Moisture Content (%) Water Table	Blows/ Foot	USCS	DESCRIPTION	H.C. Head-space Analysis (ppm)
0				Surface - Concrete 6", 3" gravel.	
			SP	Fill of Gravelly Sand with Silt, some cobbles at surface, brown, damp.	
5					
1		9	SM	Silty Sand (fine grained), grayish brown, loose, damp.	000
10					
2		45	SM	Silty Sand (medium grained) with gravel, grayish brown, dense, damp, slight hydrocarbon odor.	60
15					
3		>50	SM	Silty Sand (fine grained) gray, very dense, damp, strong hydrocarbon odor.	>4,500
20					

* Boring drilled to 17.5 feet, sampled to 19.0 feet on May 26, 1995.
* No groundwater was encountered at the time of drilling.
* HC headspace analysis measured using Gastec GT 201 Organic Vapor Meter.
* Strong hydrocarbon odors in sample # 3, no visual indications of contamination in soil.

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Bellevue, Washington 98004

BORING LOG

Arco Station
3901 Southwest Alaska Street
Seattle, Washington

Job Number:	Date:	Logged by:	Plate:
JN 5138	June 1995	T.A.J.	6

MONITORING WELL MW-1

Sample	Moisture Content (%) Water Table	Blows/ Foot	USCS	DESCRIPTION	H.C. Head-space Analysis (ppm)
				Surface - Concrete 6", 3" gravel.	
1		4	SP	Fill of Gravelly Sand with Silt, brown, loose, damp.	000
2		6	ML	Silt with Sand , grayish brown, medium, damp.	000
3		>50	SM	Silty Sand (fine grained) with gravel, gray, very dense, damp, strong hydrocarbon odor.	1,000
4		>50		Small Sample - Silty Sand (fine grained) gray, very dense, hydrocarbon odor	200
5		>50	SM	Silty Sand (fine grained) with trace of gravel, gray, very dense, damp, strong hydrocarbon odor.	>1,000
6		>50		Silty Sand (fine grained), gray, very dense, damp, hydrocarbon odor.	160
7		>50		Silty Sand (fine grained), gray, very dense, becomes wetter, slight hydrocarbon odor.	100
8		>50	SM	Silty Sand (fine grained), gray, very dense, wet, no hydrocarbon odor.	000
9		>50	ML	Silt with Sand , gray, hard, saturated.	000
10		>50	SM	Silty Sand (fine grained), gray, very dense, saturated	000

Depth scale: 0, 10, 20, 30, 40, 50

BLANK

* Boring drilled to 47.5 feet, sampled to 49.0 feet on July 6, 1995.
* Depth to groundwater measured at 23.90 feet below top of monitoring well on July 14, 1995.
* Completion of well per specifications provided by remediation consultant.
* HC headspace analysis measured using Gastec GT 201 Organic Vapor Meter.
* Strong hydrocarbon odors in samples #3 and #5, no visual indications of contamination in soil.

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Bellevue, Washington 98004

MONITORING WELL LOG

Arco Station
3901 Southwest Alaska Street
Seattle, Washington

Job Number:	Date:	Logged by:	Plate:
JN 5138-1	July 1995	T.A.J.	4

MONITORING WELL MW-2

Depth/ Sample	Moisture Content (%) Water Table	Blows/ Foot	USCS	DESCRIPTION	H.C. Head-space Analysis (ppm)
0				Surface - Concrete 10", 3" gravel.	
1	BLANK	4	SP	Fill of Gravelly Sand with Silt, loose, brown, damp.	000
2		6	ML	Silt with Sand, trace of organics, grayish brown, medium, damp.	000
10					
3		>50		Silt with Sand, mottled green gray, hard, damp, slight hydrocarbon odor.	100
4		>50	SM	Silty Sand (fine grained) trace of gravel, gray, very dense, damp, strong hydrocarbon odor.	>4,000
20					
5		>50		Silty Sand (fine grained) gray, very dense, damp, hydrocarbon odor	220
6		>50	SM	Silty Sand (fine grained) gray, very dense, becomes wet, no hydrocarbon odor.	000
30					
7		>50		Silty Sand (fine grained) gray, very dense, saturated, no hydrocarbon odor.	000
40					

* Boring drilled to 35.0 feet, sampled to 36.5 feet on July 7, 1995.
* Depth to groundwater measured at 24.21 feet below top of monitoring well on July 14, 1995.
* Completion of well per specifications provided by remediation consultant.
* HC headspace analysis measured using Gastec GT 201 Organic Vapor Meter.
* Strong hydrocarbon odors in sample # 4, no visual indications of contamination in soil.

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Bellevue, Washington 98004

MONITORING WELL LOG

Arco Station
3901 Southwest Alaska Street
Seattle, Washington

Job Number:	Date:	Logged by:	Plate:
JN 5138-1	July 1995	T.A.J.	5

MONITORING WELL MW-3

Depth/ Sample	Moisture Content (%) Water Table	Blows/ Foot	USCS	DESCRIPTION	H.C. Head-space Analysis (ppm)
0				Surface - Concrete 8", 3" gravel.	
1	BLANK	5	SP	Fill of Sand with Silt and Gravel, loose, brown, damp.	000
2		6	ML	Silt with Sand, trace of organics, grayish brown, medium, damp.	000
10					
3		40	SM	Silty Sand (fine to medium grained), with gravel, gray, dense, damp, hydrocarbon odor.	260
4		>50	SM	8" Silty Sand (fine grained) trace of gravel, brown, 4" Sand (fine grained) very dense, damp, strong hydrocarbon odor in lower 4" portion of sample.	000 >1,850
20					
5		>50	SM	Silty Sand (fine grained) gray, very dense, damp, hydrocarbon odor	100
6		>50		Silty Sand (fine grained) gray, very dense, becomes wet, no hydrocarbon odor.	000
30					
7		>50		Silty Sand (fine grained) gray, very dense, saturated, no hydrocarbon odor.	000
40					

- Boring drilled to 35.0 feet, sampled to 36.5 feet on July 7, 1995.
- Depth to groundwater measured at 24.37 feet below top of monitoring well on July 14, 1995.
- Completion of well per specifications provided by remediation consultant.
- HC headspace analysis measured using Gastec GT 201 Organic Vapor Meter.
- Strong hydrocarbon odors in samples # 3 and # 4, no visual indications of contamination in soil.

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Bellevue, Washington 98004

MONITORING WELL LOG

Arco Station
3901 Southwest Alaska Street
Seattle, Washington

Job Number:	Date:	Logged by:	Plate:
JN 5138-1	July 1995	–	

HALVERSON 110

Boring/Monitoring Well Log

Project Name: West Seattle Shell				Sheet 1 of 2
Job No.: 2007-009	Logged By: R. Skov	Start Date: 2/5/2007	Completion Date: 2/5/2007	Boring No.: B-1
Drilling Contractor: Northwest Probe		Drilling Method: Direct Push Probe		Sampling Method:
Ground Surface Elevation:		Hole Completion:		Surface Conditions: Concrete

PID Reading (ppm)	Sample ID	Sample Interval	SPT	GW Depth	Depth	Soil Description	Boring Completion
					1		
					2		
					3	Brown fine sandy silt (fill), no odor	
					4		
					5		
					6	Black-gray silt, dry strong petroleum odor	
0.0	B-1-7				7		
					8		
					9		
					10	Gray, dry, fine sandy silt, very strong petroleum odor	
					11		
101.0	B-1-12				12		
1585.0	B-1-13				13	Odor is slightly decreasing with depth, some gravel	
					14		
15.5	B-1-15				15	Slight Odor	
					16		
					17		
					18	Gray sandy silt, petroleum odor, moist	
1638.0	B-1-19				19		
					20		

Notes: (bgs - below ground surface)

▽ - Groundwater encountered during drilling.

The Riley Group, Inc.
17522 Bothell Way NE, Suite A
Bothell, Washington 98011
Phone: 425.415.0551 Fax: 425.415.0311

Boring/Monitoring Well Log

Project Name: West Seattle Shell			Sheet 2 of 2
Job No.: 2007-009	Logged By: R. Skov	Start Date: 2/5/2007	Completion Date: 2/5/2007	Boring No.: B-1
Drilling Contractor: Northwest Probe		Drilling Method: Direct Push Probe	Sampling Method:
Ground Surface Elevation:		Hole Completion: Bentonite Chips	Surface Conditions: Concrete

PID Reading (ppm)	Sample ID	Sample Interval	SPT	GW Depth	Depth	Soil Description	Boring Completion
					21		
					22		
					23		
					24		
					25	Gray fine sandy silt, petroleum odor, moist	
25.0	B-1-26				26		
					27		
					28		
					29		
6.6	B-1-30				30		
					31	Boring terminated at 25 feet bgs. No groundwater encountered during drilling	
					32		
					33		
					34		
					35		
					36		
					37		
					38		
					39		
					40		

Notes: (bgs - below ground surface)

▽ - Groundwater encountered during drilling.

The Riley Group, Inc.
17522 Bothell Way NE, Suite A
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Boring/Monitoring Well Log

Project Name: West Seattle Shell					Sheet 1 of 1
Job No.: 2007-009	Logged By: R. Skov	Start Date: 2/5/2007	Completion Date: 2/5/2007	Boring No.: B-2	
Drilling Contractor: Northwest Probe		Drilling Method: Direct Push Probe		Sampling Method:	
Ground Surface Elevation:		Hole Completion: Bentonite Chips		Surface Conditions: Concrete	

PID Reading (ppm)	Sample ID	Sample Interval	SPT	GW Depth	Depth	Soil Description	Boring Completion
					1		
					2	Brown gray mottled, moist, fine sandy silt	
					3		
					4		
					5		
					6	At 5 feet color changes from mottled gray-brown to mottled brown-rust	
					7		
0.0	B-2-8				8		
					9	Medium sandy silt, no odor, moist	
					10		
					11	Gray, medium sandy silt. No petroleum odor	
0.0	B-2-12				12	Odor is slightly decreasing with depth. Some gravel	
					13		
					14		
					15		
34.0	B-2-16				16	Gray sandy silt, slight petroleum odor at depth greater than 16 feet	
					17		
					18		
20.0	B-2-19				19		
					20	Boring terminated @ 19.5' bgs due to refusal No groundwater encountered during drilling	

Notes: (bgs - below ground surface)

▽ - Groundwater encountered during drilling.

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Boring/Monitoring Well Log

Project Name: West Seattle Shell					Sheet 1 of 3
Job No.: 2007-009	Logged By: R. Skov	Start Date: 2/5/2007	Completion Date: 2/5/2007	Boring No.: B-3	
Drilling Contractor: Northwest Probe		Drilling Method: Direct Push Probe		Sampling Method:	
Ground Surface Elevation:		Hole Completion: Bentonite Chips		Surface Conditions: Concrete	

PID Reading (ppm)	Sample ID	Sample Interval	SPT	GW Depth	Depth	Soil Description	Boring Completion
					1		
					2		
					3		
					4	Fine sandy silt backfill, brown (fill)	
					5		
					6		
0.0	B-3-6				7		
					8	Hit tree root at 8 feet bgs, abandoned hole	
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

Notes: (bgs - below ground surface)

▽ - Groundwater encountered during drilling.

The Riley Group, Inc.
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Phone: 425.415.0551 Fax: 425.415.0311

Boring/Monitoring Well Log

Project Name: West Seattle Shell			Sheet 2 of 3
Job No.: 2007-009	Logged By: R. Skov	Start Date: 2/5/2007	Completion Date: 2/5/2007
Boring No.: B-3			
Drilling Contractor: Northwest Probe	Drilling Method: Direct Push Probe	Sampling Method:	
Ground Surface Elevation:	Hole Completion:	Surface Conditions: Concrete	

PID Reading (ppm)	Sample ID	Sample Interval	SPT	GW Depth	Depth	Soil Description
					1	
					2	
					3	
					4	Brown fine sandy silt (fill), no petroleum odor
					5	
					6	
					7	
					8	
					9	
					10	Wet, mottled brown, gray fine sandy silt, no petroleum odor
0.0	B-3-11				11	
					12	
					13	
					14	Moist, gray fine sandy silt, no petroleum odor
					15	
0.0	B-3-16				16	
					17	
424.0	B-3-18				18	Occasional gravel, color fades to salt and pepper with increasing odor
					19	
					20	Gray find sandy silt, strong petroleum odor, moist

Boring Completion

Notes: (bgs - below ground surface)

▼ - Groundwater encountered during drilling.

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Boring/Monitoring Well Log

Project Name: West Seattle Shell				Sheet 3 of 3
Job No.: 2007-009	Logged By: R. Skov	Start Date: 2/5/2007	Completion Date: 2/5/2007	Boring No.: B-3
Drilling Contractor: Northwest Probe		Drilling Method: Direct Push Probe		Sampling Method:
Ground Surface Elevation:		Hole Completion: Bentonite Chips		Surface Conditions: Concrete

PID Reading (ppm)	Sample ID	Sample Interval	SPT	GW Depth	Depth	Soil Description	Boring Completion
2030.0	B-3-21				21	Gray fine sandy silt, moist, very strong petroleum odor	
					22		
					23		
					24		
2081.0	B-3-25				25		
					26	Boring terminated at 25 feet bgs. No groundwater encountered during drilling	
					27		
					28		
					29		
					30		
					31		
					32		
					33		
					34		
					35		
					36		
					37		
					38		
					39		
					40		

Notes: (bgs - below ground surface)

▽ - Groundwater encountered during drilling.

The Riley Group, Inc.
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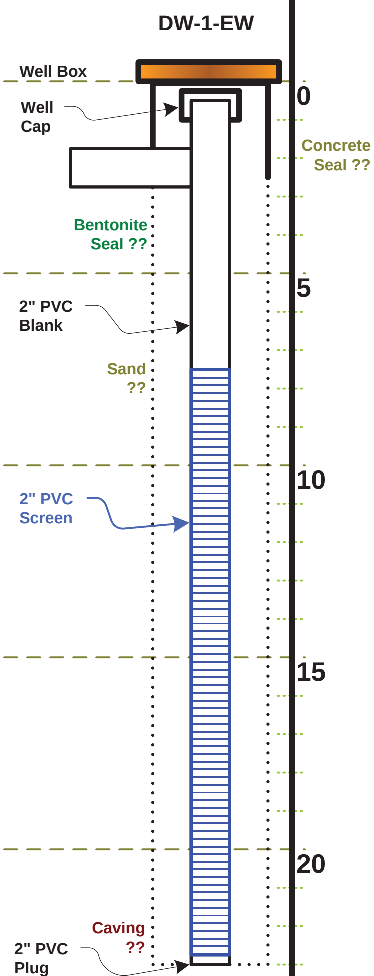
dw-1-2inch extraction well.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			EOB at 23'				



Depth in feet: 0, 5, 10, 15, 20, 25, 30

Drilling Method: Vactor and Camera	**Date:** 4-27-2001	**Other Information:**	
Drilling Company: APS	**Weather:** Cold and Overcast		
Boring Diameter: Two inches	**Page** 1 **of** 1		
Logged By: Joe Gallagher			

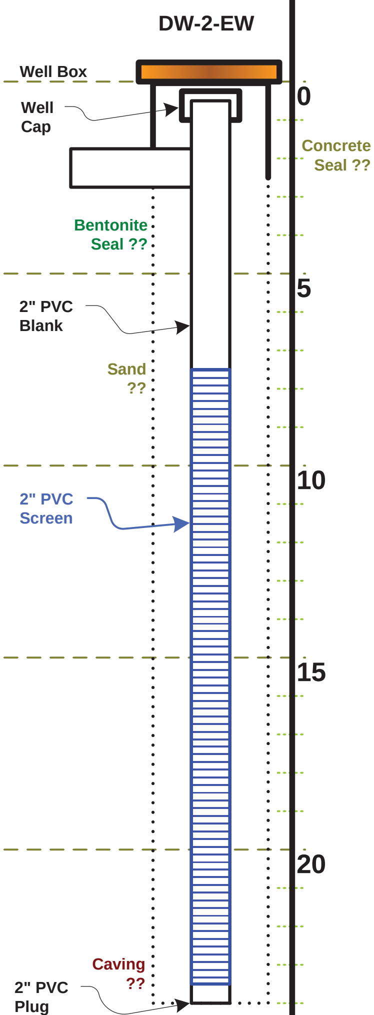
g-logics

Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

DW-1-EW

dw-2-2inch extraction well.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			EOB at 24'				



0
5
10
15
20
25
30

Depth in feet

Drilling Method: Vactor and Camera	**Date:** 4-27-2001	**Other Information:**	
Drilling Company: APS	**Weather:** Cold and Overcast		
Boring Diameter: Two inches	**Page** 1 **of** 1		
Logged By: Joe Gallagher			

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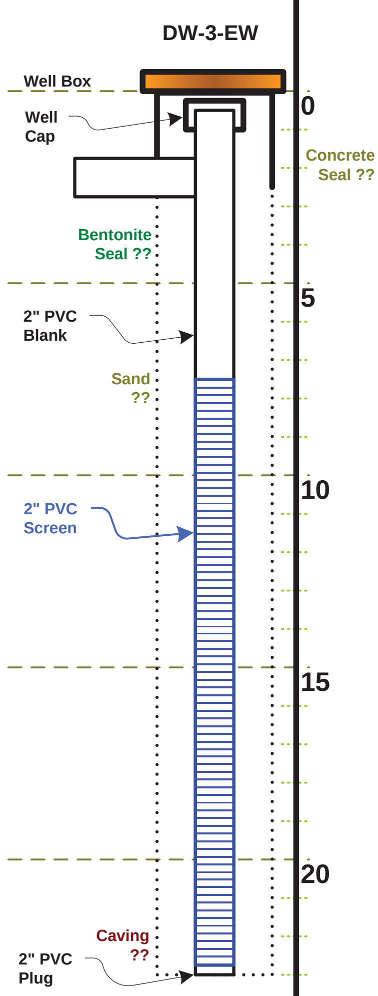
Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

DW-2-EW

dw-3-2inch extraction well.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			EOB at 23'				DW-3-EW



Depth in feet: 0, 5, 10, 15, 20, 25, 30

Drilling Method: Vactor and Camera	Date: 4-27-2001	Other Information: Well Sand and Concrete found in Well during Cleanout
Drilling Company: APS	Weather: Cold and Overcast	
Boring Diameter: Two inches	Page 1 of 1	
Logged By: Joe Gallagher		

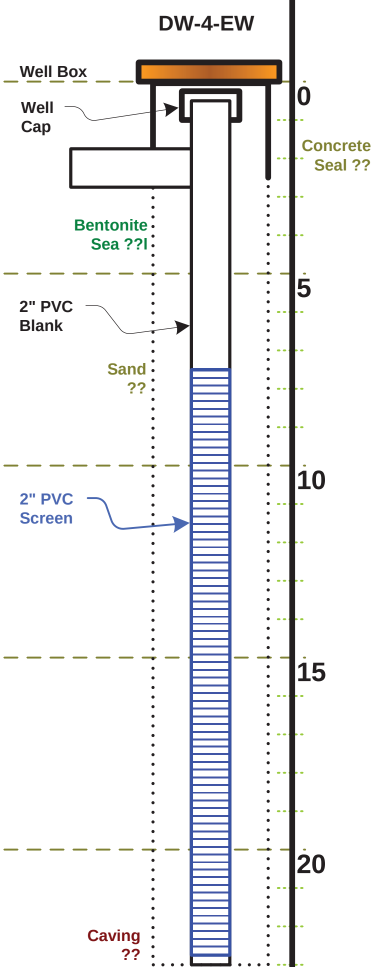
g-logics

Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

DW-3-EW

dw-4-2inch extraction well.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			EOB at 23'				



0
5
10
15
20
25
30

Depth in feet

Drilling Method: Vactor and Camera	Date: 4-27-2001	Other Information:
Drilling Company: APS	Weather: Cold and Overcast	
Boring Diameter: Two inches	Page 1 of 1	
Logged By: Joe Gallagher		

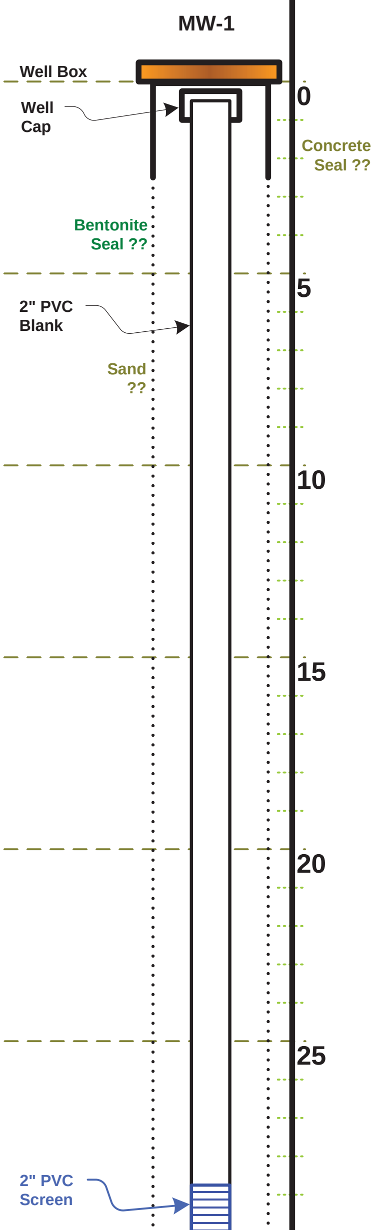
g-logics

Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

DW-4-EW

mw-1-pg1.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			EOB at 44'				



Depth in feet: 0, 5, 10, 15, 20, 25, 30

Drilling Method: Vactor and Camera	**Date:** 4-27-2001	**Other Information:**	
Drilling Company: APS	**Weather:** Cold and Overcast		
Boring Diameter: Two inches	**Page** 1 **of** 2		
Logged By: Joe Gallagher			

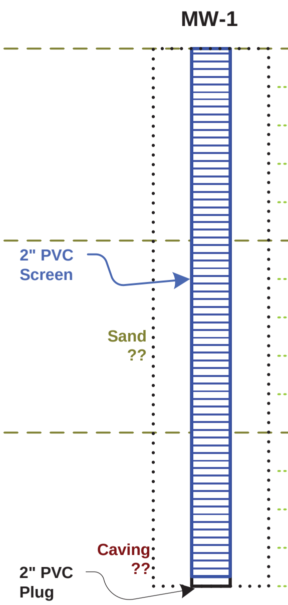
g-logics

Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

MW-1

mw-1-pg2.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION



30

35

40

EOB at 44'

45

50

55

60

Depth in feet

Drilling Method: Vactor and Camera	**Date:** 4-27-2001	**Other Information:**
Drilling Company: APS	**Weather:** Cold and Overcast	
Boring Diameter: Two inches	**Page** 2 **of** 2	
Logged By: Joe Gallagher		

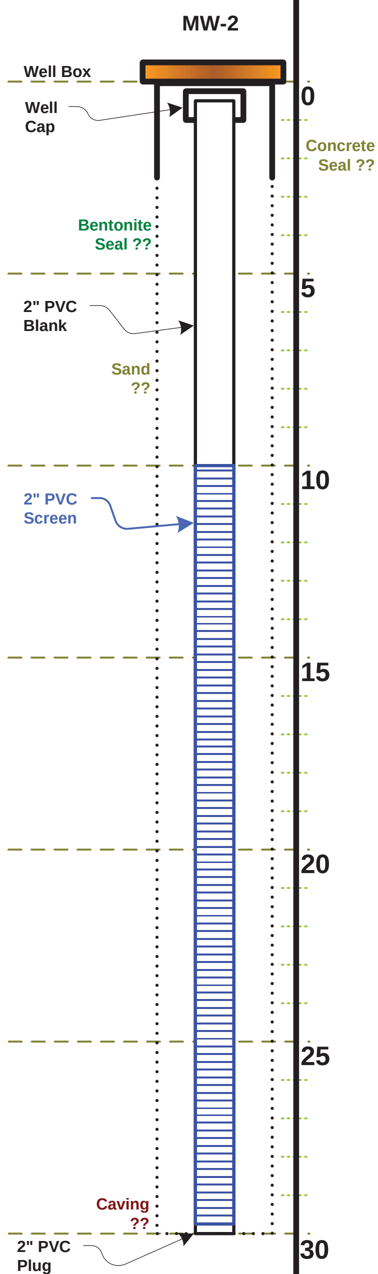
g-logics

Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

MW-1

mw-2.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			EOB at 30'				



Depth in feet (0, 5, 10, 15, 20, 25, 30)

Drilling Method: Vactor and Camera	**Date:** 4-27-2001	**Other Information:**
Drilling Company: APS	**Weather:** Cold and Overcast	
Boring Diameter: Two inches	**Page** 1 **of** 1	
Logged By: Joe Gallagher		

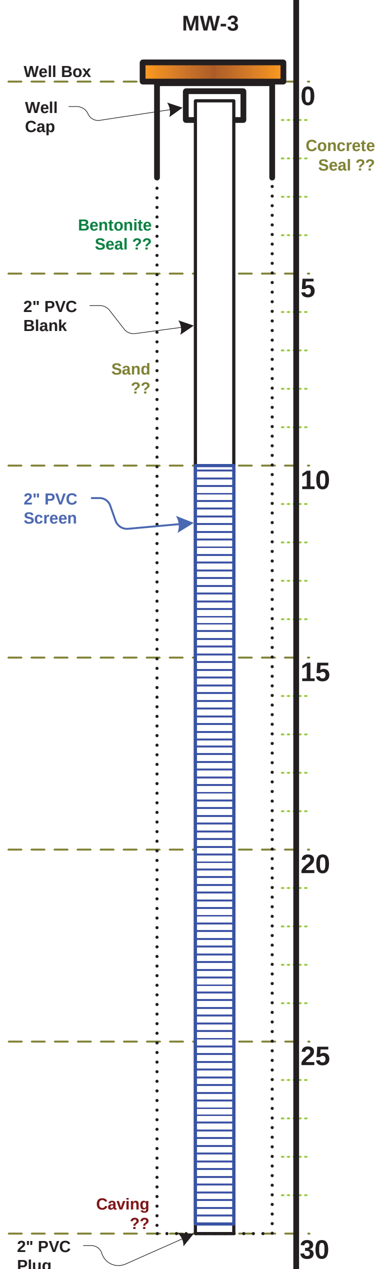
g-logics

Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

MW-2

mw-3.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			EOB at 30'				



Depth in feet: 0, 5, 10, 15, 20, 25, 30

Drilling Method: Vactor and Camera	**Date:** 4-27-2001	**Other Information:** Well Heavily Silted also contained Bacteria and Strong Petroleum Odor
Drilling Company: APS	**Weather:** Cold and Overcast	
Boring Diameter: Two inches	**Page** 1 **of** 1	
Logged By: Joe Gallagher		

g-logics

Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

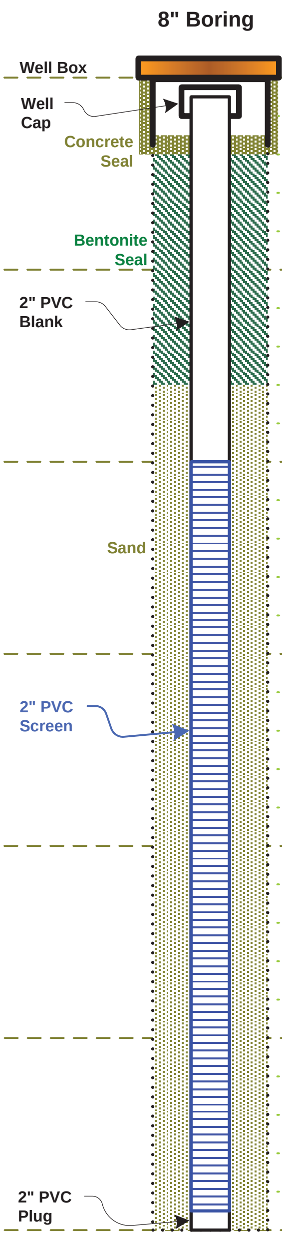
MW-3

glmw-1.vsd

Depth (feet)	BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)
				Surface: Concrete			
0				Concrete (six inches). Vac Truck removed material from surface to approximately 9'. A 3" hand auger was used to collect a 6" sample @ 5' before advancing to 9'.		SP	
5			GLMW-1-5	Grayish-brown, clayey, fine to medium sand, trace course sand and gravel, moist, stiff, no odor.		ML	0
				Grades to gray in color.			
10			GLMW-1-11				0
	N/A			Gray, fine to medium sand, trace course sand and gravel, moist, dense. Hydrocarbon odor starting @ approximately 16' and increases with depth.		SM	
15			GLMW-1-15				0.7
	N/A			Gray, silty fine sand, wet @ approximately 21.5', medium dense.			
20			GLMW-1-20				303
	N/A					SM	
25			GLMW-1-25				53.8
	N/A						
30			GLMW-1-30	EOB at 30'			35.6

Depth in feet

WELL CONSTRUCTION



Drilling Method: Direct Push/ HSA	**Date:** 6-7-2011	**Other Information:**	
Drilling Company: Major Drilling	**Weather:** Cloudy and cool	20 slot screen	
Boring Diameter: Eight Inches	**Page** 1 **of** 1	Ecology Well Tag # BHC 676	
Logged By: Karis Vandehey			

g-logics

Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

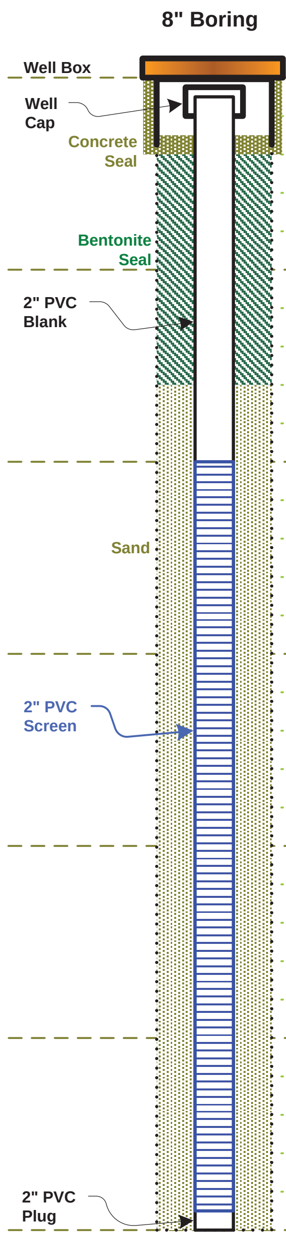
GL-MW-1

glmw-2.vsd

Depth (feet)	BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)
				Surface: Concrete			
0				Concrete (six inches). Vac Truck removed material from surface to approximately 8'. A 3" hand auger was used to collect a 6" sample @ 5' before advancing to 8'.		SP	
5			GLMW-2-5	Brown, fine to medium sand, trace gravel, moist, medium dense, no odor.			0
				Gray, clayey, fine to medium sand, trace course sand and gravel, moist, stiff, hydrocarbon odor.		ML	
10			GLMW-2-11				38.6
	N/A			Gray, fine to medium sand, trace course sand and gravel, dense. Hydrocarbon odor increasing with depth. Wet from approximately 10'-12' then goes back to moist.		SM	
15			GLMW-2-15				831
	N/A						
20			GLMW-2-20	Gray, silty fine sand, wet @ approximately 23', medium dense.		SM	744
	N/A						
25			GLMW-2-25				63.1
	N/A						
30			GLMW-2-30	EOB at 30'			80.4

Depth in feet

WELL CONSTRUCTION



Drilling Method: Direct Push/ HSA	**Date:** 6-7-2011	**Other Information:**	
Drilling Company: Major Drilling	**Weather:** Cloudy and cool	20 slot screen	
Boring Diameter: Eight Inches	**Page** 1 **of** 1	Ecology Well Tag # BHC 677	
Logged By: Karis Vandehey			

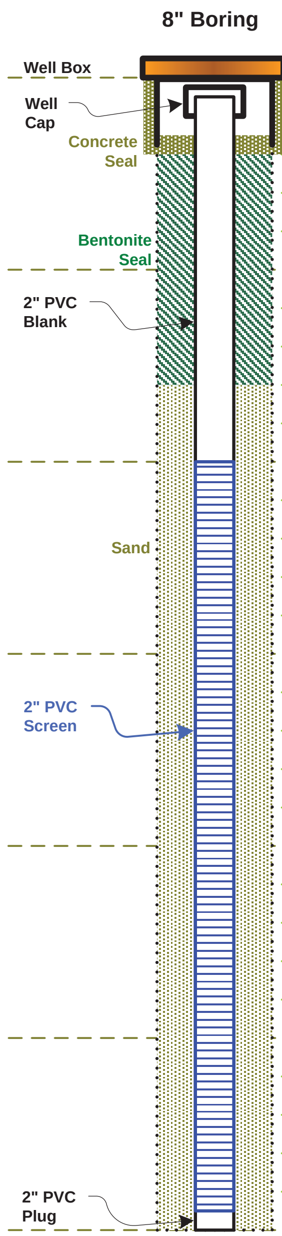
g-logics

Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

GL-MW-2

glmw-3.vsd

Depth (feet)	BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)
				Surface: Concrete			
0				Concrete (six inches). Vac Truck removed material from surface to approximately 8'. A 3" hand auger was used to collect a 6" sample @ 5' before advancing to 8'.		SP	
5			GLMW-3-5	Brown, silty fine to medium sand, trace course sand and gravel, moist, medium dense, no odor.			0
10			GLMW-3-10	Brownish-gray silty clay, moist, very stiff, no odor.		ML	3.4
	N/A			Gray, silty fine to course sand, some gravel, dense. Slight hydrocarbon odor increasing with depth. Wet from approximately 12'-13' then moist.		SM	
15			GLMW-3-15				2.9
	N/A			Dark gray, silty fine sand, wet @ approximately 25', medium dense. Strong hydrocarbon odor from approximately 22'-25' then decreasing with depth.			
20			GLMW-3-20			SM	3.1
	N/A						
25			GLMW-3-25				317
	N/A			Grayish-brown, silty fine sand, wet, medium dense. Color grades to brown with depth.		SM	
30			GLMW-3-30	EOB at 30'			12.1



Depth in feet

Drilling Method: Direct Push/ HSA	**Date:** 6-8-2011	**Other Information:**	
Drilling Company: Major Drilling	**Weather:** Cloudy and cool	20 slot screen	
Boring Diameter: Eight Inches	**Page** 1 **of** 1	Ecology Well Tag # BHC 678	
Logged By: Karis Vandehey			

g-logics

Boring/Well Log
West Seattle Shell
3901 Southwest Alaska Street
Seattle, WA

GL-MW-3

APPENDIX C
LABORATORY ANALYTICAL REPORTS

Friedman & Bruya, Inc. #208067

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 13, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on August 6, 2012 from the SOU_120-25_20120806, F&BI 208067 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
SOU0813R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 6, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_120-25_20120806, F&BI 208067 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
208067-01	MW101-25
208067-02	MW101-30
208067-03	MW101-22.5
208067-04	MW101-27.5
208067-05	MW101-35.0
208067-06	MW101-40.0
208067-07	MW101-45
208067-08	MW101-50
208067-09	MW101-55

All quality control requirements were acceptable.

Date of Report: 08/13/12
Date Received: 08/06/12
Project: SOU_120-25_20120806, F&BI 208067
Date Extracted: 08/06/12, 08/07/12, and 08/08/12
Date Analyzed: 08/06/12, 08/07/12, and 08/08/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING EPA METHOD 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)
MW101-25 208067-01	<0.02	<0.02	<0.02	<0.06	<2	95
MW101-30 208067-02	<0.02	<0.02	<0.02	<0.06	<2	94
MW101-22.5 208067-03	<0.02	<0.02	<0.02	<0.06	<2	93
MW101-27.5 208067-04	<0.02	<0.02	<0.02	<0.06	<2	91
MW101-40.0 208067-06	<0.02	<0.02	<0.02	<0.06	<2	92
MW101-55 208067-09	<0.02	<0.02	<0.02	<0.06	<2	92
Method Blank 02-1391 MB	<0.02	<0.02	<0.02	<0.06	<2	93
Method Blank 02-1398 MB	<0.02	<0.02	<0.02	<0.06	<2	92

Date of Report: 08/13/12
Date Received: 08/06/12
Project: SOU_120-25_20120806, F&BI 208067

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: 208067-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (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	91	70-117
Ethylbenzene	mg/kg (ppm)	0.5	92	65-123
Xylenes	mg/kg (ppm)	1.5	91	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

Date of Report: 08/13/12
Date Received: 08/06/12
Project: SOU_120-25_20120806, F&BI 208067

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: 208067-04 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (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	86	69-120
Toluene	mg/kg (ppm)	0.5	88	70-117
Ethylbenzene	mg/kg (ppm)	0.5	90	65-123
Xylenes	mg/kg (ppm)	1.5	90	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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 in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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.

208067

SAMPLE CHAIN OF CUSTODY

ME 8/6/12

VS2/BI3

Send Report To Rob Roberts

Company Sound Earth Strategies

Address 2811 Fairview Avenue East, Ste 2000

City, State, ZIP Seattle, WA 98102

Phone # 206.306.1900 Fax # 206.306.1907

SAMPLERS (signature) L. Namba

PROJECT NAME/NO. SKS Shell ROW 120-25

PO #

REMARKS please hold for future possible analysis MW101-27.5, MW101-35.0, MW101-40.0, MW101-45 and MW101-50

GEMS Y / N

Page # 1 of 1

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH 24 hour

Rush charges authorized by: Rob Roberts

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			Notes
~~MW101-20~~	~~MW101~~	~~20~~		~~08/05/12~~		~~Soil~~	~~5~~		~~✓~~	~~✓~~						e
MW101-25	MW101	25	01 A-E	08/05/12	0925	Soil	5		✓	✓						*-per RR 8/7/12 MK
MW101-30	MW101	30	02	08/05/12	0945	Soil	5		✓	✓						
MW101-22.5	MW101	22.5	03	08/05/12	0915	Soil	5		✓	✓						✓-per RR 8/8/12
MW101-27.5	MW101	27.5	04	08/05/12	0935	Soil	5		*	*						~~Hold~~ MK
MW101-35.0	MW101	35.0	05	08/05/12	1050	Soil	5									Hold
MW101-40.0	MW101	40.0	06	08/05/12	1110	Soil	5		✓	✓						~~Hold~~
MW101-45	MW101	45.0	07	08/05/12	1125	Soil	5									Hold
MW101-50	MW101	50.0	08	08/05/12	1140	Soil	5									Hold
MW101-55			09	08/05/12	11:55	Soil	5		✓	✓						~~*Added in Lab~~

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: L. Namba	Larry Namba	SES	08/06/12	11:50A
Received by: S. Olson	S. Olson	F&B, Inc	8/6/12	✓
Relinquished by:				
Received by:				

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Friedman & Bruya, Inc. #208068

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 10, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on August 6, 2012 from the SOU_120-25_20120806, F&BI 208068 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
SOU0810R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 6, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_120-25_20120806, F&BI 208068 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
208068-01	MWX-20120805
208068-02	MW101-55W
208068-03	MW101-30W

All quality control requirements were acceptable.

Date of Report: 08/10/12
Date Received: 08/06/12
Project: SOU_120-25_20120806, F&BI 208068
Date Extracted: 08/06/12
Date Analyzed: 08/06/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MWX-20120805 208068-01	<100	102
MW101-55W FILTERED 208068-02	<100	96
MW101-55W UNFILTERED 208068-02	<100	97
MW101-30W 208068-03	<100	98
Method Blank 02-1390 MB	<100	102

Date of Report: 08/10/12
Date Received: 08/06/12
Project: SOU_120-25_20120806, F&BI 208068
Date Extracted: 08/06/12
Date Analyzed: 08/08/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
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)
MWX-20120805 208068-01 1/1.2	<60	<300	112
Method Blank 02-1388 MB2	<50	<250	82

Date of Report: 08/10/12
Date Received: 08/06/12
Project: SOU_120-25_20120806, F&BI 208068
Date Extracted: 08/06/12
Date Analyzed: 08/06/12

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 50-150)
MWX-20120805 208068-01 1/1.2	69 x	<300	119
Method Blank 02-1388 MB	<50	<250	102

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MWX-20120805	Client:	SoundEarth Strategies
Date Received:	08/06/12	Project:	SOU_120-25_20120806, F&BI 208068
Date Extracted:	08/06/12	Lab ID:	208068-01
Date Analyzed:	08/06/12	Data File:	080618.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	104	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW101-55W	Client:	SoundEarth Strategies
Date Received:	08/06/12	Project:	SOU_120-25_20120806, F&BI 208068
Date Extracted:	08/06/12	Lab ID:	208068-02 filtered
Date Analyzed:	08/06/12	Data File:	080619.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW101-55W	Client:	SoundEarth Strategies
Date Received:	08/06/12	Project:	SOU_120-25_20120806, F&BI 208068
Date Extracted:	08/06/12	Lab ID:	208068-02 unfiltered
Date Analyzed:	08/06/12	Data File:	080620.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

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Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW101-30W	Client:	SoundEarth Strategies
Date Received:	08/06/12	Project:	SOU_120-25_20120806, F&BI 208068
Date Extracted:	08/06/12	Lab ID:	208068-03
Date Analyzed:	08/06/12	Data File:	080621.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	104	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	3.4
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_120-25_20120806, F&BI 208068
Date Extracted:	08/06/12	Lab ID:	02-1334 mb
Date Analyzed:	08/06/12	Data File:	080617.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Date of Report: 08/10/12
Date Received: 08/06/12
Project: SOU_120-25_20120806, F&BI 208068

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	98	97	69-134	1

Date of Report: 08/10/12
Date Received: 08/06/12
Project: SOU_120-25_20120806, F&BI 208068

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 Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	94	105	61-133	11

Date of Report: 08/10/12
Date Received: 08/06/12
Project: SOU_120-25_20120806, F&BI 208068

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	112	108	63-142	4

Date of Report: 08/10/12
Date Received: 08/06/12
Project: SOU_120-25_20120806, F&BI 208068

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	97	99	64-147	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	104	104	73-132	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	105	106	82-125	1
Benzene	ug/L (ppb)	50	99	101	69-134	2
Toluene	ug/L (ppb)	50	102	104	72-122	2
Ethylbenzene	ug/L (ppb)	50	104	105	77-124	1
m,p-Xylene	ug/L (ppb)	100	103	105	83-125	2
o-Xylene	ug/L (ppb)	50	105	106	86-121	1

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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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

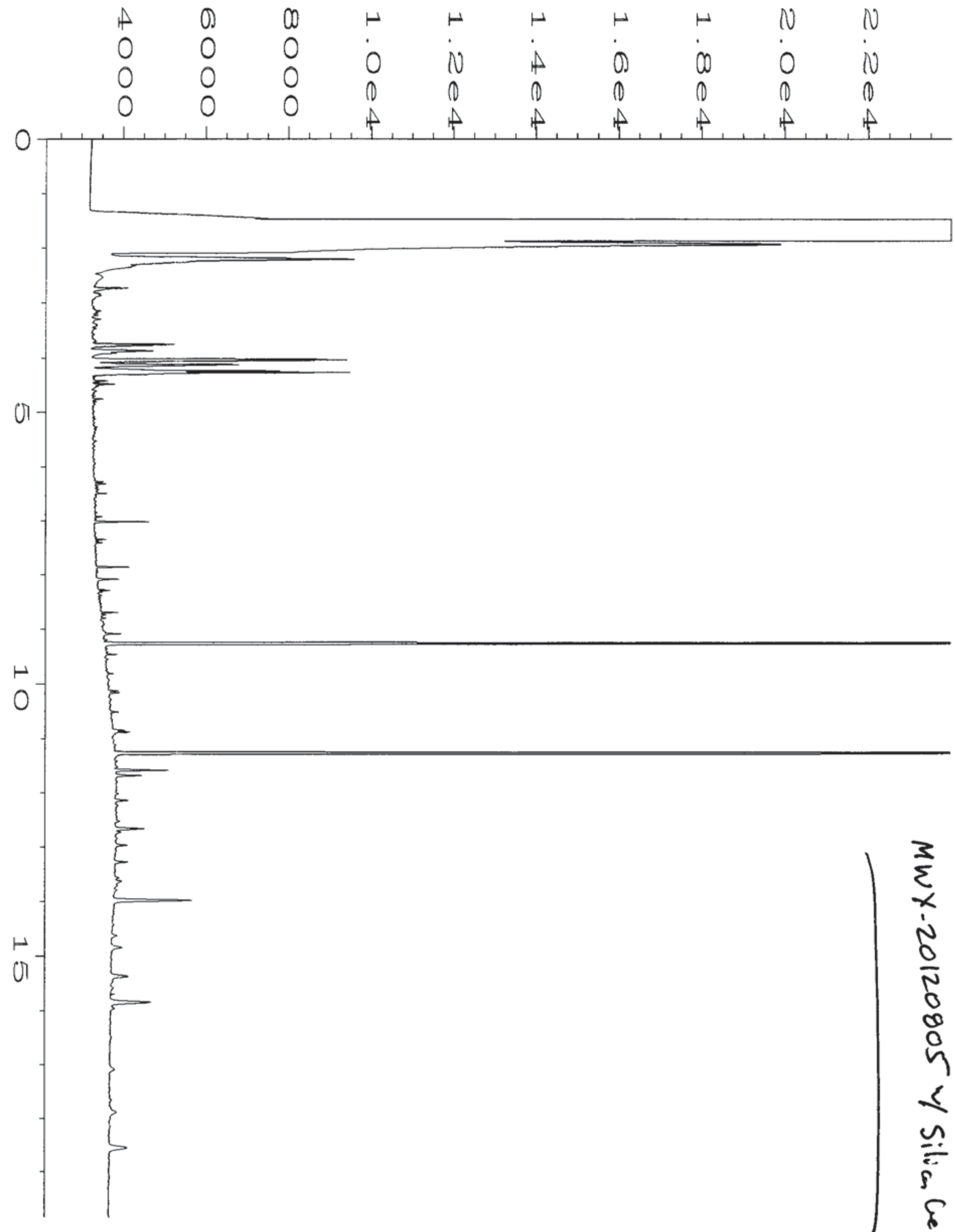
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

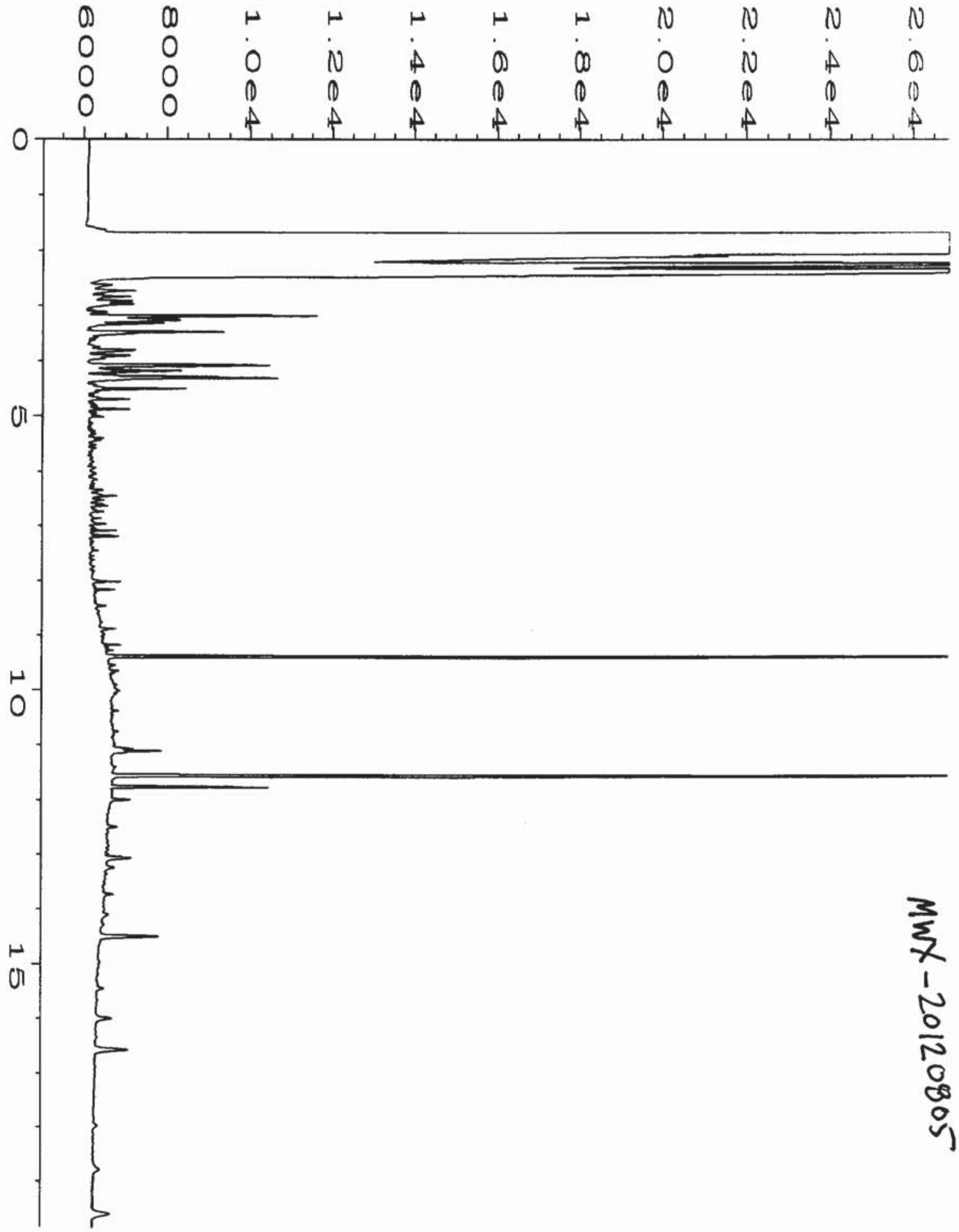
vo - The value reported fell outside the control limits established for this analyte.

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



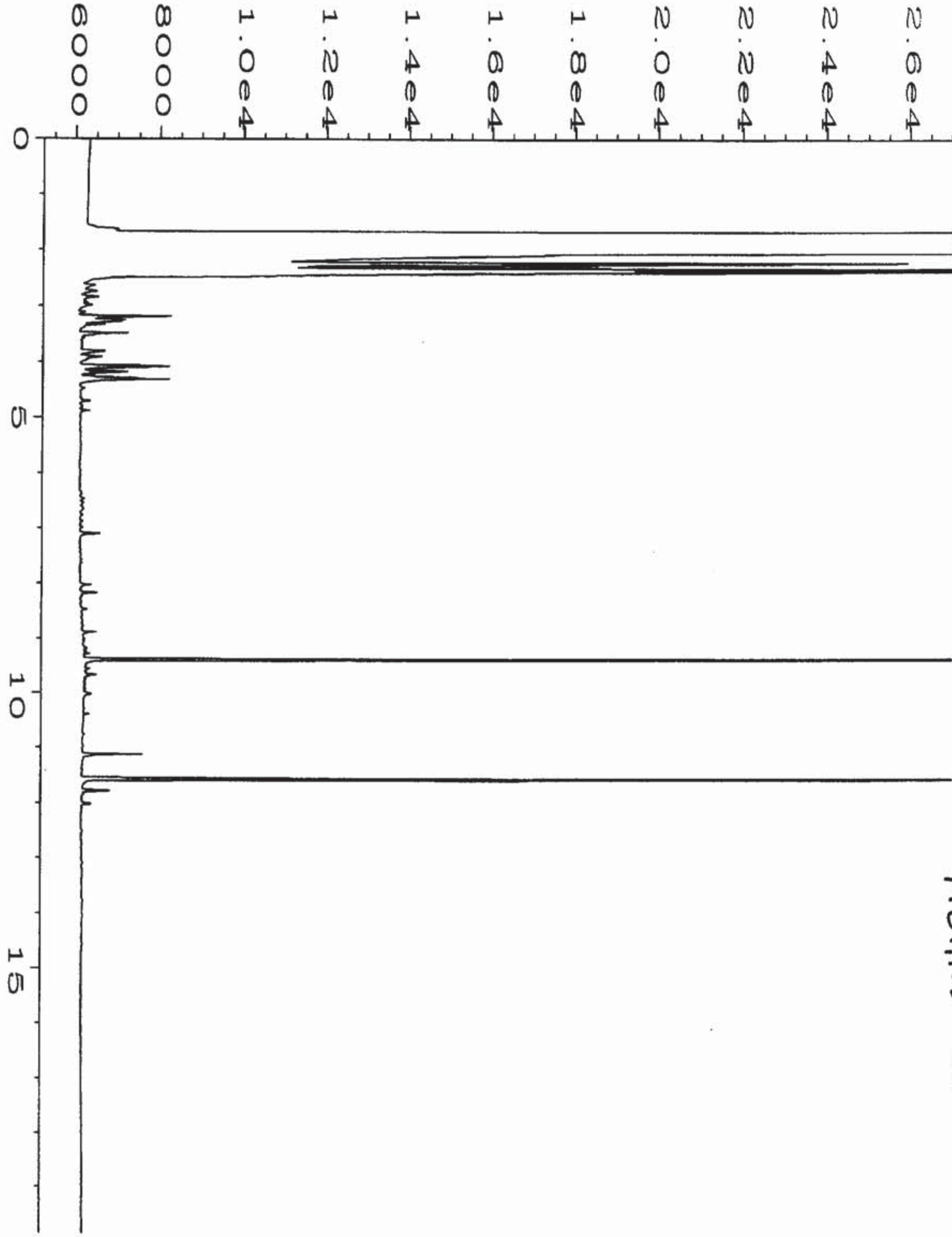
MWX-20120805 w/ Silica Gel

Data File Name	: C:\HPCHEM\4\DATA\08-08-12\008F0301.D		
Operator	: ML	Page Number	: 1
Instrument	: GC#4	Vial Number	: 8
Sample Name	: 208068-01 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 08 Aug 12 11:30 AM	Instrument Method:	TPHD.MTH
Report Created on:	09 Aug 12 09:56 AM	Analysis Method	: TPHD.MTH



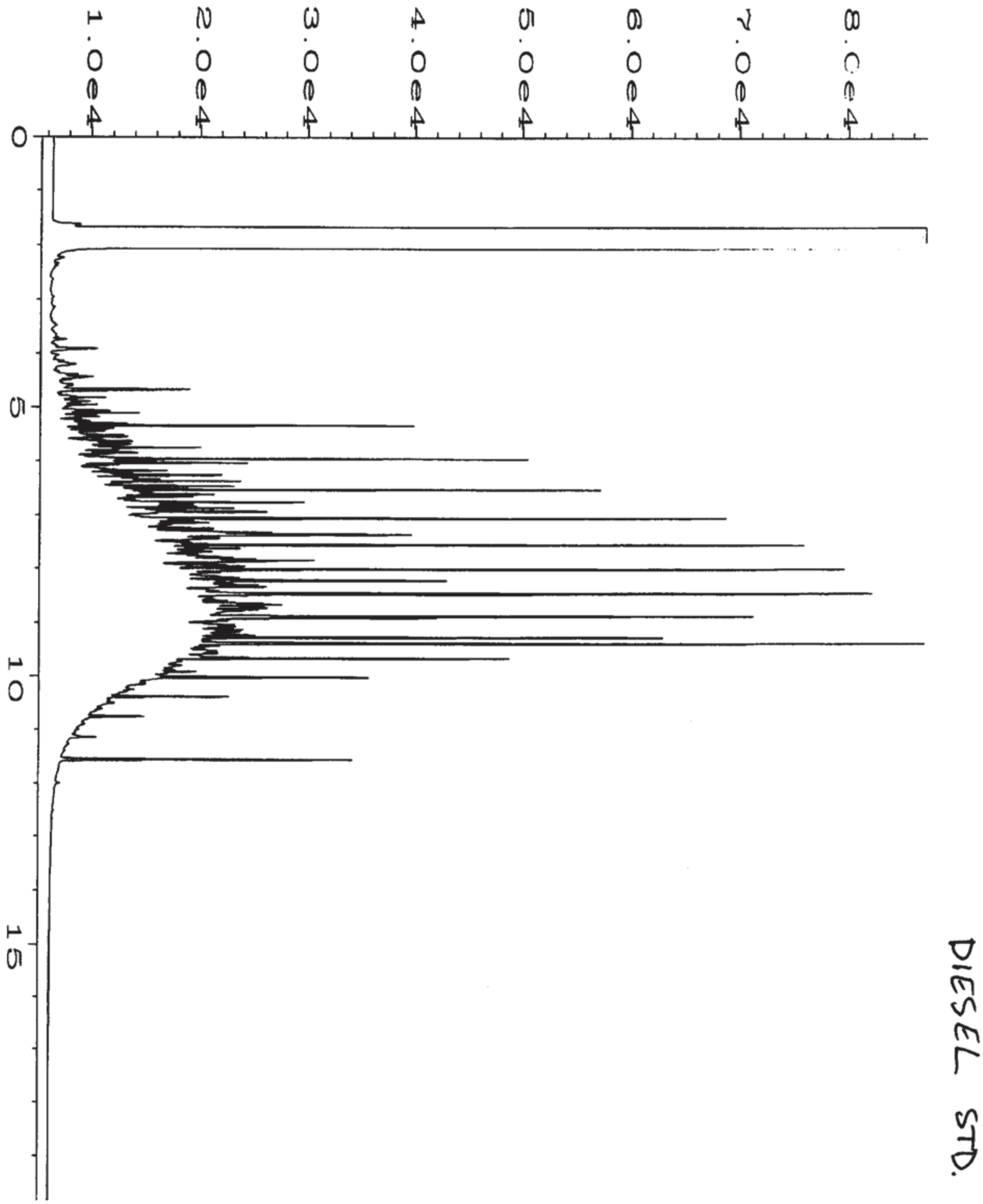
MWX-20120805

Data File Name	: C:\HPCHEM\1\DATA\08-06-12\020F0501.D		
Operator	: ML	Page Number	: 1
Instrument	: GC1	Vial Number	: 20
Sample Name	: 208068-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 06 Aug 12 04:54 PM	Instrument Method:	TPHD.MTH
Report Created on:	07 Aug 12 09:00 AM	Analysis Method	: END.MTH



METHOD BLANK

Data File Name	: C:\HPCHEM\1\DATA\08-06-12\016F0301.D				
Operator	: ML	Page Number	: 1		
Instrument	: GC1	Vial Number	: 16		
Sample Name	: 02-1388 mb	Injection Number	: 1		
Run Time Bar Code:		Sequence Line	: 3		
Acquired on	: 06 Aug 12 02:07 PM	Instrument Method:	TPHD.MTH		
Report Created on:	07 Aug 12 09:00 AM	Analysis Method	: END.MTH		



Data File Name	: C:\HPCHEM\1\DATA\08-06-12\003F0201.D		
Operator	: ML	Page Number	: 1
Instrument	: GC1	Vial Number	: 3
Sample Name	: 500 WADF 38-103C	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 06 Aug 12 09:12 AM	Instrument Method:	TPHD.MTH
Report Created on:	07 Aug 12 08:59 AM	Analysis Method	: END.MTH

208068

SAMPLE CHAIN OF CUSTODY

ME 8/6/12 V2/ B05

Page # 1 of 1

Send Report To Rob Roberts

Company Sound Earth Strategies

Address 2811 Fairview Avenue East, Suite 2000

City, State, ZIP Seattle, WA 98102

Phone # 206.306.1900 Fax # 206.306.1901

SAMPLERS (signature) R. Roberts, L. Namba

PROJECT NAME/NO. SKS-Shell Row 120-25

PO #

REMARKS ~~Analyze~~ mwx-20120805 ~~for EDB, EDC, MTBE~~ if product present ~~in fingerprint analysis.~~ Call Rob Roberts

GEMS Y / N

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH 24-HR
- 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	Dx/Gx per ... ~~BTEX by 8021B~~	VOCs by 8260	SVOCs by 8270	~~Extra ...~~ canceled per ...	BTEX, EDB, EDC	MTBE by 8260C	~~Product Fingerprint~~ canceled per ...	Notes
mwX-20120805	mwX		01 A-F	08/05/12		water		✓	✓				✓	✓		✓	
mw101-55w	mw101	55	02 A-E	08/05/12		water			✓					✓			2x40ml filtered 2x40ml unfiltered
mw101-30w	mw101	30	03 A-D	08/05/12		water			✓					✓			〃
~~mw101-22.5~~	~~mw101~~	~~22.5~~	e	e													Run both
~~mw101-25.0~~				e e													filtered and
																	unfiltered
																	portions

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]	Larry Namba	SES	08/06/12	11:50A
Received by:	[signature]	S. Oborn	F&B, Inc	8/6/12	✓
Relinquished by:					
Received by:					

Samples received at 9 °C

Friedman & Bruya, Inc. #208074

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 27, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on August 6, 2012 from the SOU_0914-001-01_20120806, F&BI 208074 project. There are 20 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
SOU0827R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 6, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001-01_20120806, F&BI 208074 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
208074-01	MW101-20120806
208074-02	MW-2-20120806
208074-03	GLMW-1-20120806
208074-04	GLMW-2-20120806P
208074-05	MW3-20120806P

In preparation for the water soluble fraction analyses, 5.0 grams of the product sample GLMW-2-20120806P were extracted with 50 milliliters (mL) of deionized water. For the NWTPH-Dx analysis, 40 mL of the water layer were then extracted three times with 20 mL of methylene chloride (MeCl2) and the MeCl2 extracts were concentrated to a final volume of 1 mL. For the hydrocarbon fuel scan analysis, 40 mL of the water layer were extracted with 1 mL of carbon disulfide.

The tetraethyl lead value exceeded the calibration range of the instrument. In addition, the laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria for tetraethyl lead. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074
Date Extracted: 08/07/12
Date Analyzed: 08/07/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW101-20120806 208074-01	<100	89
MW-2-20120806 208074-02 1/100	32,000	90
GLMW-1-20120806 208074-03 1/10	6,000	108
Method Blank 02-1390 MB	<100	102

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074
Date Extracted: 08/16/12
Date Analyzed: 08/18/12

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 50-150)
GLMW-2-20120806P 208074-04	6,000 x	<1,200	107
Method Blank 02-1439 MB2	<50	<250	98

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW101-20120806	Client:	SoundEarth Strategies
Date Received:	08/06/12	Project:	SOU_0914-001-01_20120806
Date Extracted:	08/07/12	Lab ID:	208074-01
Date Analyzed:	08/07/12	Data File:	080707.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-2-20120806	Client:	SoundEarth Strategies
Date Received:	08/06/12	Project:	SOU_0914-001-01_20120806
Date Extracted:	08/07/12	Lab ID:	208074-02 1/10
Date Analyzed:	08/07/12	Data File:	080715.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<10
1,2-Dichloroethane (EDC)	<10
1,2-Dibromoethane (EDB)	<10
Benzene	11
Toluene	23
Ethylbenzene	1,800 ve
m,p-Xylene	6,100 ve
o-Xylene	2,600 ve

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-2-20120806	Client:	SoundEarth Strategies
Date Received:	08/06/12	Project:	SOU_0914-001-01_20120806
Date Extracted:	08/07/12	Lab ID:	208074-02 1/100
Date Analyzed:	08/07/12	Data File:	080708.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<100
1,2-Dichloroethane (EDC)	<100
1,2-Dibromoethane (EDB)	<100
Benzene	<35
Toluene	<100
Ethylbenzene	1,900
m,p-Xylene	7,400
o-Xylene	2,700

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GLMW-1-20120806	Client:	SoundEarth Strategies
Date Received:	08/06/12	Project:	SOU_0914-001-01_20120806
Date Extracted:	08/07/12	Lab ID:	208074-03 1/10
Date Analyzed:	08/07/12	Data File:	080709.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<10
1,2-Dichloroethane (EDC)	<10
1,2-Dibromoethane (EDB)	<10
Benzene	640
Toluene	15
Ethylbenzene	190
m,p-Xylene	200
o-Xylene	33

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0914-001-01_20120806
Date Extracted:	08/07/12	Lab ID:	02-1334 mb 2
Date Analyzed:	08/07/12	Data File:	080706.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Total Organic Lead and Manganese By EPA Method 200.8

Client ID:	GLMW-2-20120806P	Client:	SoundEarth Strategies
Date Received:	08/06/12	Project:	SOU_0914-001-01_20120806
Date Extracted:	08/09/12	Lab ID:	208074-04
Date Analyzed:	08/09/12	Data File:	208074-04.038
Matrix:	Product	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	btb

Analyte:	Concentration mg/kg (ppm)
Organic Lead	182
Organic Manganese	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Organic Lead and Manganese By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0914-001-01_20120806
Date Extracted:	08/09/12	Lab ID:	I2-529 mb
Date Analyzed:	08/09/12	Data File:	I2-529 mb.035
Matrix:	Product	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	btb

Analyte:	Concentration mg/kg (ppm)
Organic Lead	<1
Organic Manganese	<1

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074
Date Extracted: 08/06/12
Date Analyzed: 08/15/12

RESULTS FROM THE ANALYSIS OF PRODUCT SAMPLES
FOR ORGANIC LEAD AND MANGANESE SPECIATION
BY METHOD 8082 MODIFIED
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	TML	TMEL	DMDEL	MTEL	TEL	MMT	Surrogate (% Rec.) (Limit 50-150)
GLMW-2-20120806P 208074-04	<0.1	<0.1	<0.1	<0.1	480 ve, jl	<0.1	86
Method Blank	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	108

TML Tetramethyl Lead
TMEL Trimethylethyl Lead
DMDEL Dimethyldiethyl Lead
MTEL Methyltriethyl Lead
TEL Tetraethyl Lead
MMT Methylcyclopentadienyl Manganese Tricarbonyl

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074
Date Extracted: 08/07/12
Date Analyzed: 08/07/12

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR FORENSIC EVALUATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID)

Sample ID	GC Characterization
GLMW-2-20120806P	The GC trace using the flame ionization detector (FID) showed the presence of low boiling compounds. The patterns displayed by these peaks are indicative of gasoline or similar material. The low boiling compounds appear as a ragged pattern of peaks eluting from n-C_7 to n-C_{13} showing a maximum near n-C_8. This correlates with a temperature range of approximately 100°C to 240°C with a maximum near 130°C. Within this range, the GC/FID trace showed the absence of a dominant pattern of toluene, ethylbenzene and the xylenes characteristic of modern, reformulated gasoline. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074
Date Extracted: 08/07/12
Date Analyzed: 08/07/12

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR FORENSIC EVALUATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID)

Sample ID	GC Characterization
MW3-20120806P	The GC trace using the flame ionization detector (FID) showed the presence of low boiling compounds. The patterns displayed by these peaks are indicative of gasoline or similar material. The low boiling compounds appear as a ragged pattern of peaks eluting from n-C_7 to n-C_{13} showing a maximum near n-C_8. This correlates with a temperature range of approximately 100°C to 240°C with a maximum near 130°C. Within this range, the GC/FID trace showed the absence of a dominant pattern of toluene, ethylbenzene and the xylenes characteristic of modern, reformulated gasoline. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074
Date Extracted: 08/17/12
Date Analyzed: 08/17/12

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR FORENSIC EVALUATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID)

Sample ID	GC Characterization
GLMW-2-20120806P Water Soluble Fraction	The GC trace using the flame ionization detector (FID) showed the presence of low boiling compounds. The patterns displayed by these peaks are indicative of the water soluble fraction of gasoline. The low boiling compounds appear as a ragged pattern of peaks eluting from n-C_7 to n-C_{13} showing a maximum near n-C_9. This correlates with a temperature range of approximately 100°C to 240°C with a maximum near 150°C. Within this range, peaks are present which are indicative of ethylbenzene, the xylenes and C3-benzenes. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	98	97	69-134	1

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074

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	88	93	63-142	6

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 208074-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	94	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	104	69-133
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	103	69-134
Benzene	ug/L (ppb)	50	<0.35	99	76-125
Toluene	ug/L (ppb)	50	<1	100	76-122
Ethylbenzene	ug/L (ppb)	50	<1	103	69-135
m,p-Xylene	ug/L (ppb)	100	<2	100	69-135
o-Xylene	ug/L (ppb)	50	<1	101	68-137

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	97	99	64-147	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	104	104	73-132	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	105	106	82-125	1
Benzene	ug/L (ppb)	50	99	101	69-134	2
Toluene	ug/L (ppb)	50	102	104	72-122	2
Ethylbenzene	ug/L (ppb)	50	104	105	77-124	1
m,p-Xylene	ug/L (ppb)	100	103	105	83-125	2
o-Xylene	ug/L (ppb)	50	105	106	86-121	1

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF PRODUCT SAMPLES
FOR ORGANIC LEAD AND MANGANESE
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)
Organic Lead	mg/kg (ppm)	70.75	98	99	70-130	1
Organic Manganese	mg/kg (ppm)	12.5	111	109	70-130	2

Date of Report: 08/27/12
Date Received: 08/06/12
Project: SOU_0914-001-01_20120806, F&BI 208074

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF PRODUCT SAMPLES FOR
ORGANIC LEAD AND MANGANESE
BY EPA METHOD 8082 MODIFIED**

Laboratory Code: 208074-05 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Tetramethyl lead	mg/kg (ppm)	<0.1	<0.1	nm
Tetraethyl lead	mg/kg (ppm)	510 ve	500 ve	2
MMT	mg/kg (ppm)	<0.1	<0.1	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Tetramethyl lead	mg/kg (ppm)	5	109	113	70-130	4
Tetraethyl lead	mg/kg (ppm)	5	140 vo	150 vo	70-130	7
MMT	mg/kg (ppm)	5	180 vo	160 vo	70-130	12

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

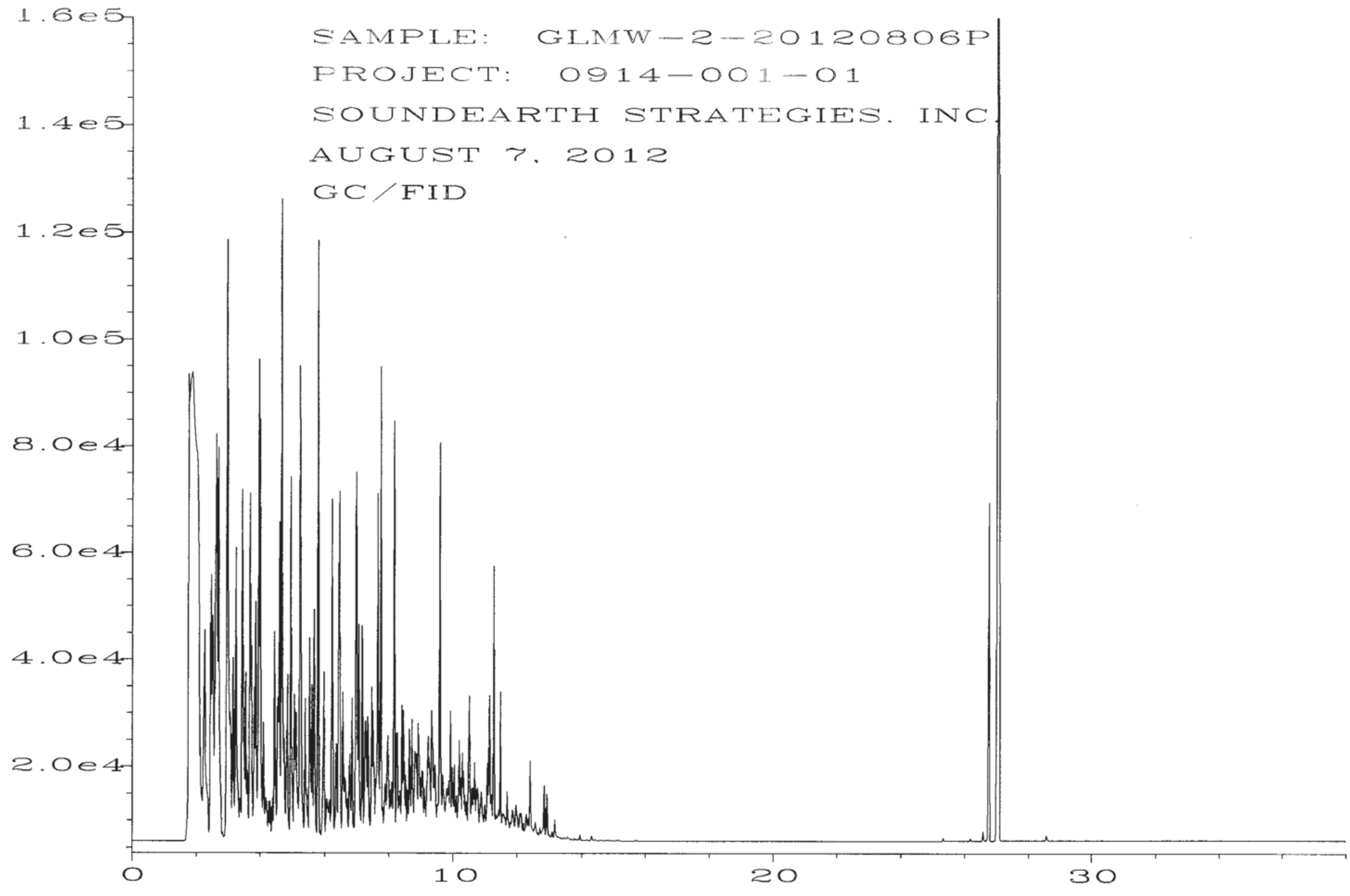
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

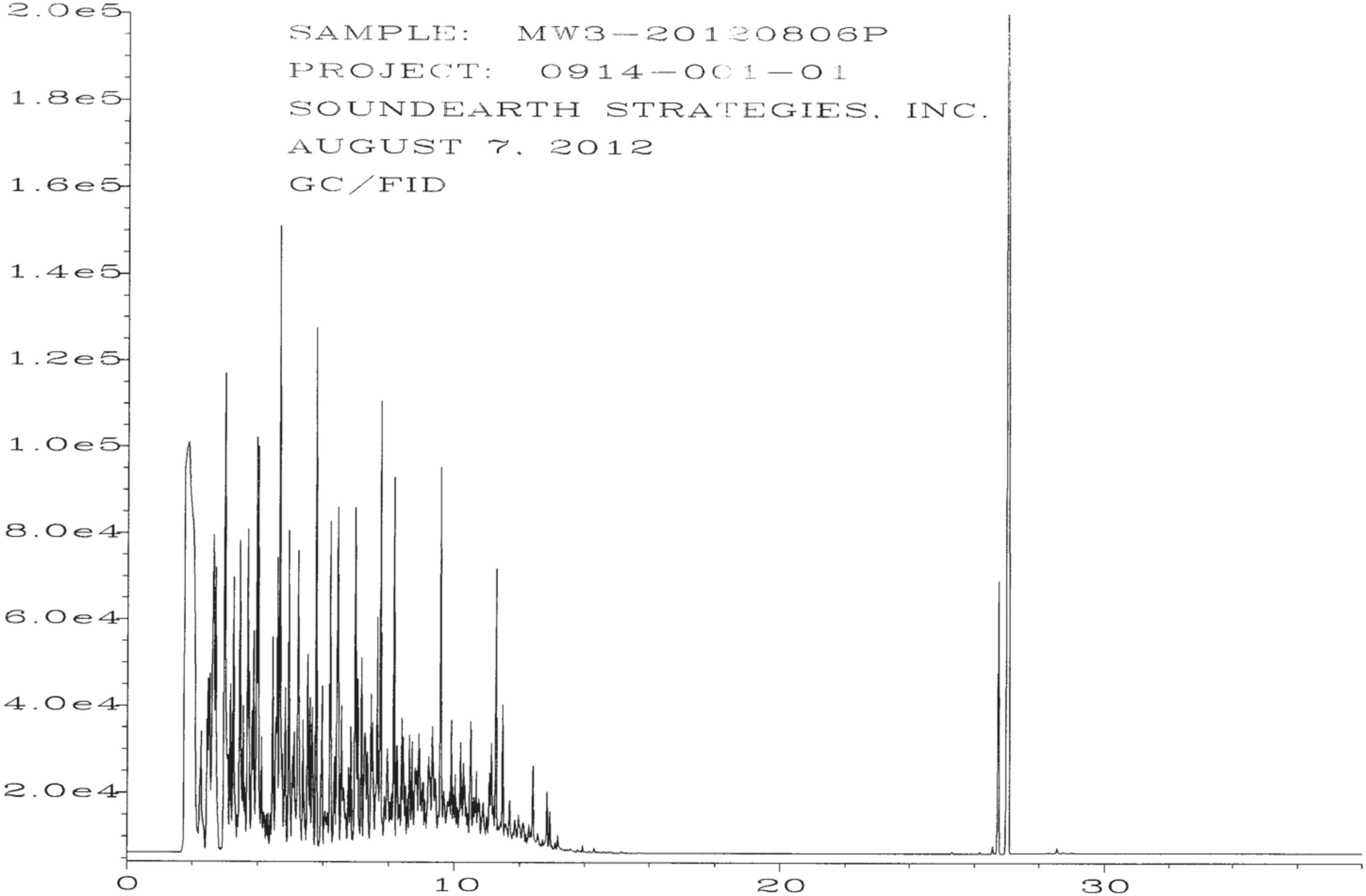
ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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.



Sig. 1 in C:\HPCHEM\1\DATA\08-07-12\006F0401.D



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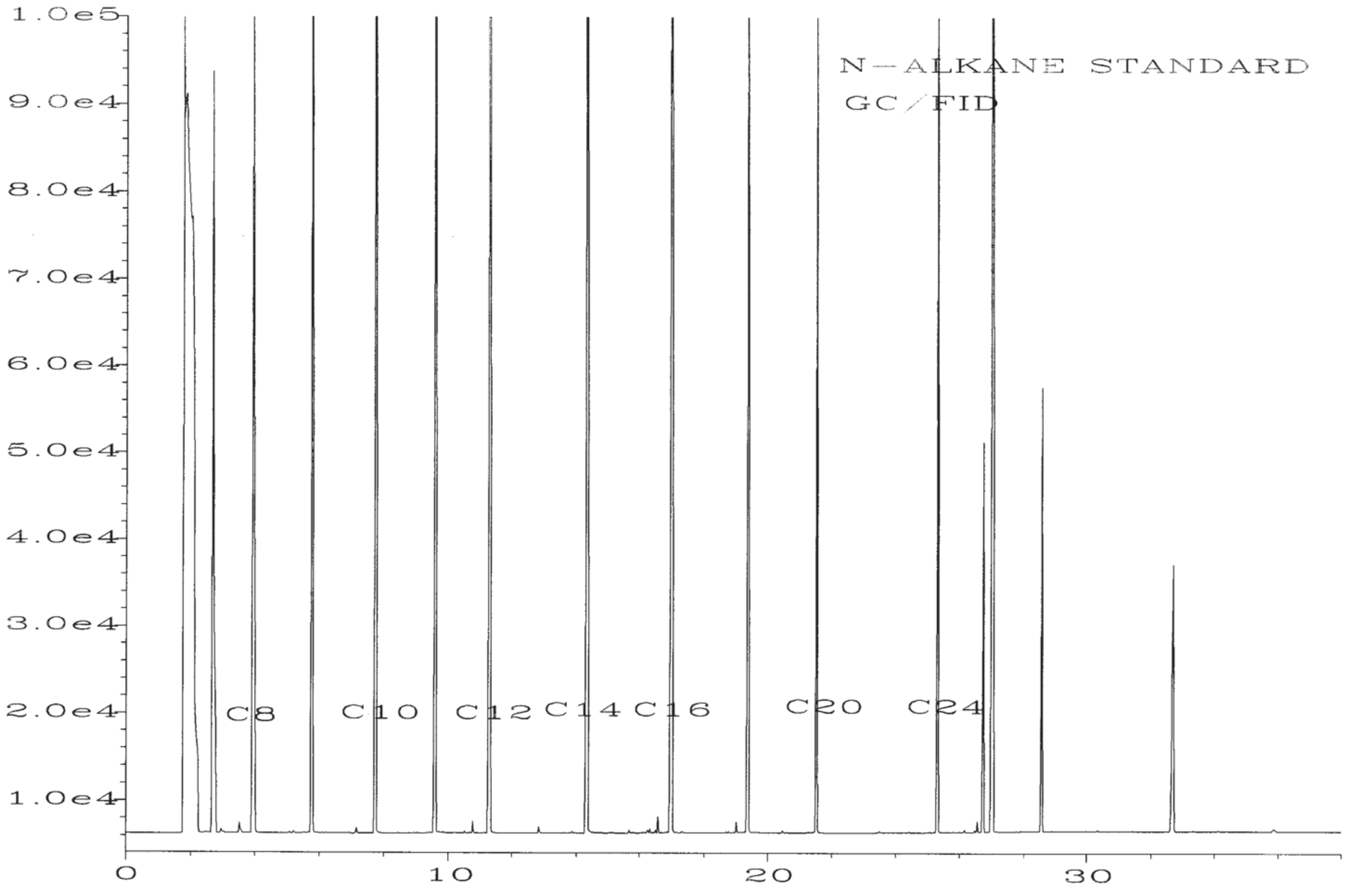

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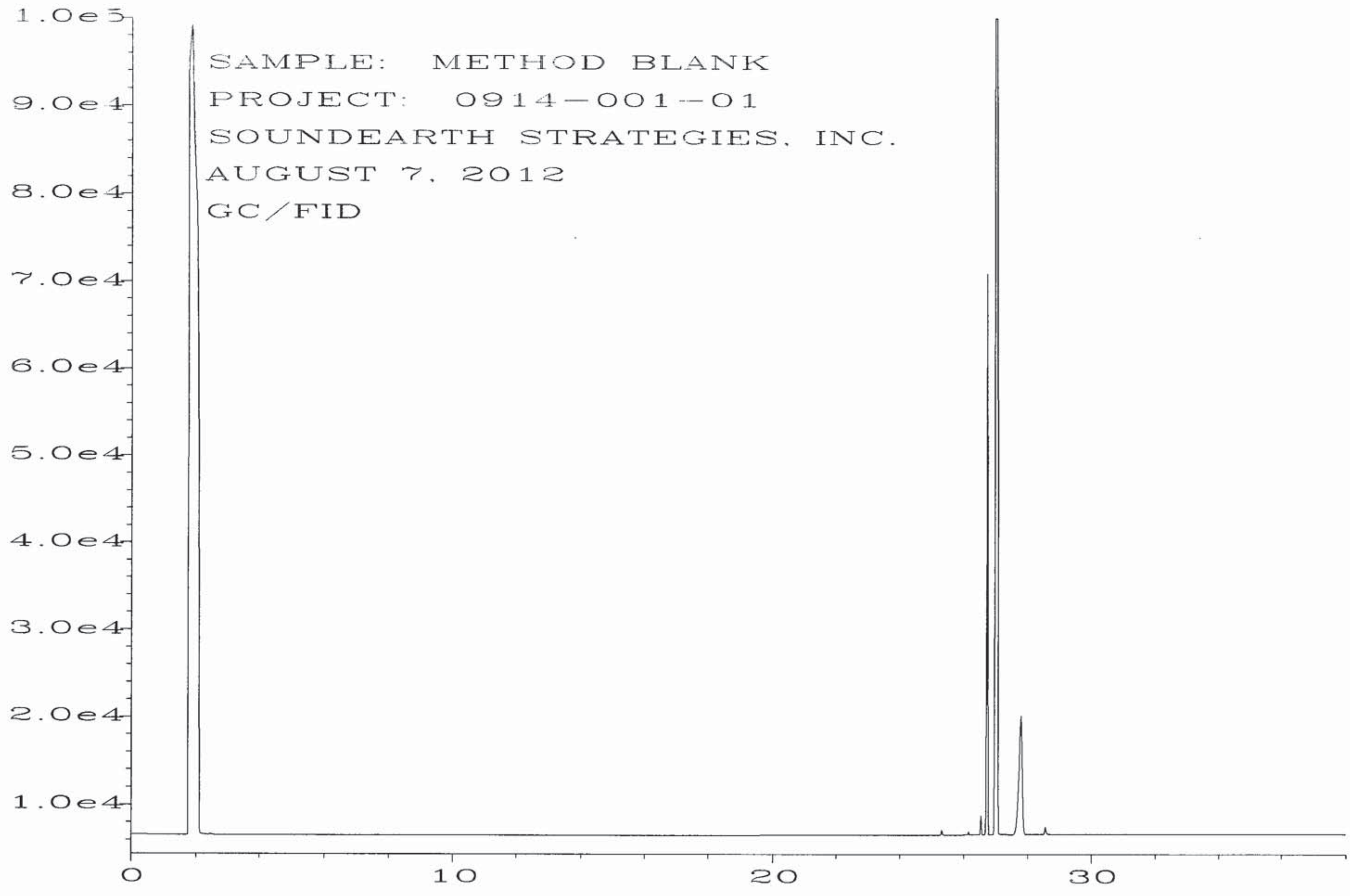

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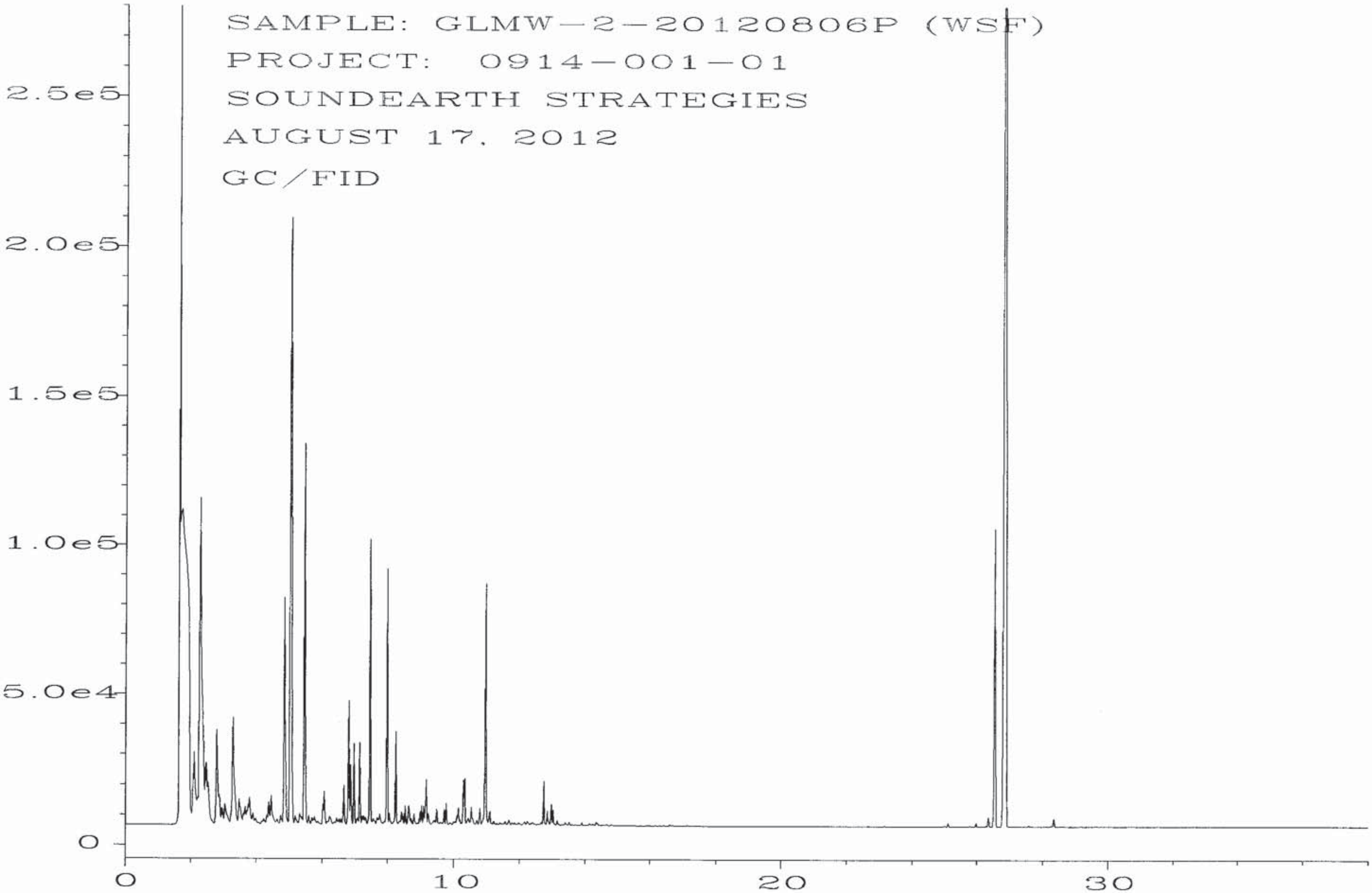

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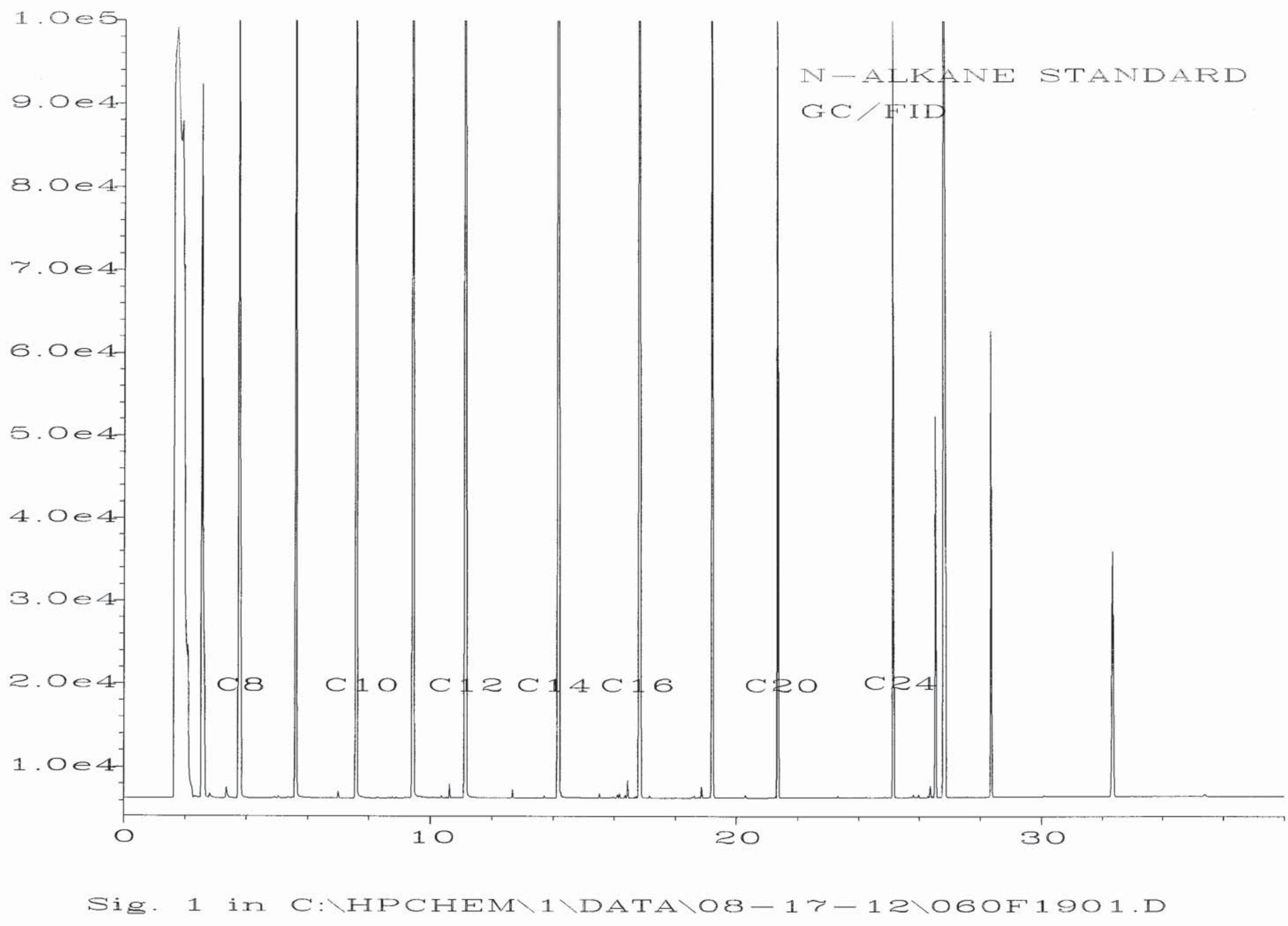
N-ALKANE STANDARD
GC/FID
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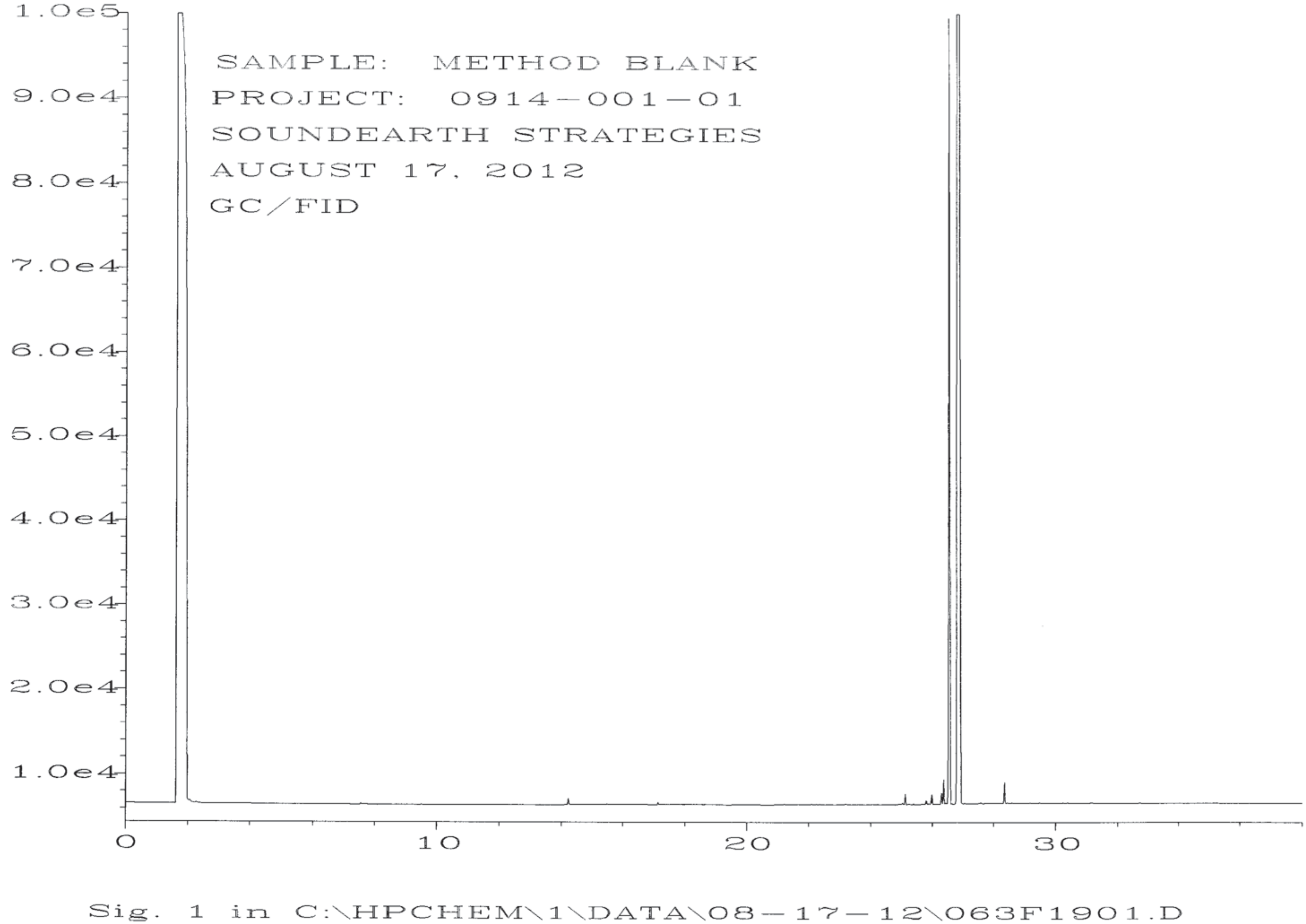
9.0e4
8.0e4
7.0e4
6.0e4
5.0e4
4.0e4
3.0e4
2.0e4
1.0e4
C8
C10
C12
C14
C16
C20
C24
0
10
20
30
Sig. 1 in C:\HPCHEM\1\DATA\08-17-12\060F1901.D


1.0e5
9.0e4
8.0e4
7.0e4
6.0e4
5.0e4
4.0e4
3.0e4
2.0e4
1.0e4
SAMPLE: METHOD BLANK
PROJECT: 0914-001-01
SOUNDEARTH STRATEGIES
AUGUST 17, 2012
GC/FID
0
10
20
30
Sig. 1 in C:\HPCHEM\1\DATA\08-17-12\063F1901.D

208074

SAMPLE CHAIN OF CUSTODY

ME 08/06/12 V2/ B02

Page # 1 of 1

Send Report To Rob Roberts

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Ave East, Suite 2000

City, State, ZIP Seattle, WA 98102

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

SAMPLERS (signature)

PROJECT NAME/NO. 0914-001-01

PO #

REMARKS RUSH

MW101 - Highest Priority ASAP

GEMS Y / N

TURNAROUND TIME

Standard (2 Weeks)

☒ RUSH

Rush charges authorized by: Rob Roberts

SAMPLE DISPOSAL

☒ Dispose after 30 days

Return samples

Will call with instructions

V-added per KJ / MP 8/14/12

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	WSF NWTPH-Dx	NWTPH-Gx	BTEX by 8260 ~~8021B~~ MTBE, EDB, EDC	VOC's by 8260	SVOC's by 8270	RCRA-8 Metals	Tetra ethyl - Lead	Fuel Product ID	WSF HES	Notes
MW101-20120806	MW101	27	01A-C	8/06/12	~~13~~ 1445	H_2O	3		X	X							ASAP Please
MW-2-20120806	MW-2	26	02 ↓	↓	1315	H_2O	3		X	X							
GLMW-1-20120806	GLMW-1	26	03 ↓	↓	1420	H_2O	3		X	X							
GLMW-2-20120806P	GLMW-2	23	04	↓	1255	H_2O	1	✓						X	X	✓	Product Sample
GLMW3-20120806	MW3	23	05	↓	1333	H_2O	1							X	X		" "

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:		Luke Swet	SES	8/6/12	1400
Received by:		Kurt Johnson	F&B	8/6/12	6:00
Relinquished by:					
Received by:					

Samples received at 5 °C

Friedman & Bruya, Inc. #208089

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 13, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on August 7, 2012 from the SOU_0914-001_20120807, F&BI 208089 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
SOU0813R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 7, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001_20120807, F&BI 208089 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
208089-01	MW2-20120807
208089-02	GLMW1-20120807

The 8260C vinyl chloride concentrations were flagged due to hydrochloric acid preservation per EPA SW-846 table 4-1.

The 8260C calibration standard failed the acceptance criteria for 2-butanone. The data were flagged accordingly. There was insufficient sample for reanalysis.

Several 8260C analytes exceeded the calibration range of the instrument. The data were flagged accordingly. There was insufficient sample for reanalysis.

The 8260C sample GLMW1-20120807 was analyzed outside of the 12 hour shift. The data were flagged accordingly. There was insufficient sample for reanalysis.

All other quality control requirements were acceptable.

Date of Report: 08/13/12
Date Received: 08/07/12
Project: SOU_0914-001_20120807, F&BI 208089
Date Extracted: 08/08/12
Date Analyzed: 08/08/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW2-20120807 208089-01	5,300	121
GLMW1-20120807 208089-02	4,500	108
Method Blank 02-1406 MB	<100	88

Date of Report: 08/13/12
Date Received: 08/07/12
Project: SOU_0914-001_20120807, F&BI 208089
Date Extracted: 08/08/12
Date Analyzed: 08/08/12

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)
MW2-20120807 208089-01 1/5	2,800 x	<1,200	91
GLMW1-20120807 208089-02 1/5	4,100 x	<1,200	97
Method Blank 02-1407 MB	<50	<250	112

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW2-20120807	Client:	SoundEarth Strategies
Date Received:	08/07/12	Project:	SOU_0914-001_20120807
Date Extracted:	08/08/12	Lab ID:	208089-01
Date Analyzed:	08/08/12	Data File:	080815.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2 pr	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	400 ve
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	1,200 ve
Methylene chloride	<5	o-Xylene	510 ve
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	14
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	30
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	8.5	1,3,5-Trimethylbenzene	73
2-Butanone (MEK)	<10 ca	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	2.2	1,2,4-Trimethylbenzene	260 ve
Trichloroethene	<1	sec-Butylbenzene	1.8
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	4.0	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	70
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GLMW1-20120807	Client:	SoundEarth Strategies
Date Received:	08/07/12	Project:	SOU_0914-001_20120807
Date Extracted:	08/08/12	Lab ID:	208089-02
Date Analyzed:	08/09/12	Data File:	080817.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	92	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2 pr	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	150 ve
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	200
Methylene chloride	<5	o-Xylene	42
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	37
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	28
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	92
2-Butanone (MEK)	<10 ca	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	1.3
Benzene	550 ve	1,2,4-Trimethylbenzene	230 ve
Trichloroethene	<1	sec-Butylbenzene	7.0
1,2-Dichloropropane	<1	p-Isopropyltoluene	12
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	16	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	150
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Note: The sample was analyzed outside of the 12 hour shift.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0914-001_20120807
Date Extracted:	08/08/12	Lab ID:	02-1373 mb
Date Analyzed:	08/08/12	Data File:	080813.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10 ca	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Date of Report: 08/13/12
Date Received: 08/07/12
Project: SOU_0914-001_20120807, F&BI 208089

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 208094-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	99	70-119

Date of Report: 08/13/12
Date Received: 08/07/12
Project: SOU_0914-001_20120807, F&BI 208089

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	85	89	61-133	5

Date of Report: 08/13/12
Date Received: 08/07/12
Project: SOU_0914-001_20120807, F&BI 208089

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	114	112	25-158	2
Chloromethane	ug/L (ppb)	50	107	103	45-156	4
Vinyl chloride	ug/L (ppb)	50	99	99	50-154	0
Bromomethane	ug/L (ppb)	50	100	99	55-143	1
Chloroethane	ug/L (ppb)	50	103	97	58-146	6
Trichlorofluoromethane	ug/L (ppb)	50	109	95	50-150	14
Acetone	ug/L (ppb)	250	94	90	60-155	4
1,1-Dichloroethene	ug/L (ppb)	50	97	99	67-136	2
Methylene chloride	ug/L (ppb)	50	94	101	39-148	7
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	101	97	64-147	4
trans-1,2-Dichloroethene	ug/L (ppb)	50	103	100	68-128	3
1,1-Dichloroethane	ug/L (ppb)	50	104	100	79-121	4
2,2-Dichloropropane	ug/L (ppb)	50	118	109	55-143	8
cis-1,2-Dichloroethene	ug/L (ppb)	50	108	104	80-123	4
Chloroform	ug/L (ppb)	50	106	101	80-121	5
2-Butanone (MEK)	ug/L (ppb)	250	84	79	57-149	6
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	109	104	73-132	5
1,1,1-Trichloroethane	ug/L (ppb)	50	118	112	83-130	5
1,1-Dichloropropene	ug/L (ppb)	50	108	103	77-129	5
Carbon tetrachloride	ug/L (ppb)	50	131	127	75-158	3
Benzene	ug/L (ppb)	50	105	101	69-134	4
Trichloroethene	ug/L (ppb)	50	96	93	80-120	3
1,2-Dichloropropane	ug/L (ppb)	50	105	101	77-123	4
Bromodichloromethane	ug/L (ppb)	50	112	109	81-133	3
Dibromomethane	ug/L (ppb)	50	109	105	82-125	4
4-Methyl-2-pentanone	ug/L (ppb)	250	106	101	70-140	5
cis-1,3-Dichloropropene	ug/L (ppb)	50	112	107	82-132	5
Toluene	ug/L (ppb)	50	107	102	72-122	5
trans-1,3-Dichloropropene	ug/L (ppb)	50	112	105	80-136	6
1,1,2-Trichloroethane	ug/L (ppb)	50	108	103	75-124	5
2-Hexanone	ug/L (ppb)	250	117	109	64-152	7
1,3-Dichloropropane	ug/L (ppb)	50	108	103	76-126	5
Tetrachloroethene	ug/L (ppb)	50	113	107	76-121	5
Dibromochloromethane	ug/L (ppb)	50	116	110	84-133	5
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	110	105	82-125	5
Chlorobenzene	ug/L (ppb)	50	107	102	83-114	5
Ethylbenzene	ug/L (ppb)	50	110	105	77-124	5
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	111	106	84-127	5
m,p-Xylene	ug/L (ppb)	100	108	104	83-125	4
o-Xylene	ug/L (ppb)	50	110	104	86-121	6
Styrene	ug/L (ppb)	50	108	105	85-127	3
Isopropylbenzene	ug/L (ppb)	50	109	105	87-122	4
Bromoform	ug/L (ppb)	50	113	109	74-136	4
n-Propylbenzene	ug/L (ppb)	50	109	104	74-126	5
Bromobenzene	ug/L (ppb)	50	113	107	80-121	5
1,3,5-Trimethylbenzene	ug/L (ppb)	50	109	103	80-126	6
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	107	101	66-126	6
1,2,3-Trichloropropane	ug/L (ppb)	50	106	99	67-124	7
2-Chlorotoluene	ug/L (ppb)	50	110	103	77-127	7
4-Chlorotoluene	ug/L (ppb)	50	110	103	78-128	7
tert-Butylbenzene	ug/L (ppb)	50	107	102	85-127	5
1,2,4-Trimethylbenzene	ug/L (ppb)	50	108	103	82-125	5
sec-Butylbenzene	ug/L (ppb)	50	107	102	80-125	5
p-Isopropyltoluene	ug/L (ppb)	50	109	104	82-127	5
1,3-Dichlorobenzene	ug/L (ppb)	50	108	104	85-116	4
1,4-Dichlorobenzene	ug/L (ppb)	50	106	101	84-121	5
1,2-Dichlorobenzene	ug/L (ppb)	50	104	102	85-116	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	89	87	57-141	2
1,2,4-Trichlorobenzene	ug/L (ppb)	50	89	90	72-130	1
Hexachlorobutadiene	ug/L (ppb)	50	93	96	53-141	3
Naphthalene	ug/L (ppb)	50	93	93	64-133	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	94	96	65-136	2

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

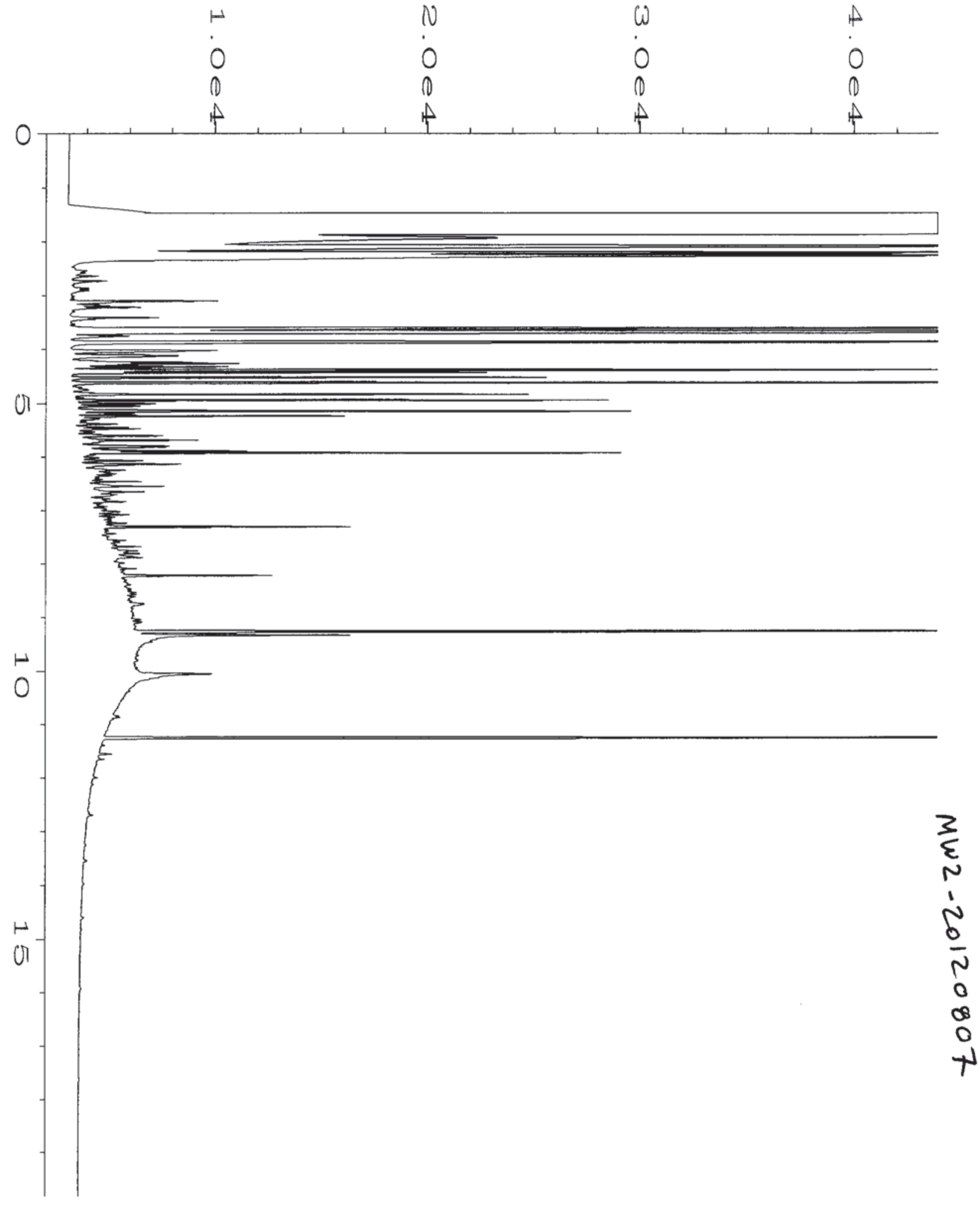
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

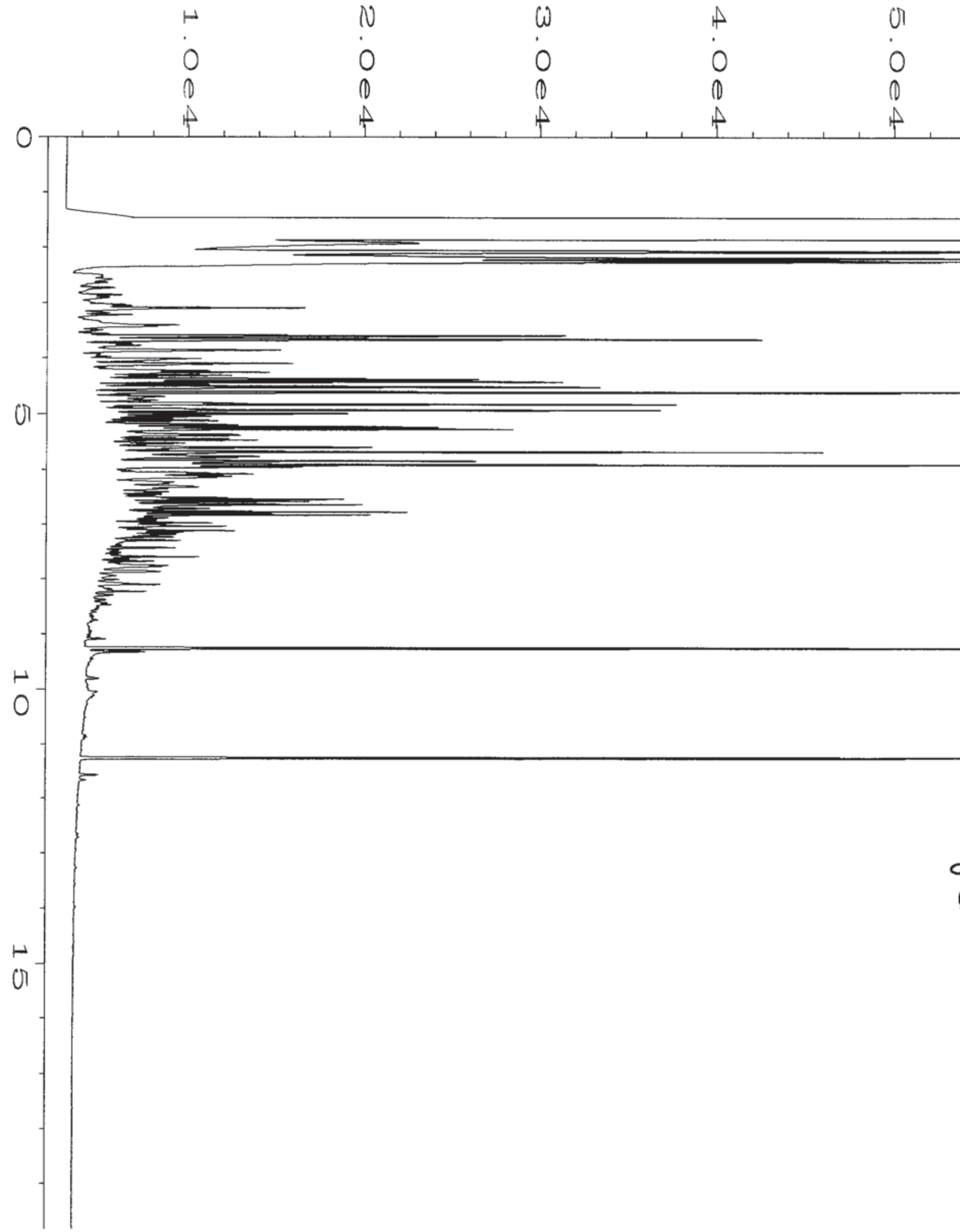
vo - The value reported fell outside the control limits established for this analyte.

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



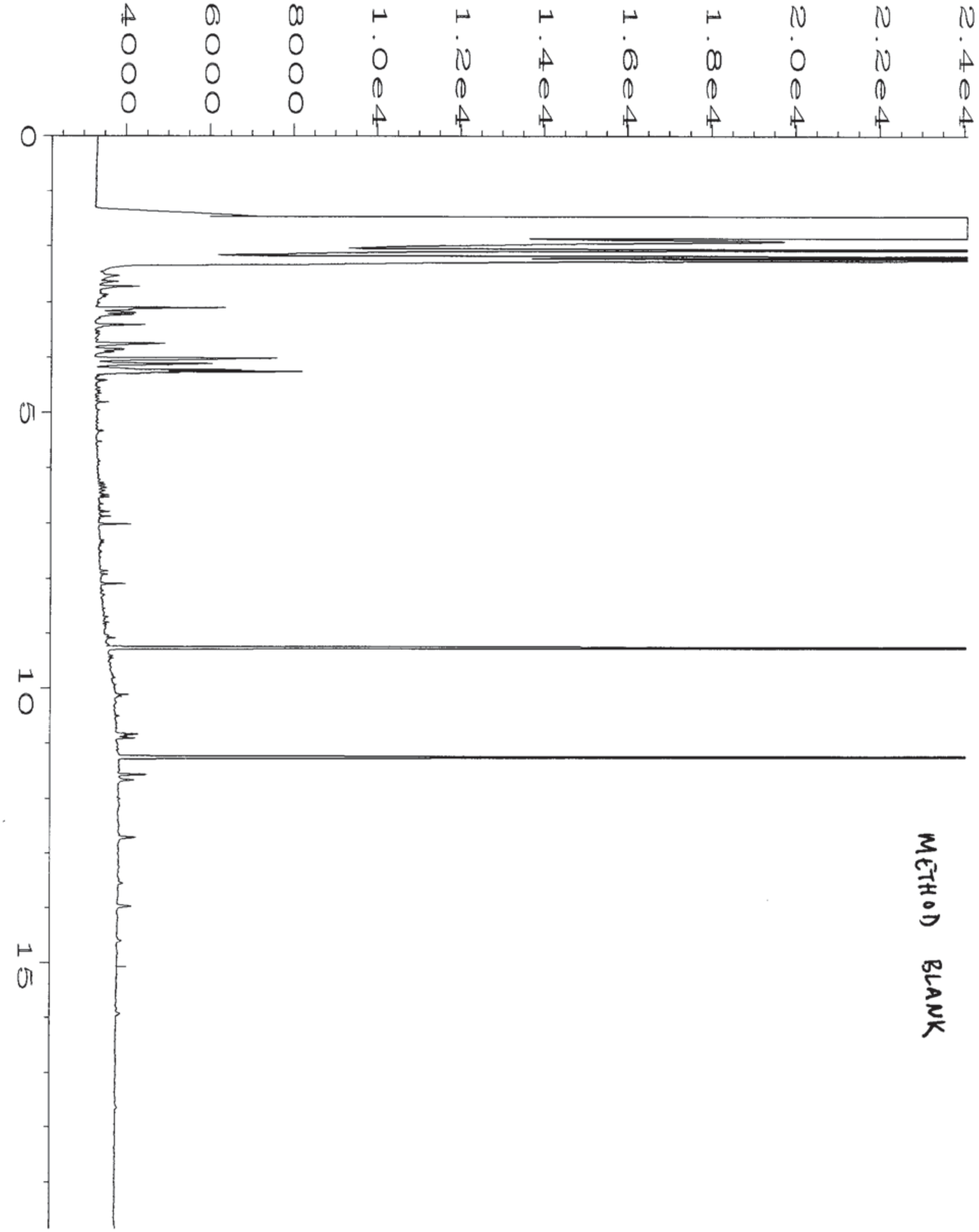
Data File Name   : C:\HPCHEM\4\DATA\08-08-12\014F0601.D
Operator   : ML
Instrument   : GC#4
Sample Name   : 208089-01
Run Time Bar Code:
Acquired on   : 08 Aug 12   06:32 PM
Report Created on: 09 Aug 12   09:57 AM

Page Number   : 1
Vial Number   : 14
Injection Number : 1
Sequence Line   : 6
Instrument Method: TPHD.MTH
Analysis Method   : TPHD.MTH

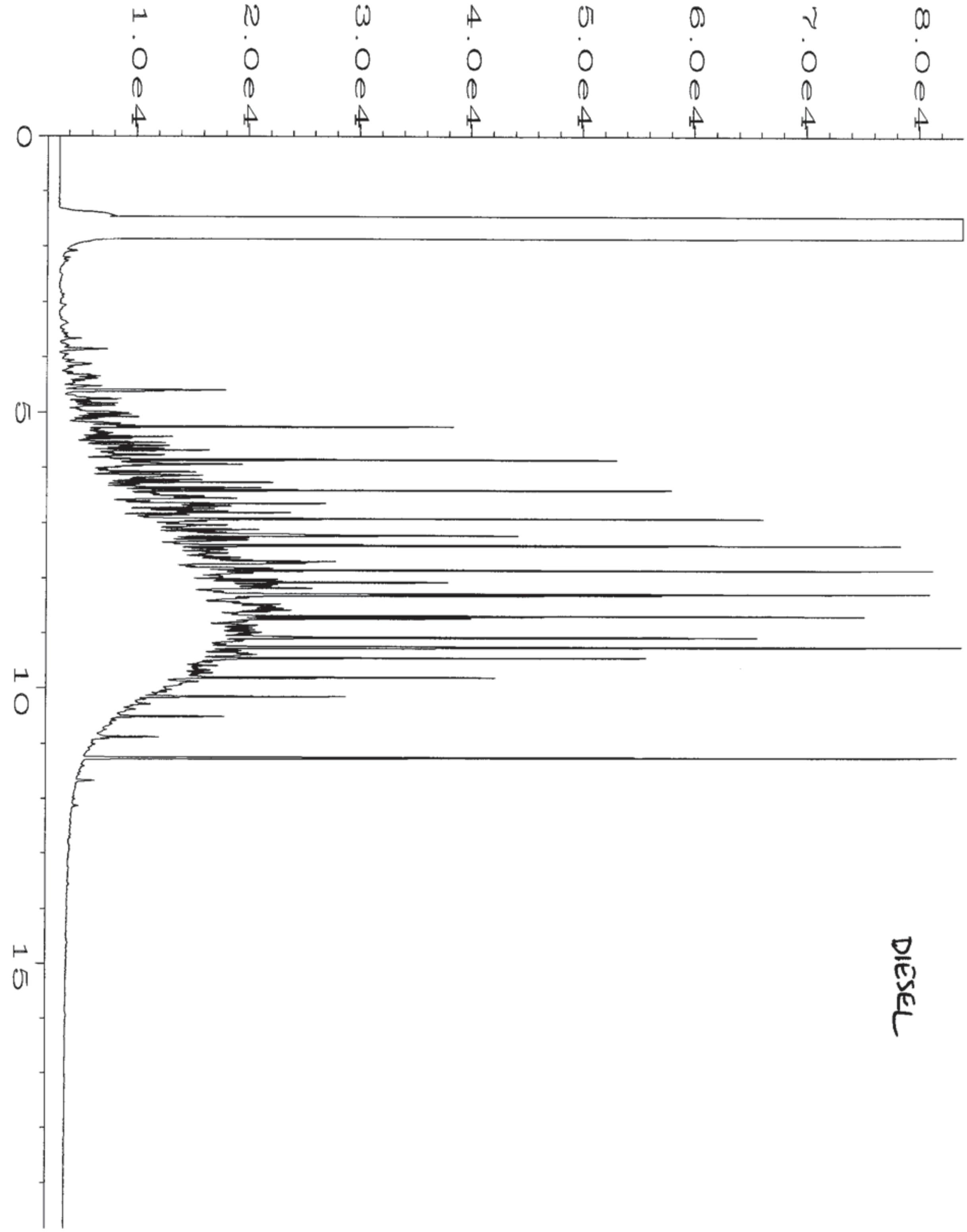


GLMW1-20120807

Data File Name	: C:\HPCHEM\4\DATA\08-08-12\015F0601.D		
Operator	: ML	Page Number	: 1
Instrument	: GC#4	Vial Number	: 15
Sample Name	: 208089-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 08 Aug 12 06:59 PM	Instrument Method:	TPHD.MTH
Report Created on:	09 Aug 12 09:58 AM	Analysis Method	: TPHD.MTH



Data File Name	: C:\HPCHEM\4\DATA\08-08-12\010F0601.D		
Operator	: ML	Page Number	: 1
Instrument	: GC#4	Vial Number	: 10
Sample Name	: 02-1407 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 08 Aug 12 04:43 PM	Instrument Method:	TPHD.MTH
Report Created on:	09 Aug 12 09:57 AM	Analysis Method	: TPHD.MTH



Data File Name	: C:\HPCHEM\4\DATA\08-08-12\003F0201.D		
Operator	: ML	Page Number	: 1
Instrument	: GC#4	Vial Number	: 3
Sample Name	: 500 Dx 38-103C	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 08 Aug 12 09:45 AM	Instrument Method:	TPHD.MTH
Report Created on:	09 Aug 12 09:57 AM	Analysis Method	: TPHD.MTH

208089

SAMPLE CHAIN OF CUSTODY ME 08-07-12

V1

Send Report To Rob Roberts

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Ave East, Suite 2000

City, State, ZIP Seattle, WA 98102

Phone # 206-245-1184 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. SKS Shell

PO # 0914-001

REMARKS

GEMS Y / N

Page # 2 of 2

TURNAROUND TIME

Standard (2 Weeks)

RUSH per RR 8/7/12 me

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			Notes
MW2-20120807	MW-2		01 A-C	08/07/2012	1415		3	X	X		X					
GLMW1-20120807	GLMW-1		02 A-C		1510		3	X	X		X					

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:		Travis Zondi	Sound Earth	8/7/2012	1740
Received by:		Kurt Johnson	F+B	8/07/12	1740
Relinquished by:					
Received by:					

Samples received at 4 °C

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Friedman & Bruya, Inc. #208428

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

September 11, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on August 29, 2012 from the SOU_0914_20120829, F&BI 208428 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
SOU0911R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 29, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914_20120829, F&BI 208428 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
208428-01	SMW03-05
208428-02	SMW03-10
208428-03	SMW03-15
208428-04	SMW03-20
208428-05	SMW03-25
208428-06	SMW03-30
208428-07	SMW04-05
208428-08	SMW04-15
208428-09	SMW04-20
208428-10	SMW04-25
208428-11	SMW04-30
208428-12	SMW04-35

All quality control requirements were acceptable.

Date of Report: 09/11/12
Date Received: 08/29/12
Project: SOU_0914_20120829, F&BI 208428
Date Extracted: 08/30/12
Date Analyzed: 08/30/12 and 08/31/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 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 50-132)
SMW04-15 208428-08	<0.02	<0.02	<0.02	<0.06	<2	98
SMW04-20 208428-09	<0.02	<0.02	<0.02	<0.06	7.3	97
SMW04-25 208428-10 1/100	<2	4.9	23	62	1,500	102
SMW04-30 208428-11	<0.02	<0.02	<0.02	<0.06	<2	99
SMW04-35 208428-12	<0.02	<0.02	<0.02	<0.06	<2	99
Method Blank 02-1551 MB	<0.02	<0.02	<0.02	<0.06	<2	95

Date of Report: 09/11/12
Date Received: 08/29/12
Project: SOU_0914_20120829, F&BI 208428
Date Extracted: 09/04/12
Date Analyzed: 09/05/12

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 53-144)
SMW03-05 208428-01	<50	<250	95
SMW03-10 208428-02	<50	<250	104
SMW04-20 208428-09	<50	<250	89
SMW04-25 208428-10	2,900 x	<250	107
SMW04-30 208428-11	<50	<250	101
Method Blank 02-1564 MB	<50	<250	95

Analysis For Total Metals By EPA Method 200.8

Client ID:	SMW03-05	Client:	SoundEarth Strategies
Date Received:	08/29/12	Project:	SOU_0914_20120829, F&BI 208428
Date Extracted:	08/31/12	Lab ID:	208428-01
Date Analyzed:	08/31/12	Data File:	208428-01.014
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	107	60	125
Indium	94	60	125
Holmium	97	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	16.8
Arsenic	3.43
Cadmium	<1
Lead	11.8

Analysis For Total Metals By EPA Method 200.8

Client ID:	SMW03-10	Client:	SoundEarth Strategies
Date Received:	08/29/12	Project:	SOU_0914_20120829, F&BI 208428
Date Extracted:	08/31/12	Lab ID:	208428-02
Date Analyzed:	08/31/12	Data File:	208428-02.015
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	108	60	125
Indium	91	60	125
Holmium	94	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	20.7
Arsenic	3.32
Cadmium	<1
Lead	3.70

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0914_20120829, F&BI 208428
Date Extracted:	08/31/12	Lab ID:	I2-567 mb
Date Analyzed:	08/31/12	Data File:	I2-567 mb.008
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	103	60	125
Indium	103	60	125
Holmium	103	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Cadmium	<1
Lead	<1

Date of Report: 09/11/12
Date Received: 08/29/12
Project: SOU_0914_20120829, F&BI 208428
Date Extracted: 08/31/12
Date Analyzed: 09/04/12

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES
FOR TOTAL MERCURY
USING EPA METHOD 1631E
Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Total Mercury
SMW03-05 208428-01	<0.1
SMW03-10 208428-02	<0.1
Method Blank	<0.1

Date of Report: 09/11/12
Date Received: 08/29/12
Project: SOU_0914_20120829, F&BI 208428

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: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	0.5	79	81	66-121	2
Toluene	mg/kg (ppm)	0.5	86	87	72-128	1
Ethylbenzene	mg/kg (ppm)	0.5	87	87	69-132	0
Xylenes	mg/kg (ppm)	1.5	87	87	69-131	0
Gasoline	mg/kg (ppm)	20	100	100	61-153	0

Date of Report: 09/11/12
Date Received: 08/29/12
Project: SOU_0914_20120829, F&BI 208428

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208478-10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	113	111	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	106	58-147

Date of Report: 09/11/12
Date Received: 08/29/12
Project: SOU_0914_20120829, F&BI 208428

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 208413-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	15.4	97 b	91 b	63-120	6 b
Arsenic	mg/kg (ppm)	10	14.8	120 b	104 b	56-125	14 b
Cadmium	mg/kg (ppm)	10	<1	109	103	85-117	6
Lead	mg/kg (ppm)	50	18.2	107 b	103 b	64-139	4 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	100	81-117
Arsenic	mg/kg (ppm)	10	97	79-112
Cadmium	mg/kg (ppm)	10	99	88-114
Lead	mg/kg (ppm)	50	100	83-118

Date of Report: 09/11/12
Date Received: 08/29/12
Project: SOU_0914_20120829, F&BI 208428

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES FOR
TOTAL MERCURY
USING EPA METHOD 1631E**

Laboratory Code: 208413-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	mg/kg (ppm)	0.125	0.46	130 b	117 b	54-156	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	mg/kg (ppm)	0.125	110	73-131

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

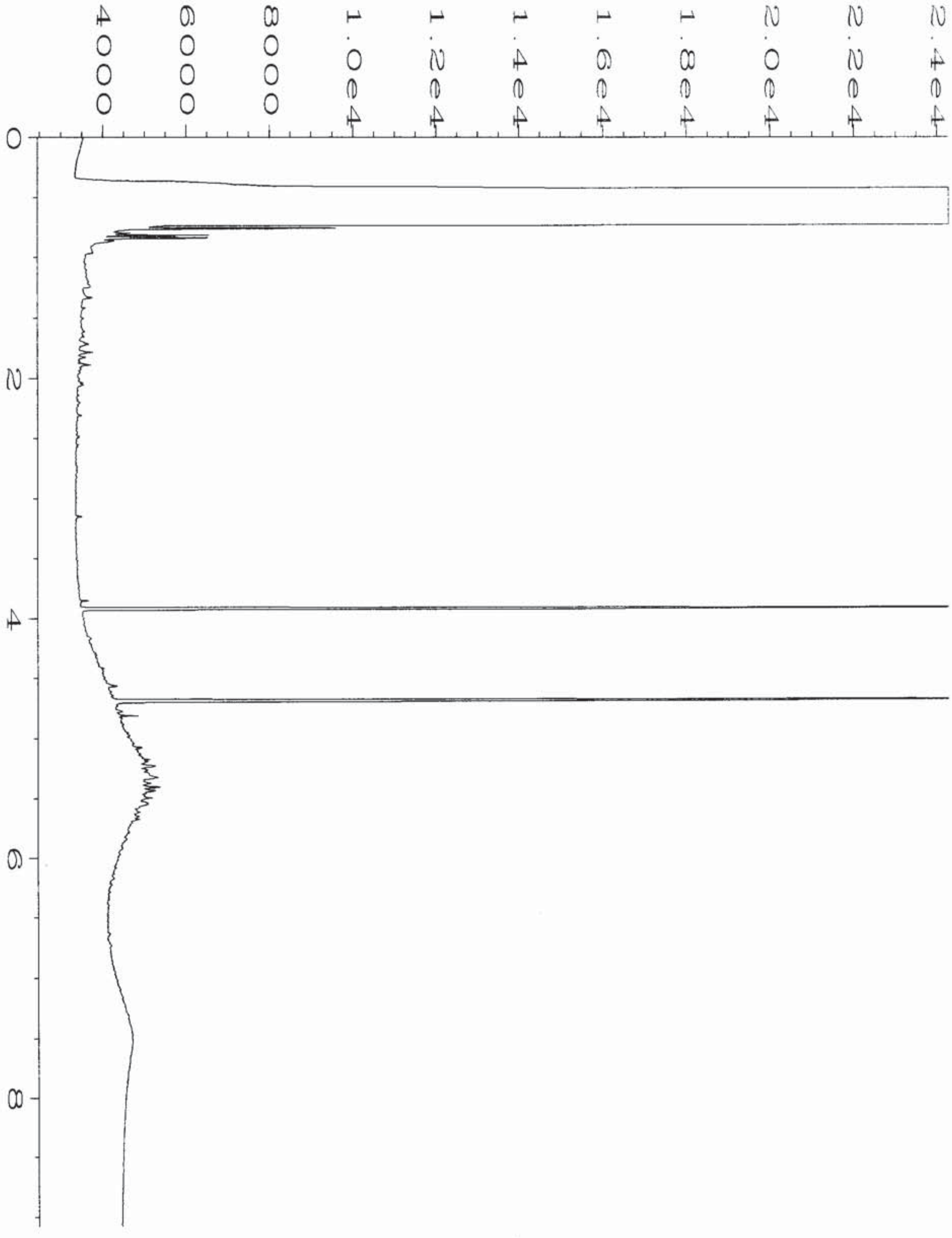
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

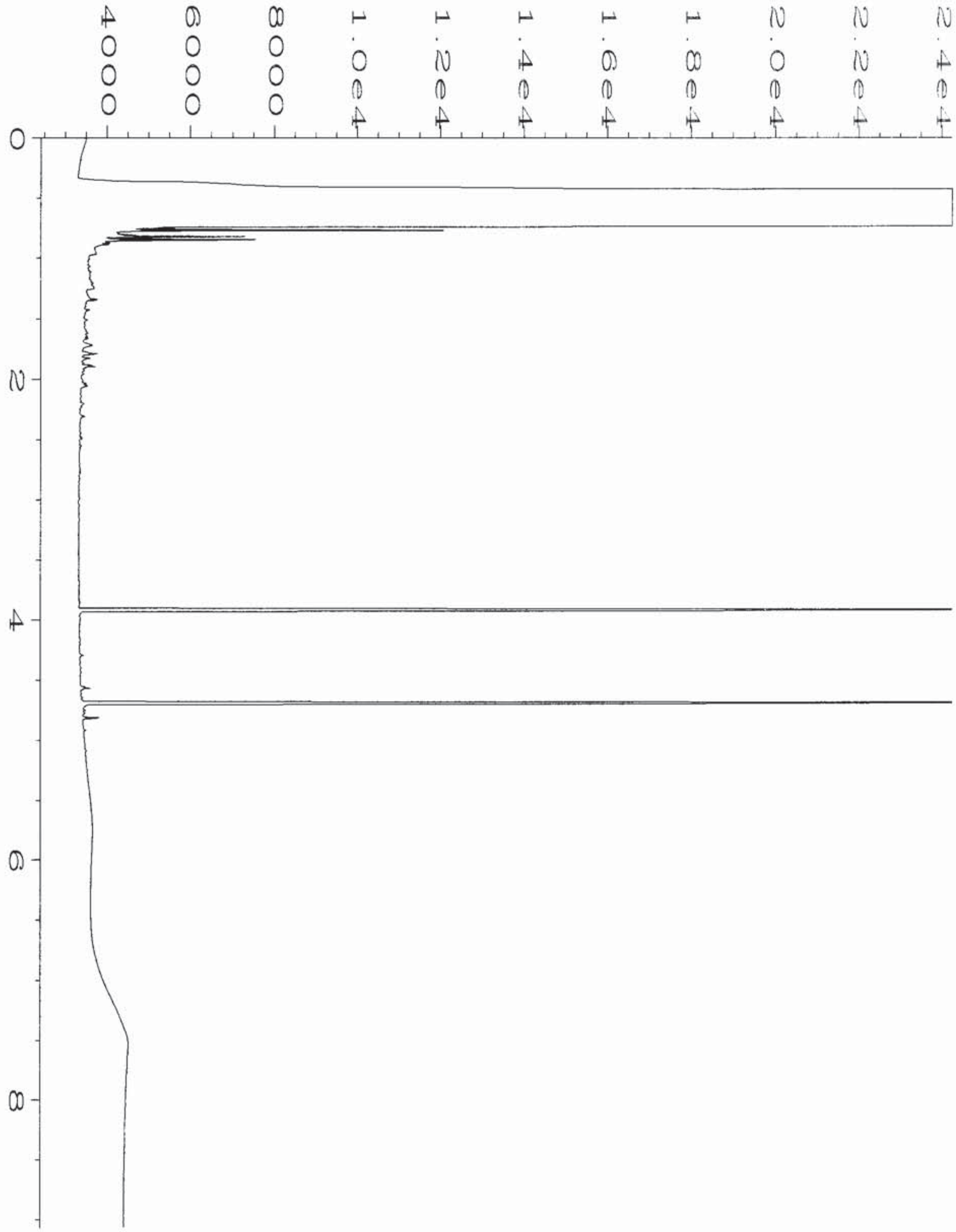
ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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\6\DATA\09-04-12\061F1201.D			
Operator	: ML		Page Number	: 1
Instrument	: GC #6		Vial Number	: 61
Sample Name	: 208428-01		Injection Number	: 1
Run Time Bar Code:			Sequence Line	: 12
Acquired on	: 05 Sep 12	03:38 AM	Instrument Method:	DX.MTH
Report Created on:	05 Sep 12	10:42 AM	Analysis Method	: DX.MTH



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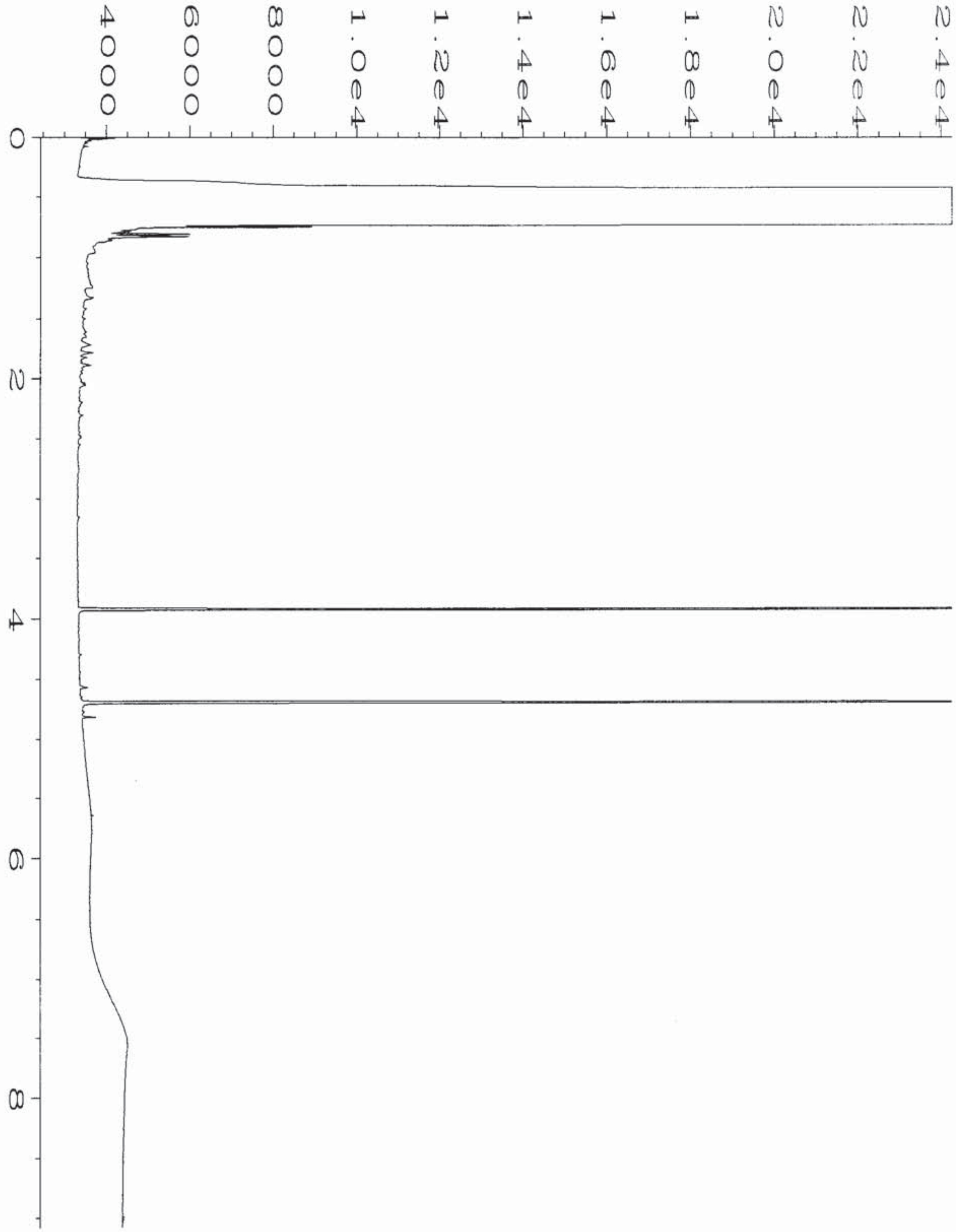
Operator	: ML	Page Number	: 1
Instrument	: GC #6	Vial Number	: 62
Sample Name	: 208428-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 14
Acquired on	: 05 Sep 12 04:21 AM	Instrument Method	: DX.MTH
Report Created on	: 05 Sep 12 10:42 AM	Analysis Method	: DX.MTH



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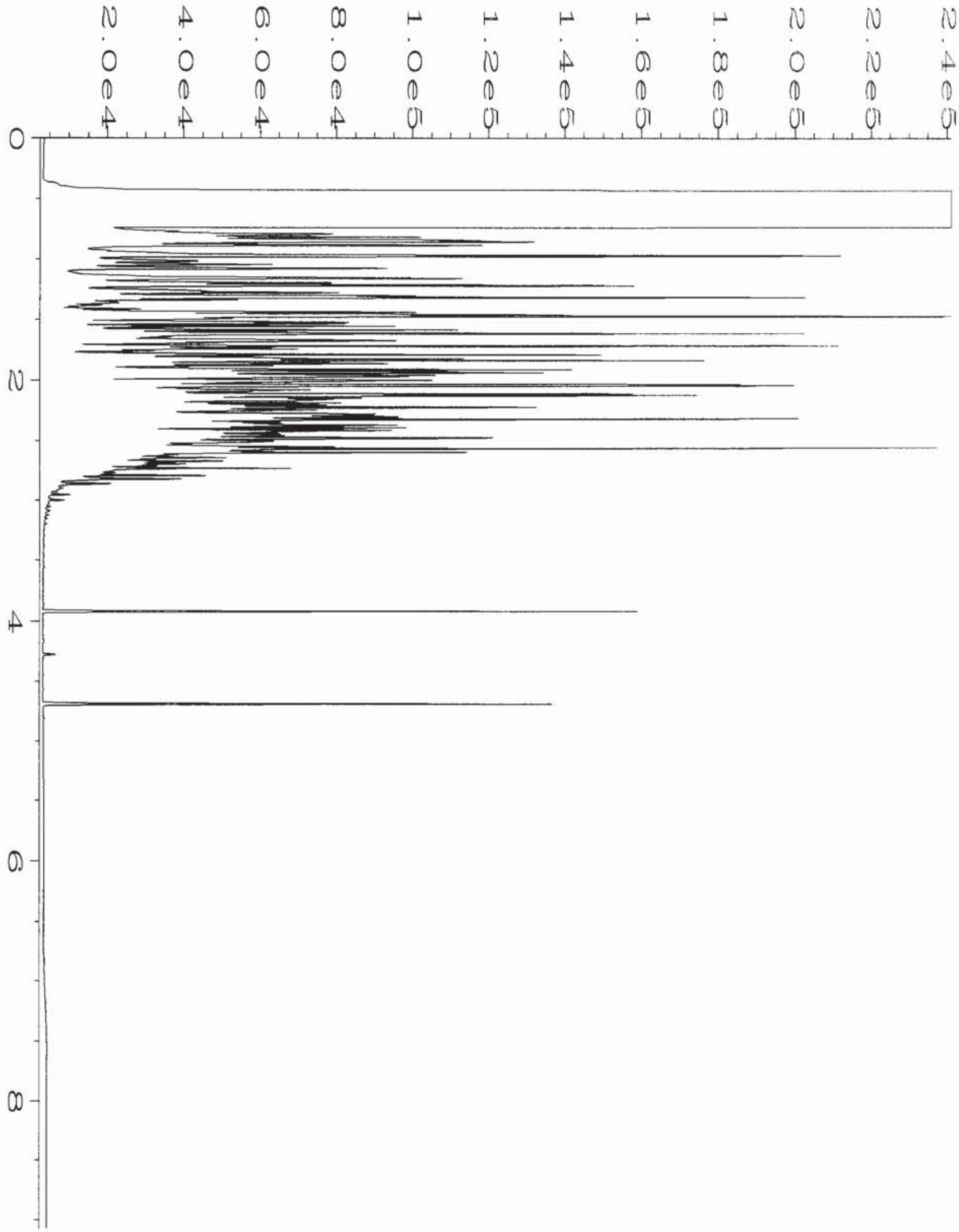
Operator	: ML	Page Number	: 1
Instrument	: GC #6	Vial Number	: 63
Sample Name	: 208428-09	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 14
Acquired on	: 05 Sep 12 04:34 AM	Instrument Method:	DX.MTH
Report Created on:	05 Sep 12 10:43 AM	Analysis Method	: DX.MTH



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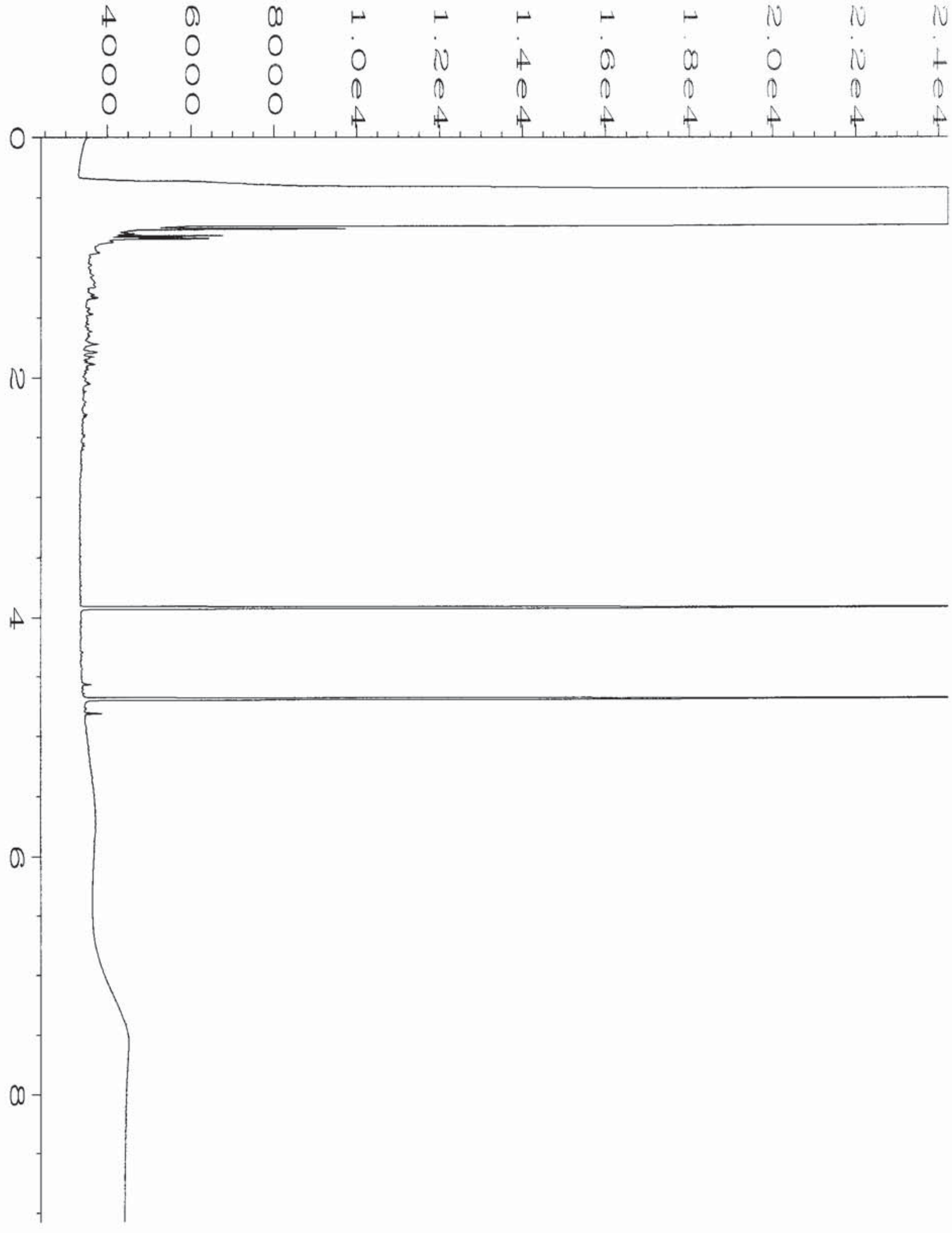
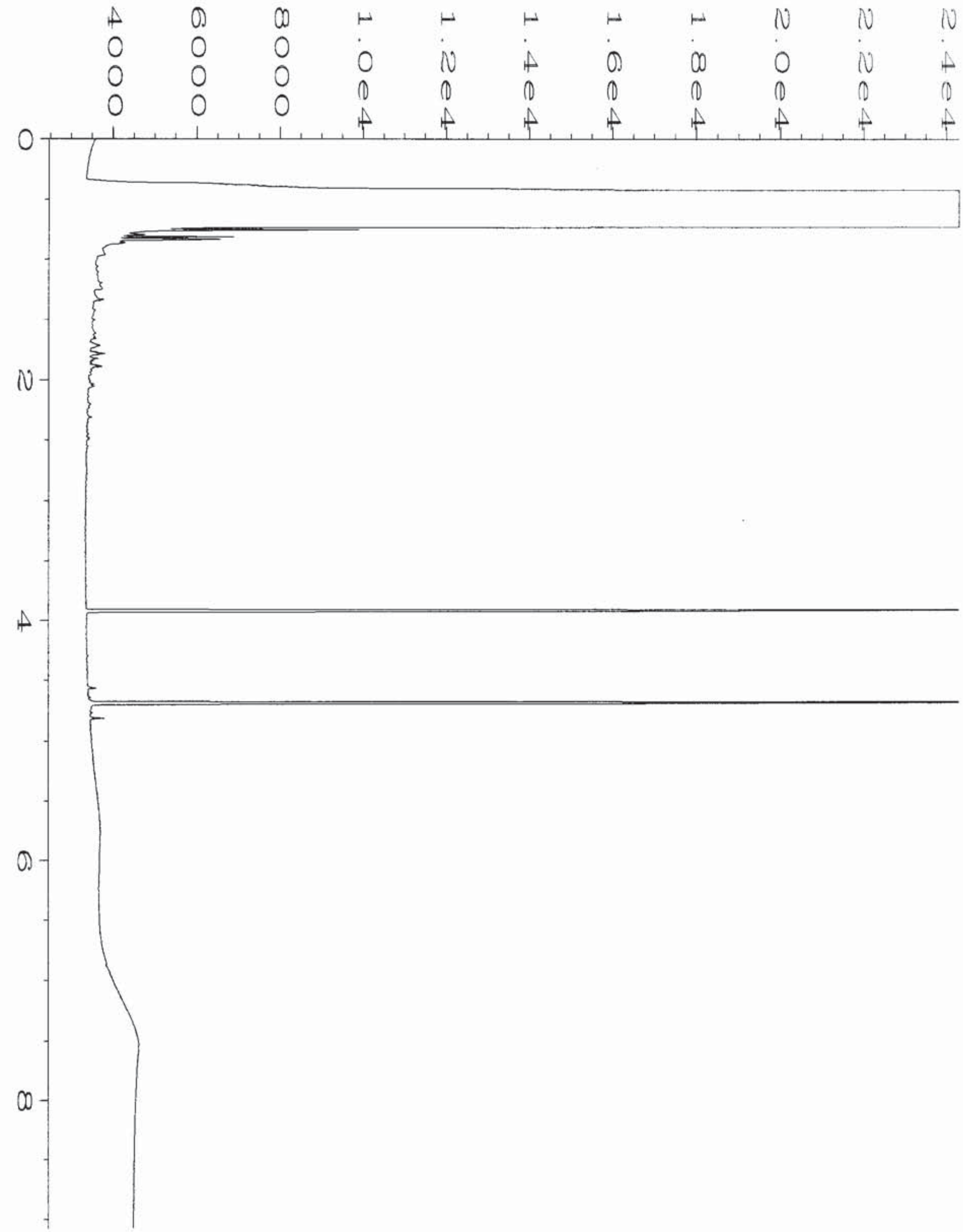
Operator	: ML	Page Number	: 1
Instrument	: GC #6	Vial Number	: 64
Sample Name	: 208428-10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 14
Acquired on	: 05 Sep 12 04:48 AM	Instrument Method	: DX.MTH
Report Created on	: 05 Sep 12 10:43 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\6\DATA\09-04-12\065F1401.D		
Operator	: ML	Page Number	: 1
Instrument	: GC #6	Vial Number	: 65
Sample Name	: 208428-11	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 14
Acquired on	: 05 Sep 12 05:02 AM	Instrument Method	: DX.MTH
Report Created on:	05 Sep 12 10:43 AM	Analysis Method	: DX.MTH

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Data File Name    : C:\HPCHEM\6\DATA\09-04-12\029F0501.D
Operator          : ML                              Page Number        : 1
Instrument        : GC #6                           Vial Number        : 29
Sample Name       : 02-1564 mb                      Injection Number   : 1
Run Time Bar Code:                                  Sequence Line      : 5
Acquired on       : 04 Sep 12   02:58 PM            Instrument Method: DX.MTH
Report Created on: 05 Sep 12   10:41 AM             Analysis Method    : DX.MTH
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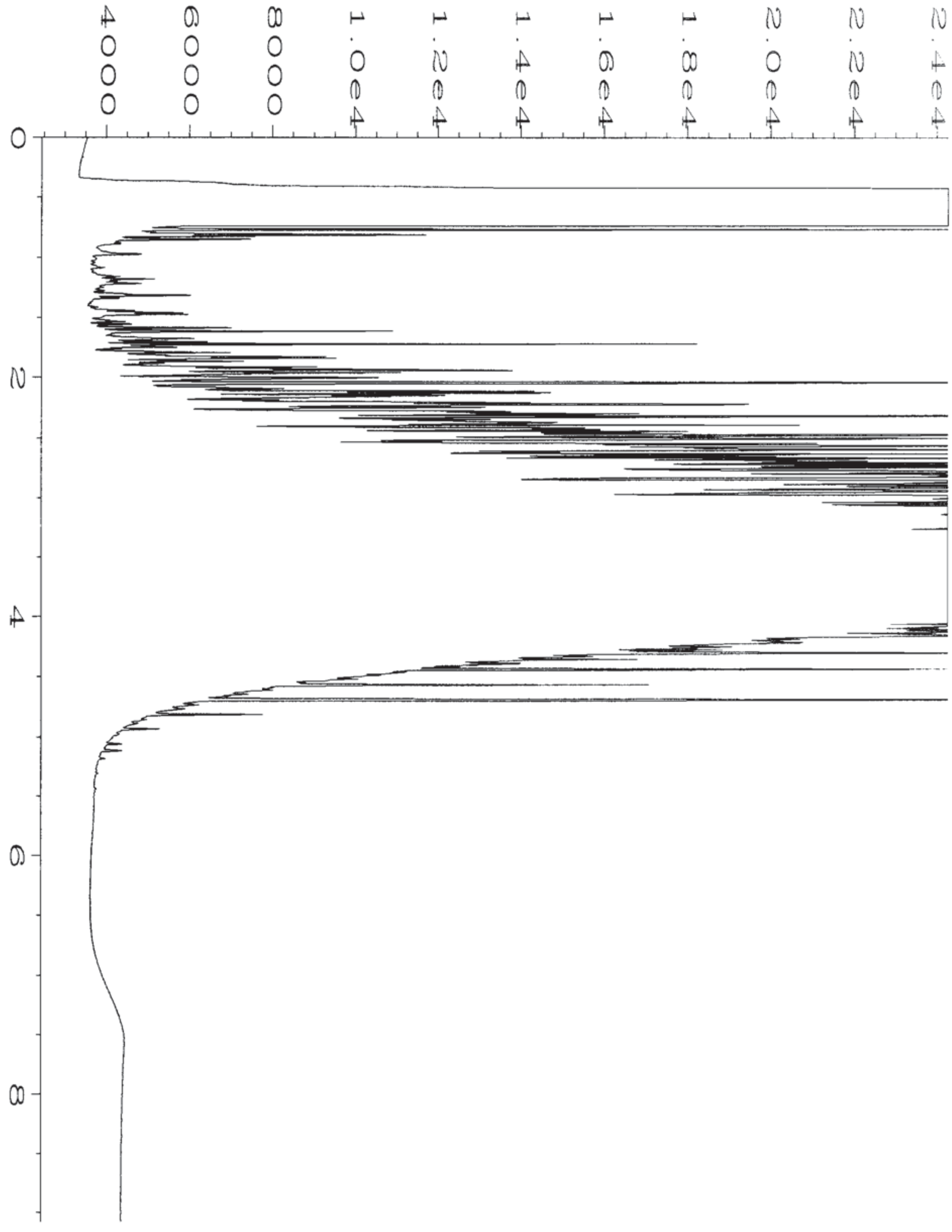


Data File Name	: C:\HPCHEM\6\DATA\09-04-12\003F1101.D		
Operator	: ML	Page Number	: 1
Instrument	: GC #6	Vial Number	: 3
Sample Name	: 500 Dx 38-103C	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 11
Acquired on	: 05 Sep 12 00:22 AM	Instrument Method:	DX.MTH
Report Created on:	05 Sep 12 10:40 AM	Analysis Method	: DX.MTH

208428

SAMPLE CHAIN OF CUSTODY

ME 08/29/12 | VS3/ | B12

Page # 1 of 1

Send Report To Rob Roberts

Company SoundEarth Strategies

Address 2811 Fairview Ave E Suite 2000

City, State, ZIP Seattle, WA 98102

Phone # 206.306.1900 Fax # 206.306.1907

SAMPLERS (signature)	
PROJECT NAME/NO. Huling/0914	PO #
REMARKS X-analyze as marked per RR 8/29/12 me	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	SVOCs by 8270	MTCA-5 ~~RCRA-8~~ Metals	HOLD		Notes
								ANALYSES REQUESTED								
SMW03-05	SMW03	5	01A-E	8/29/12	0740	Soil	5	X					X	X		
SMW03-10		10	02		0750		5	X					X	X		
SMW03-15		15	03		0800		5							X		
SMW03-20		20	04		0810		5							X		
SMW03-25		25	05		0820		5							X		
SMW03-30		30	06		0830		5							X		
SMW04-05	SMW04	5	07		1000		5							X		
SMW04-15		15	08		1020		5		X	X				X		
SMW04-20		20	09		1030		5	X	X	X				X		
SMW04-25		25	10		1040		5	X	X	X				X		
SMW04-30		30	11		1050		5	X	X	X				X		
SMW04-35		35	12		1105		5		X	X				X		

me 8/29/12

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:	Robert A. Huling	SES	8-29-12	1135
Received by: S. Olson	S. Olson	F&B, Inc	8/29/12	11:37
Relinquished by:				
Received by:				

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 5 °C

Friedman & Bruya, Inc. #208493

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

September 14, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on August 31, 2012 from the SOU_0914-002-01_20120831, F&BI 208493 project. There are 19 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
SOU0914R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 31, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-002-01_20120831, F&BI 208493 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
208493-01	SMW1-20120831
208493-02	SMW3-20120831
208493-03	SMW4-20120831

All quality control requirements were acceptable.

Date of Report: 09/14/12
Date Received: 08/31/12
Project: SOU_0914-002-01_20120831, F&BI 208493
Date Extracted: 09/04/12
Date Analyzed: 09/04/12 and 09/05/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
SMW1-20120831 208493-01	<100	96
SMW3-20120831 208493-02	<100	91
SMW4-20120831 208493-03	1,000	94
Method Blank 02-1567 MB	<100	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/12
Date Received: 08/31/12
Project: SOU_0914-002-01_20120831, F&BI 208493
Date Extracted: 09/05/12
Date Analyzed: 09/06/12

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 50-150)
SMW1-20120831 208493-01	<50	<250	122
SMW3-20120831 208493-02	280 x	<250	113
SMW4-20120831 208493-03	320 x	<250	102
Method Blank 02-1566 MB2	<50	<250	122

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	SMW1-20120831	Client:	SoundEarth Strategies
Date Received:	08/31/12	Project:	SOU_0914-002-01_20120831
Date Extracted:	09/04/12	Lab ID:	208493-01
Date Analyzed:	09/05/12	Data File:	208493-01.033
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	81	60	125
Indium	91	60	125
Holmium	101	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:	SMW3-20120831	Client:	SoundEarth Strategies
Date Received:	08/31/12	Project:	SOU_0914-002-01_20120831
Date Extracted:	09/04/12	Lab ID:	208493-02
Date Analyzed:	09/05/12	Data File:	208493-02.037
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	77	60	125
Indium	87	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:	SMW4-20120831	Client:	SoundEarth Strategies
Date Received:	08/31/12	Project:	SOU_0914-002-01_20120831
Date Extracted:	09/04/12	Lab ID:	208493-03
Date Analyzed:	09/05/12	Data File:	208493-03.038
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	75	60	125
Indium	85	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	8.42
Cadmium	1.62
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0914-002-01_20120831
Date Extracted:	09/04/12	Lab ID:	I2-574 mb
Date Analyzed:	09/05/12	Data File:	I2-574 mb.031
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	84	60	125
Indium	97	60	125
Holmium	108	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	<1
Cadmium	<1
Lead	<1

Date of Report: 09/14/12
Date Received: 08/31/12
Project: SOU_0914-002-01_20120831, F&BI 208493
Date Extracted: 09/04/12
Date Analyzed: 09/07/12

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES
FOR DISSOLVED MERCURY
USING EPA METHOD 1631E
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Dissolved Mercury
SMW1-20120831 208493-01	<0.1
SMW3-20120831 208493-02	<0.1
SMW4-20120831 208493-03	<0.1
Method Blank	<0.1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SMW1-20120831	Client:	SoundEarth Strategies
Date Received:	08/31/12	Project:	SOU_0914-002-01_20120831
Date Extracted:	08/31/12	Lab ID:	208493-01
Date Analyzed:	08/31/12	Data File:	083117.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	111	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Vinyl chloride	<0.2
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<1
1,1,1-Trichloroethane	<1
Trichloroethene	<1
Tetrachloroethene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SMW3-20120831	Client:	SoundEarth Strategies
Date Received:	08/31/12	Project:	SOU_0914-002-01_20120831
Date Extracted:	08/31/12	Lab ID:	208493-02
Date Analyzed:	08/31/12	Data File:	083118.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	107	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Vinyl chloride	<0.2
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<1
1,1,1-Trichloroethane	<1
Trichloroethene	<1
Tetrachloroethene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SMW4-20120831	Client:	SoundEarth Strategies
Date Received:	08/31/12	Project:	SOU_0914-002-01_20120831
Date Extracted:	08/31/12	Lab ID:	208493-03
Date Analyzed:	08/31/12	Data File:	083119.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	104	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	3.0
Ethylbenzene	43
m,p-Xylene	53
o-Xylene	9.7
Vinyl chloride	<0.2
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<1
1,1,1-Trichloroethane	<1
Trichloroethene	<1
Tetrachloroethene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0914-002-01_20120831
Date Extracted:	08/31/12	Lab ID:	02-1545 mb
Date Analyzed:	08/31/12	Data File:	083114.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	109	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Vinyl chloride	<0.2
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<1
1,1,1-Trichloroethane	<1
Trichloroethene	<1
Tetrachloroethene	<1

Date of Report: 09/14/12
Date Received: 08/31/12
Project: SOU_0914-002-01_20120831, F&BI 208493

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 208435-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	104	69-134

Date of Report: 09/14/12
Date Received: 08/31/12
Project: SOU_0914-002-01_20120831, F&BI 208493

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	96	86	63-142	11

Date of Report: 09/14/12
Date Received: 08/31/12
Project: SOU_0914-002-01_20120831, F&BI 208493

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 208493-01 (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	106	71-130	3
Arsenic	ug/L (ppb)	10	<1	94	99	51-167	5
Cadmium	ug/L (ppb)	5	<1	103	107	86-115	4
Lead	ug/L (ppb)	10	<1	106	107	85-115	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	99	80-119
Arsenic	ug/L (ppb)	10	90	81-118
Cadmium	ug/L (ppb)	5	99	86-118
Lead	ug/L (ppb)	10	104	84-120

Date of Report: 09/14/12
Date Received: 08/31/12
Project: SOU_0914-002-01_20120831, F&BI 208493

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
DISSOLVED MERCURY
USING EPA METHOD 1631E**

Laboratory Code: 208493-01 (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	112	111	78-124	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.5	111	78-123

Date of Report: 09/14/12
Date Received: 08/31/12
Project: SOU_0914-002-01_20120831, F&BI 208493

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 208493-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Vinyl chloride	ug/L (ppb)	50	<0.2	107	36-166
Chloroethane	ug/L (ppb)	50	<1	114	46-160
1,1-Dichloroethene	ug/L (ppb)	50	<1	95	60-136
Methylene chloride	ug/L (ppb)	50	<5	99	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	97	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	103	70-128
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	102	71-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	107	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	109	60-146
Benzene	ug/L (ppb)	50	<0.35	99	76-125
Trichloroethene	ug/L (ppb)	50	<1	88	66-135
Toluene	ug/L (ppb)	50	<1	96	76-122
Tetrachloroethene	ug/L (ppb)	50	<1	98	73-129
Ethylbenzene	ug/L (ppb)	50	<1	102	69-135
m,p-Xylene	ug/L (ppb)	100	<2	103	69-135
o-Xylene	ug/L (ppb)	50	<1	104	68-137

Date of Report: 09/14/12
Date Received: 08/31/12
Project: SOU_0914-002-01_20120831, F&BI 208493

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	ug/L (ppb)	50	104	104	50-154	0
Chloroethane	ug/L (ppb)	50	105	110	58-146	5
1,1-Dichloroethene	ug/L (ppb)	50	93	93	67-136	0
Methylene chloride	ug/L (ppb)	50	104	99	39-148	5
trans-1,2-Dichloroethene	ug/L (ppb)	50	99	99	68-128	0
1,1-Dichloroethane	ug/L (ppb)	50	104	104	79-121	0
cis-1,2-Dichloroethene	ug/L (ppb)	50	104	104	80-123	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	107	104	73-132	3
1,1,1-Trichloroethane	ug/L (ppb)	50	109	110	83-130	1
Benzene	ug/L (ppb)	50	102	102	69-134	0
Trichloroethene	ug/L (ppb)	50	92	92	80-120	0
Toluene	ug/L (ppb)	50	98	100	72-122	2
Tetrachloroethene	ug/L (ppb)	50	100	104	76-121	4
Ethylbenzene	ug/L (ppb)	50	104	105	77-124	1
m,p-Xylene	ug/L (ppb)	100	105	107	83-125	2
o-Xylene	ug/L (ppb)	50	105	107	86-121	2

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

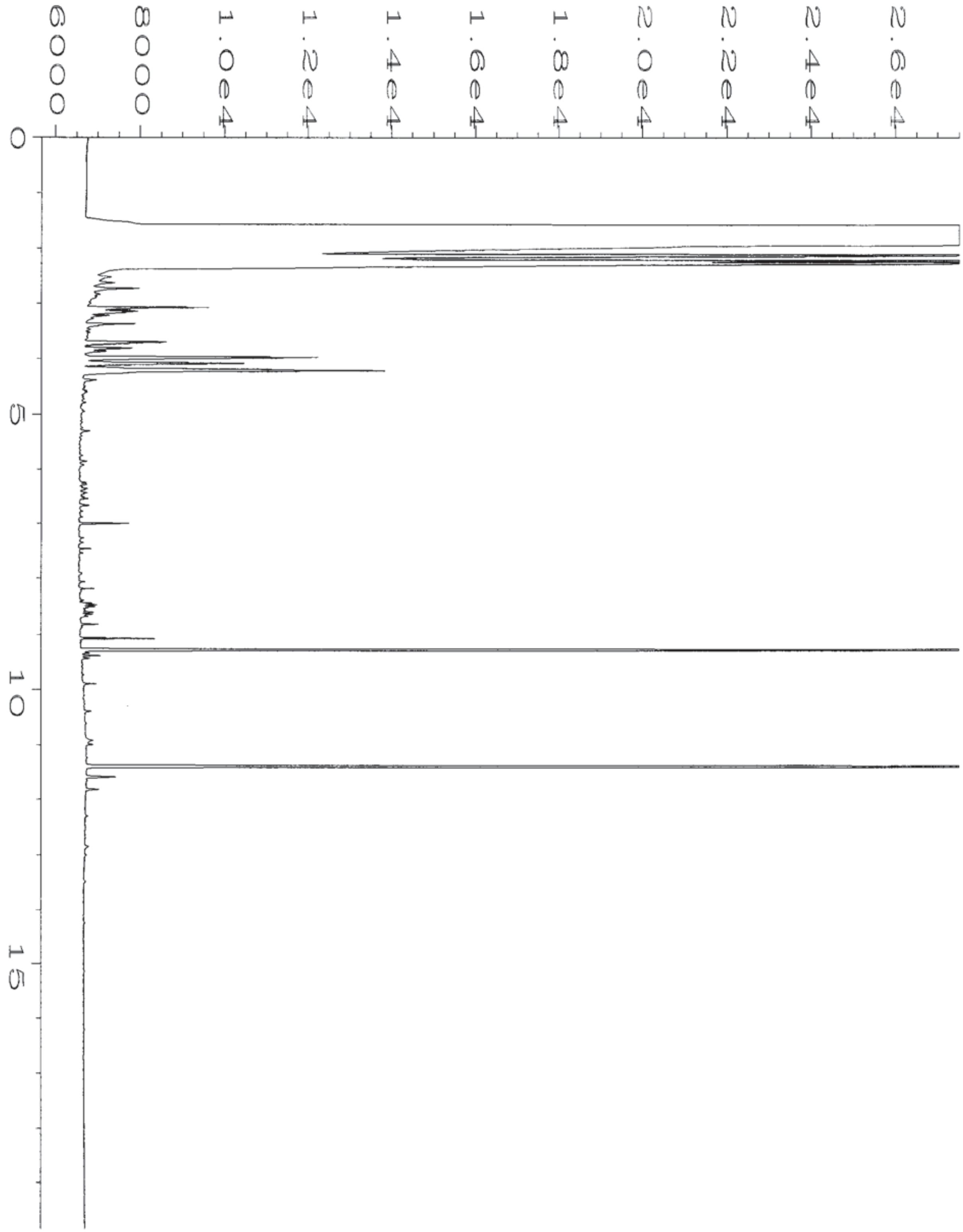
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

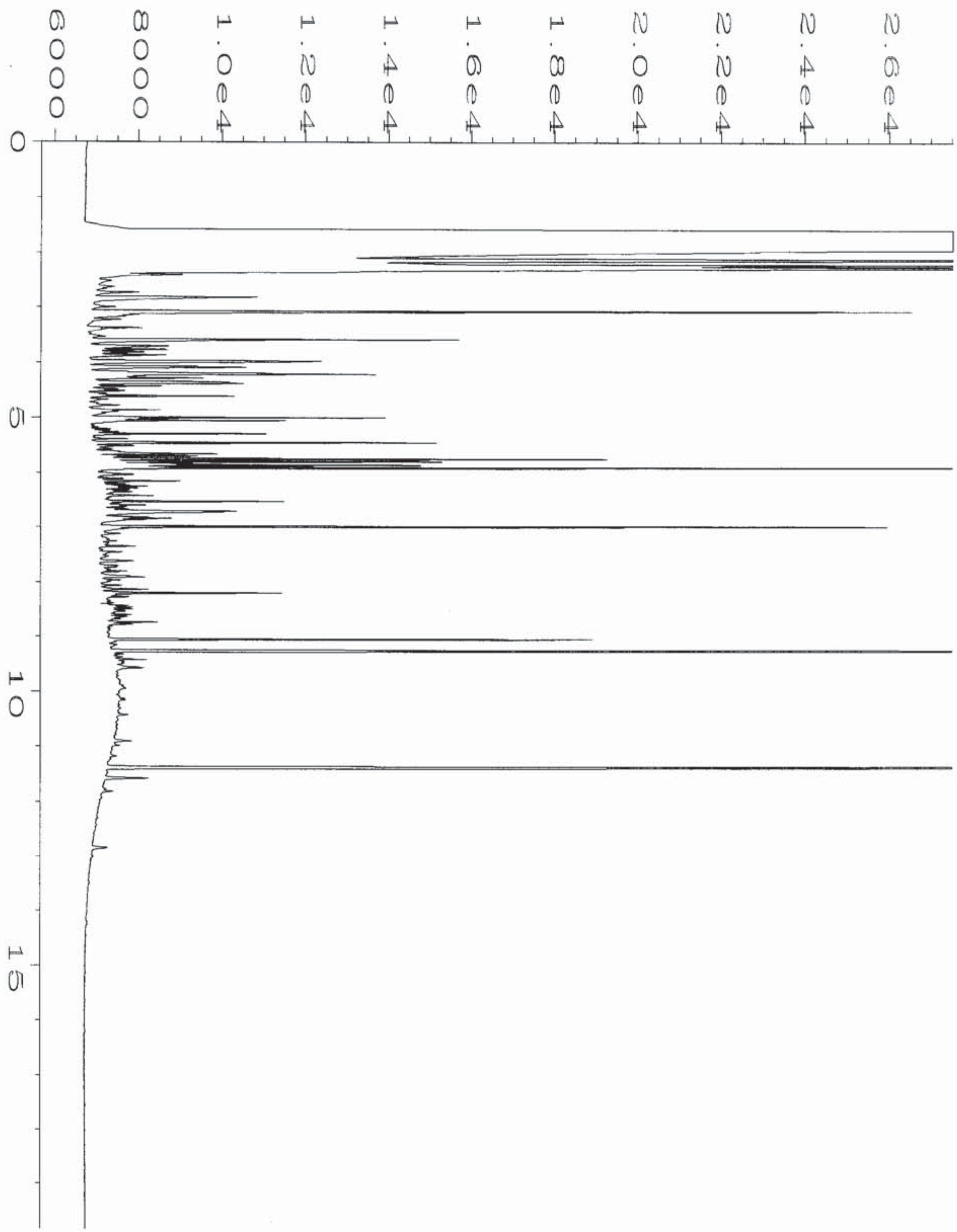
vo - The value reported fell outside the control limits established for this analyte.

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



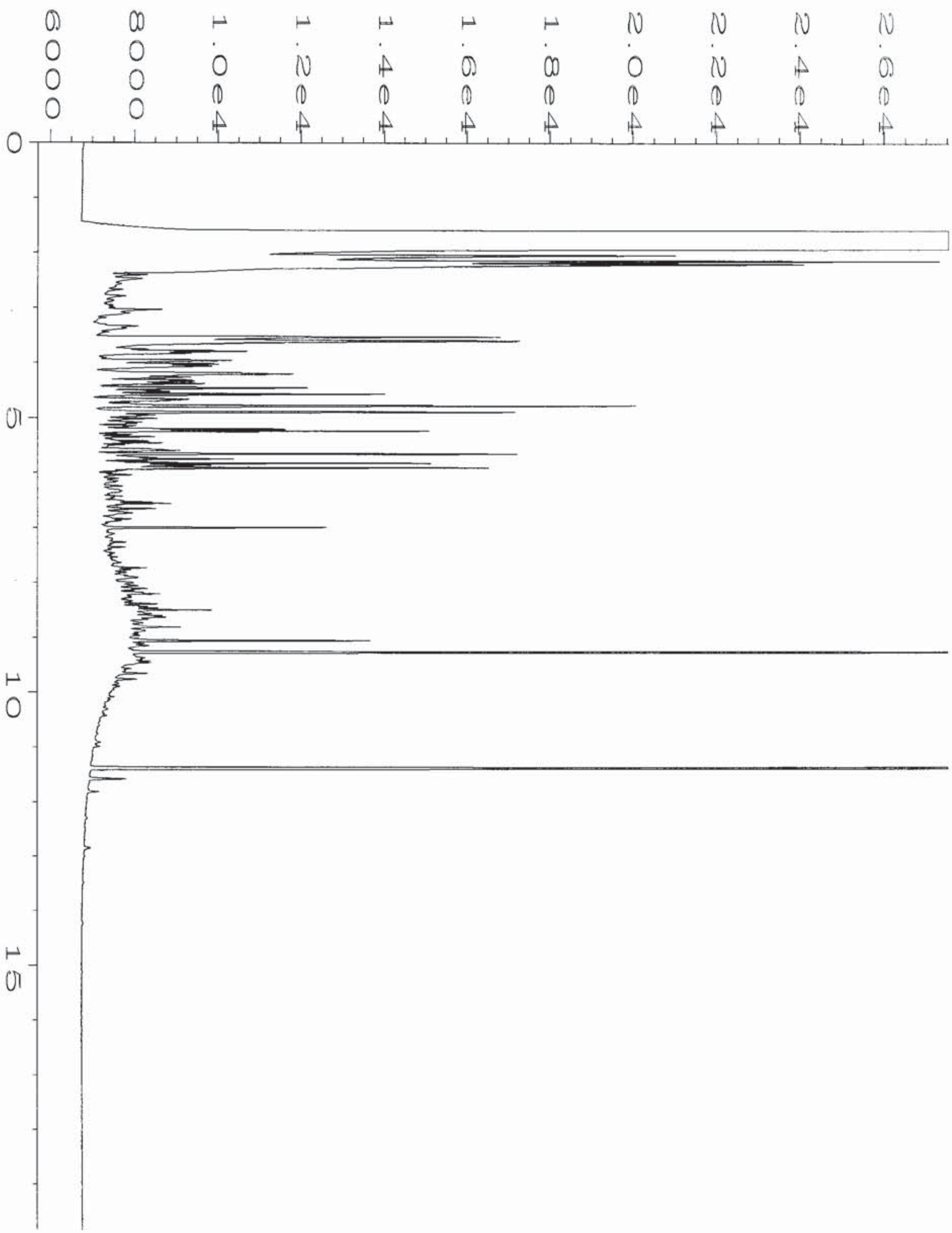
Data File Name : C:\HPCHEM\1\DATA\09-06-12\016F0401.D
Operator : ML
Instrument : GC1
Sample Name : 208493-01
Run Time Bar Code:
Acquired on : 06 Sep 12 02:04 PM
Report Created on: 07 Sep 12 09:34 AM

Page Number : 1
Vial Number : 16
Injection Number : 1
Sequence Line : 4
Instrument Method: TPHD.MTH
Analysis Method : TPHD.MTH

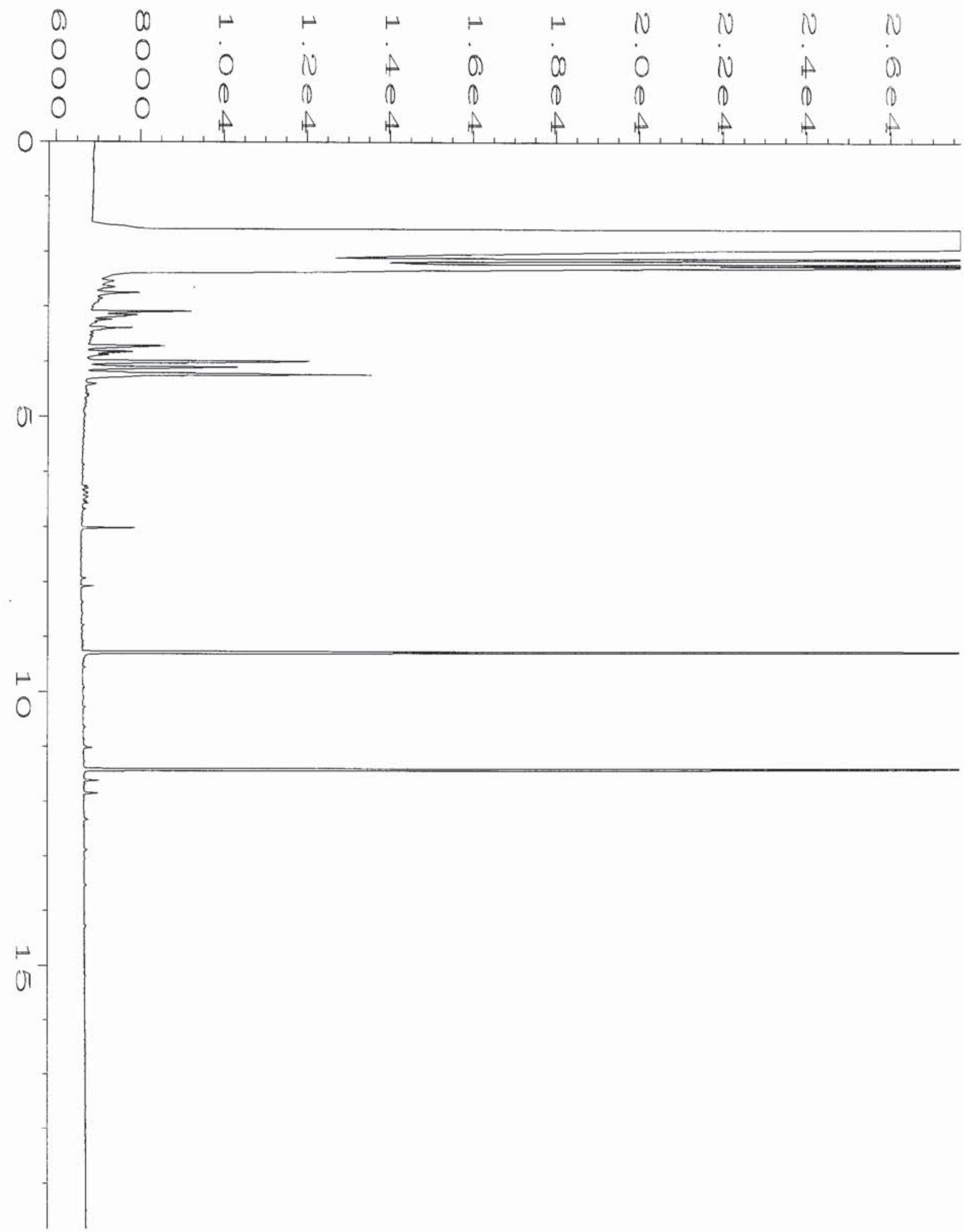


Data File Name   : C:\HPCHEM\1\DATA\09-06-12\017F0601.D

Operator	: ML	Page Number	: 1
Instrument	: GC1	Vial Number	: 17
Sample Name	: 208493-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 06 Sep 12 03:26 PM	Instrument Method:	TPHD.MTH
Report Created on:	07 Sep 12 09:26 AM	Analysis Method	: TPHD.MTH

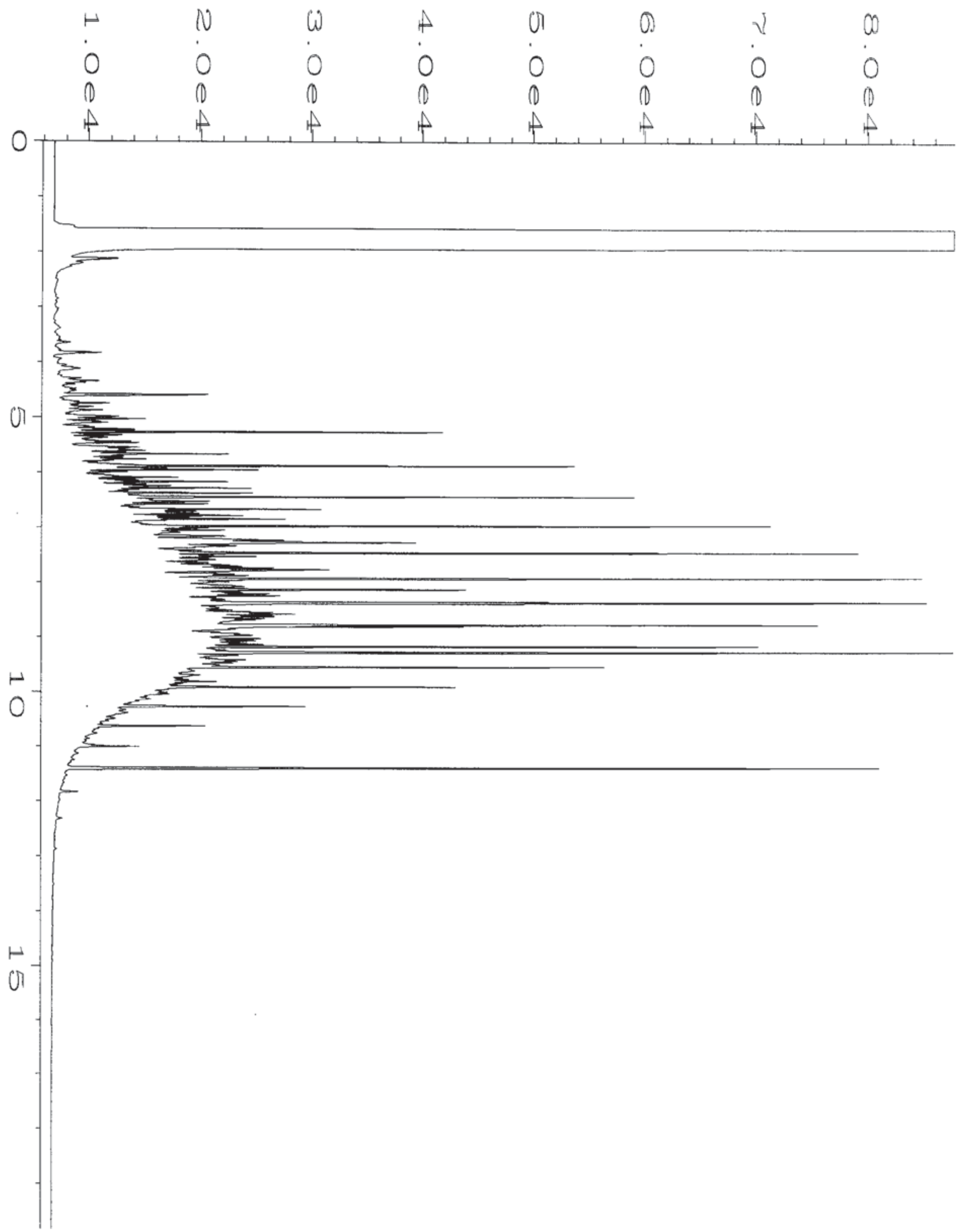


Data File Name	: C:\HPCHEM\1\DATA\09-06-12\018F0601.D		
Operator	: ML	Page Number	: 1
Instrument	: GC1	Vial Number	: 18
Sample Name	: 208493-03	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 06 Sep 12 03:53 PM	Instrument Method:	TPHD.MTH
Report Created on:	07 Sep 12 09:27 AM	Analysis Method	: TPHD.MTH



Data File Name : C:\HPCHEM\1\DATA\09-06-12\006F0401.D
Operator : ML
Instrument : GC1
Sample Name : 02-1566 mb2
Run Time Bar Code:
Acquired on : 06 Sep 12 09:39 AM
Report Created on: 07 Sep 12 09:24 AM

Page Number : 1
Vial Number : 6
Injection Number : 1
Sequence Line : 4
Instrument Method: TPHD.MTH
Analysis Method : TPHD.MTH



Data File Name : C:\HPCHEM\1\DATA\09-06-12\003F0201.D
Operator : ML
Instrument : GC1
Sample Name : 500 WADF 38-103C
Run Time Bar Code:
Acquired on : 06 Sep 12 07:42 AM
Report Created on: 07 Sep 12 09:23 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHD.MTH
Analysis Method : TPHD.MTH

Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664

Professional Analytical Services

Sep 7 2012
Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Attention: Michael Erdahl

Dear Michael Erdahl:

Enclosed please find the analytical data for your project.

The following is a cross correlation of client and laboratory identifications for your convenience.

CLIENT ID	MATRIX	AMTEST ID	TEST
SMW4-20120831	Water	12-A013264	CONV

Your sample was received on Tuesday, September 4, 2012. At the time of receipt, the sample was logged in and properly maintained prior to the subsequent analysis.

The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

Following the analytical data you will find the Quality Control (QC) results.

Please note that the detection limits that are listed in the body of the report refer to the Method Detection Limits (MDL's), as opposed to Practical Quantitation Limits (PQL's).

If you should have any questions pertaining to the data package, please feel free to conact me.

Sincerely,

Aaron W Young

Aaron W. Young
Laboratory Manager

Project #: 208493
PO Number: B-893

BACT = Bacteriological	MET = Metals	NUT=Nutrients	MIN=Minerals
CONV = Conventionals	ORG = Organics	DEM=Demand	

Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

ANALYSIS REPORT

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Attention: Michael Erdahl
Project #: 208493
PO Number: B-893
All results reported on an as received basis.

Date Received: 09/04/12
Date Reported: 9/ 7/12

AMTEST Identification Number **12-A013264**
Client Identification **SMW4-20120831**
Sampling Date **08/31/12, 11:55**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Formaldehyde	< 0.05	mg/l		0.005	NIOSH 3500	EB	09/05/12

Aaron W. Young
Laboratory Manager

Am Test Inc.
13600 NE 126th PL
Suite C
Kirkland, WA, 98034
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

QC Summary for sample number: 12-A013264

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
12-A013264	Formaldehyde	mg/l	< 0.05	< 0.05	

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Formaldehyde	mg/l	1.0	1.1	110. %

BLANKS

ANALYTE	UNITS	RESULT
Formaldehyde	mg/l	< 0.005

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Amtest

PROJECT NAME/NO. 208493

PO # B-893

REMARKS

Please Email Results

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

13264

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins and Furans by 8290	EPH	VPH	Nitrate	Sulfate	Alkalinity	Formaldehyde				Notes
SMW4-20120831		8/31/12	1155	water	1							X				

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]	Michael Erdahl	Friedman & Bruya	9/4/12	11:50 AM
Received by: [signature]	Jeffrey Hurst	AmTest	9/4/12	15:00 PM
Relinquished by:				
Received by:				

T=16.1

208493

SAMPLE CHAIN OF CUSTODY

ME 08-31-12 AI3/D03/V3

Send Report To Rob Roberts

Company Sound Earth Strategies

Address 2811 Fairview Avenue East, Suite 2000

City, State, ZIP Seattle, WA 98102

Phone # 206.306.1900 Fax # 206.306.1907

SAMPLERS (signature)	
L. Namba	
PROJECT NAME/NO. Huling Kennedy Properties 0914-002-01	PO #
REMARKS Laboratory to ~~Alter~~ preserve RCRA-5 inorganic samples	GEMS Y / N

TURNAROUND TIME

- ☐ Standard (2 Weeks)
- ☑ RUSH call Rob Roberts for details
- 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	BTEX ~~VOCs~~ by 8260	Chlorinated Solvents ~~SVOCs by 8270~~	RCRA-~~8~~ 5 Metals	Formaldehyde		Notes
SWM1-20120831	SMW1 ~~SWM~~	28	01A-G	08/31/12	1350	Water	7	✓	✓		✓	✓	✓			Rush VOCs.
SMW3-20120831	SMW3	27	02A-G	08/31/12	1254	Water	7	✓	✓		✓	✓	✓			
SMW4-20120831	SMW4	29	03A-I	08/31/12	1155	Water	9	✓	✓		✓	✓	✓	✓		Rush Gx, VOCs

per KH 8/31 ok

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:	Larry Namba	Larry Namba	SES	08/31/12	1458
Received by:	Nhan Phan	Nhan Phan	FeBT	8/31/12	1458
Relinquished by:					
Received by:					

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 5 °C

Friedman & Bruya, Inc. #211043

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

November 9, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on November 2, 2012 from the SOU_0914_20121102, F&BI 211043 project. There are 4 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
SOU1109R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 2, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914_20121102, F&BI 211043 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
211043-01	MW102-15
211043-02	MW102-20
211043-03	MW102-25
211043-04	MW102-31
211043-05	MW103-15
211043-06	MW103-20
211043-07	MW103-25
211043-08	MW103-31

All quality control requirements were acceptable.

Date of Report: 11/09/12
Date Received: 11/02/12
Project: SOU_0914_20121102, F&BI 211043
Date Extracted: 11/05/12
Date Analyzed: 11/07/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING EPA METHOD 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)
MW102-20 211043-02	<0.02	<0.02	<0.02	<0.06	<2	89
MW102-25 211043-03	<0.02	<0.02	<0.02	<0.06	<2	94
MW102-31 211043-04	<0.02	<0.02	<0.02	<0.06	<2	93
MW103-20 211043-06	<0.02	<0.02	<0.02	<0.06	<2	91
MW103-25 211043-07	<0.02	<0.02	<0.02	<0.06	<2	87
MW103-31 211043-08	<0.02	<0.02	<0.02	<0.06	<2	83
Method Blank 02-2046 MB	<0.02	<0.02	<0.02	<0.06	<2	90

Date of Report: 11/09/12
Date Received: 11/02/12
Project: SOU_0914_20121102, F&BI 211043

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: 211043-02 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (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	100	69-120
Toluene	mg/kg (ppm)	0.5	103	70-117
Ethylbenzene	mg/kg (ppm)	0.5	108	65-123
Xylenes	mg/kg (ppm)	1.5	108	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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 in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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.

21043
[redacted]

SAMPLE CHAIN OF CUSTODY

ME 11-02-12 VS2

[redacted] Page # 1 of ____

Send Report To Rob Roberts

Company SES

Address 2811 Fairview ave E Suite 2000

City, State, ZIP Seattle WA 98102

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

SAMPLERS (signature)	
PROJECT NAME/NO. 0914	PO #
REMARKS	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			Notes
MW102-15	MW102	15	01 A-D	11-2-12	0940	Soil	4									X - per RR email 11/2/12
MW102-20	MW102	20	02		0950	Soil	4		X	X						
MW102-25	MW102	25	03		1000	Soil	4		X	X						
MW102-31	MW102	31	04		1015	Soil	4		X	X						
MW103-15	MW103	15	05		1235	Soil	4									
MW103-20	MW103	20	06		1245	Soil	4		X	X						
MW103-25	MW103	25	07		1255	Soil	4		X	X						
MW103-31	MW103	31	08		1305	Soil	4		X	X						

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:	Lanny Namba	SES	11/02/12	1350
Received by:	Nhan Phan	FeB I	11/2/12	1350
Relinquished by:				
Received by:				

Samples received at 6 °C

Friedman & Bruya, Inc. #211071

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

November 13, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on November 5, 2012 from the SOU_0914_20121105, F&BI 211071 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
SOU1113R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 5, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914_20121105, F&BI 211071 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
211071-01	MW104-20
211071-02	MW104-23
211071-03	MW104-25
211071-04	MW104-28
211071-05	MW104-30
211071-06	MW104-33
211071-07	MW104-35
211071-08	SB201-15
211071-09	SB201-20
211071-10	SB201-23
211071-11	SB201-25
211071-12	SB201-30
211071-13	SB201-33
211071-14	SB202-20
211071-15	SB202-23
211071-16	SB202-25
211071-17	SB202-28
211071-18	SB202-30
211071-19	SB202-35
211071-20	SB201-28
211071-21	SB201-35
211071-22	SB202-33

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/13/12
Date Received: 11/05/12
Project: SOU_0914_20121105, F&BI 211071
Date Extracted: 11/09/12
Date Analyzed: 11/09/12 and 11/10/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 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)
MW104-23 211071-02 1/10	0.47	0.69	4.5	7.7	440	123
MW104-25 211071-03	0.067	<0.02	0.027	<0.06	<2	103
MW104-28 211071-04	<0.02	<0.02	<0.02	<0.06	<2	101
MW104-30 211071-05	<0.02	<0.02	<0.02	<0.06	<2	102
MW104-33 211071-06	<0.02	<0.02	<0.02	<0.06	<2	102
SB201-20 211071-09	<0.02	<0.02	0.027	0.20	<2	101
SB201-23 211071-10 1/20	0.63	0.88	8.8	63	710	114
SB201-25 211071-11	<0.02	<0.02	<0.02	<0.06	<2	104
SB201-30 211071-12	<0.02	<0.02	<0.02	<0.06	<2	106
SB201-33 211071-13	<0.02	<0.02	<0.02	<0.06	<2	103
SB202-20	<0.02	<0.02	<0.02	<0.06	<2	105

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/13/12
Date Received: 11/05/12
Project: SOU_0914_20121105, F&BI 211071
Date Extracted: 11/09/12
Date Analyzed: 11/09/12 and 11/10/12

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING EPA METHOD 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)
SB202-25 211071-16	<0.02	<0.02	<0.02	<0.06	<2	103
SB202-28 211071-17	<0.02	<0.02	<0.02	<0.06	<2	102
SB202-30 211071-18	<0.02	<0.02	<0.02	<0.06	<2	106
SB202-35 211071-19	<0.02	<0.02	<0.02	<0.06	<2	102
Method Blank 02-2081 MB	<0.02	<0.02	<0.02	<0.06	<2	73

Date of Report: 11/13/12
Date Received: 11/05/12
Project: SOU_0914_20121105, F&BI 211071

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: 211161-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (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	84	69-120
Toluene	mg/kg (ppm)	0.5	86	70-117
Ethylbenzene	mg/kg (ppm)	0.5	88	65-123
Xylenes	mg/kg (ppm)	1.5	88	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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 in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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.

211071

SAMPLE CHAIN OF CUSTODY

ME 11-5-12

VS3/CE3

Page # 1 of 2

Send Report To Rob Roberts

Company SES

Address 2811 Fairview Ave E Suite 2000

City, State, ZIP Seattle WA 98102

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

SAMPLERS (signature)

PROJECT NAME/NO. 0914

PO #

REMARKS

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			X- per RR 11/5/12 ME Notes
MW104-20	MW104	20	01 A-E	11-5-12	0810	Soil	5									~~Hold~~
MW104-23		23	02		0820	Soil	5		X	X						
MW104-25		25	03		0825	Soil	5		X	X						
MW104-28		28	04		0830	Soil	5		X	X						
MW104-30		30	05		0840	Soil	5		X	X						
MW104-33		33	06		0845	Soil	5		X	X						
MW104-35		35	07		0855	Soil	5									
SB201-15	SB201	15	08		1040	Soil	5									
SB201-20		20	09		1045	Soil	5		X	X						
SB201-23		23	10		1055	Soil	5		X	X						
SB201-25		25	11		1100	Soil	5		X	X						
SB201-30		30	12		1110	Soil	5		X	X						
SB201-33		33	13		1115	Soil	5		X	X						

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:		Ethan Marks	SES	11-5-12	1200
Received by:		Edwards	Postal Y	11-5-12	1200
Relinquished by:					
Received by:		Nhan Phan	FeBI	11/5/12	13 20

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 5 °C

211071

SAMPLE CHAIN OF CUSTODY

ME 11-5-12

Page # 2 of ~~2~~ 3 VS3

Send Report To

Company See Page 1

Address

City, State, ZIP

Phone # Fax #

SAMPLERS (signature)

PROJECT NAME/NO. 0914

PO #

REMARKS

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			Notes
SB202-20	SB202	20	14 A-E	11-3-12	1235	Soil	5		x	x						Global
SB202-23	SB202	23	15		1245	Soil	5									
SB202-25	SB202	25	16		1250	Soil	5		x	x						
SB202-28	SB202	28	17		1255	Soil	5		x	x						
SB202-30	SB202	30	18		1300	Soil	5		x	x						
SB202-35	SB202	35	19		1315	Soil	5		x	x						
SB201-28			20	11-3-12	1105	soil	5									NP 11-05-12 Added at lab
SB-201-35			21	11-3-12	1120	soil	5									
SB 202-33			22		1305		5									

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]	Ethan Marks	SES	11-5-12	1200
Received by:	[signature]	Edward. S	POSTAL Y	11-5-12	1200
Relinquished by:					
Received by:	[signature]	Nhan Phan	FeBI	11/5/12	1320

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 5 °C

Friedman & Bruya, Inc. #211071 additional

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

November 16, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the additional results from the testing of material submitted on November 5, 2012 from the SOU_0914_20121105, F&BI 211071 project. There are 6 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
SOU1116R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 5, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914_20121105, F&BI 211071 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
211071-01	MW104-20
211071-02	MW104-23
211071-03	MW104-25
211071-04	MW104-28
211071-05	MW104-30
211071-06	MW104-33
211071-07	MW104-35
211071-08	SB201-15
211071-09	SB201-20
211071-10	SB201-23
211071-11	SB201-25
211071-12	SB201-30
211071-13	SB201-33
211071-14	SB202-20
211071-15	SB202-23
211071-16	SB202-25
211071-17	SB202-28
211071-18	SB202-30
211071-19	SB202-35
211071-20	SB201-28
211071-21	SB201-35
211071-22	SB202-33

All quality control requirements were acceptable.

Date of Report: 11/16/12
Date Received: 11/05/12
Project: SOU_0914_20121105, F&BI 211071
Date Extracted: 11/14/12
Date Analyzed: 11/15/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 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)
MW104-20 211071-01 1/20	<0.4	<0.4	13	12	1,000	136
Method Blank	<0.02	<0.02	<0.02	<0.06	<2	92

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/16/12
Date Received: 11/05/12
Project: SOU_0914_20121105, F&BI 211071
Date Extracted: 11/14/12
Date Analyzed: 11/14/12

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 53-144)
MW104-20 211071-01	<50	<250	104
MW104-25 211071-03	<50	<250	102
MW104-30 211071-05	<50	<250	101
SB201-30 211071-12	<50	<250	105
SB202-30 211071-18	<50	<250	99
Method Blank 02-2105 MB	<50	<250	99

Date of Report: 11/16/12
Date Received: 11/05/12
Project: SOU_0914_20121105, F&BI 211071

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: 211199-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (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	87	69-120
Toluene	mg/kg (ppm)	0.5	90	70-117
Ethylbenzene	mg/kg (ppm)	0.5	92	65-123
Xylenes	mg/kg (ppm)	1.5	90	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 11/16/12
Date Received: 11/05/12
Project: SOU_0914_20121105, F&BI 211071

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 211210-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	72	99	89	64-133	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	88	58-147

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

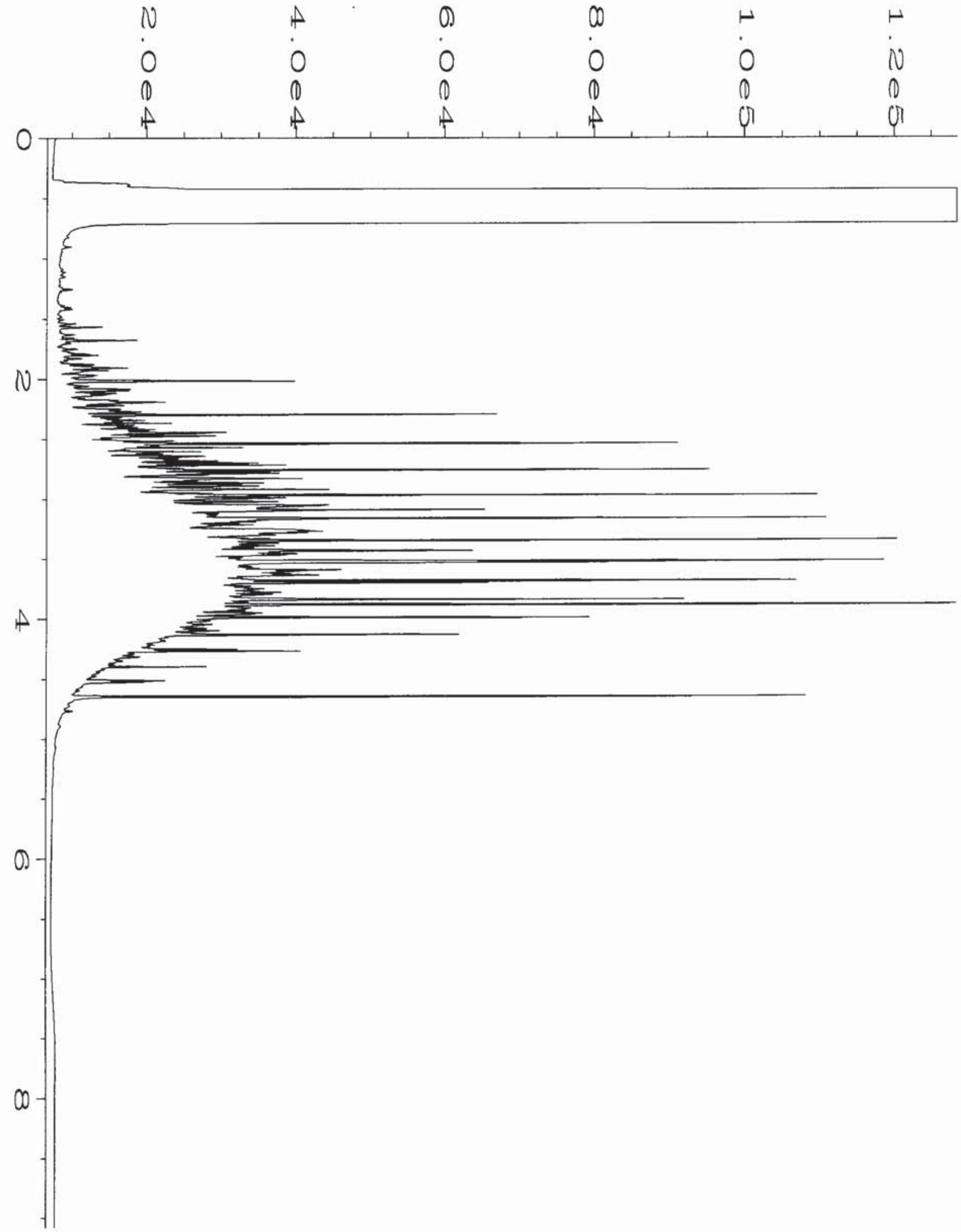
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

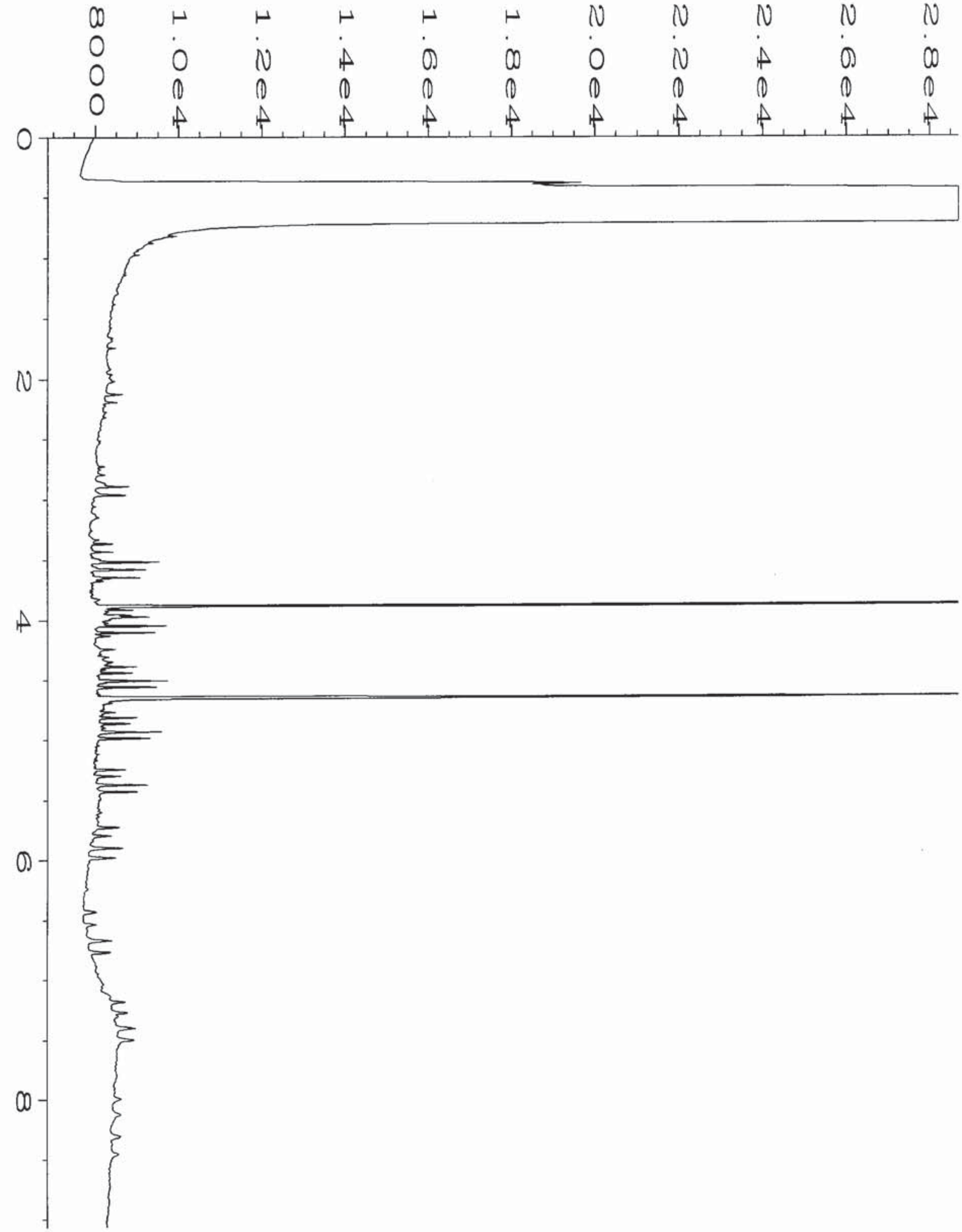
vo - The value reported fell outside the control limits established for this analyte.

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



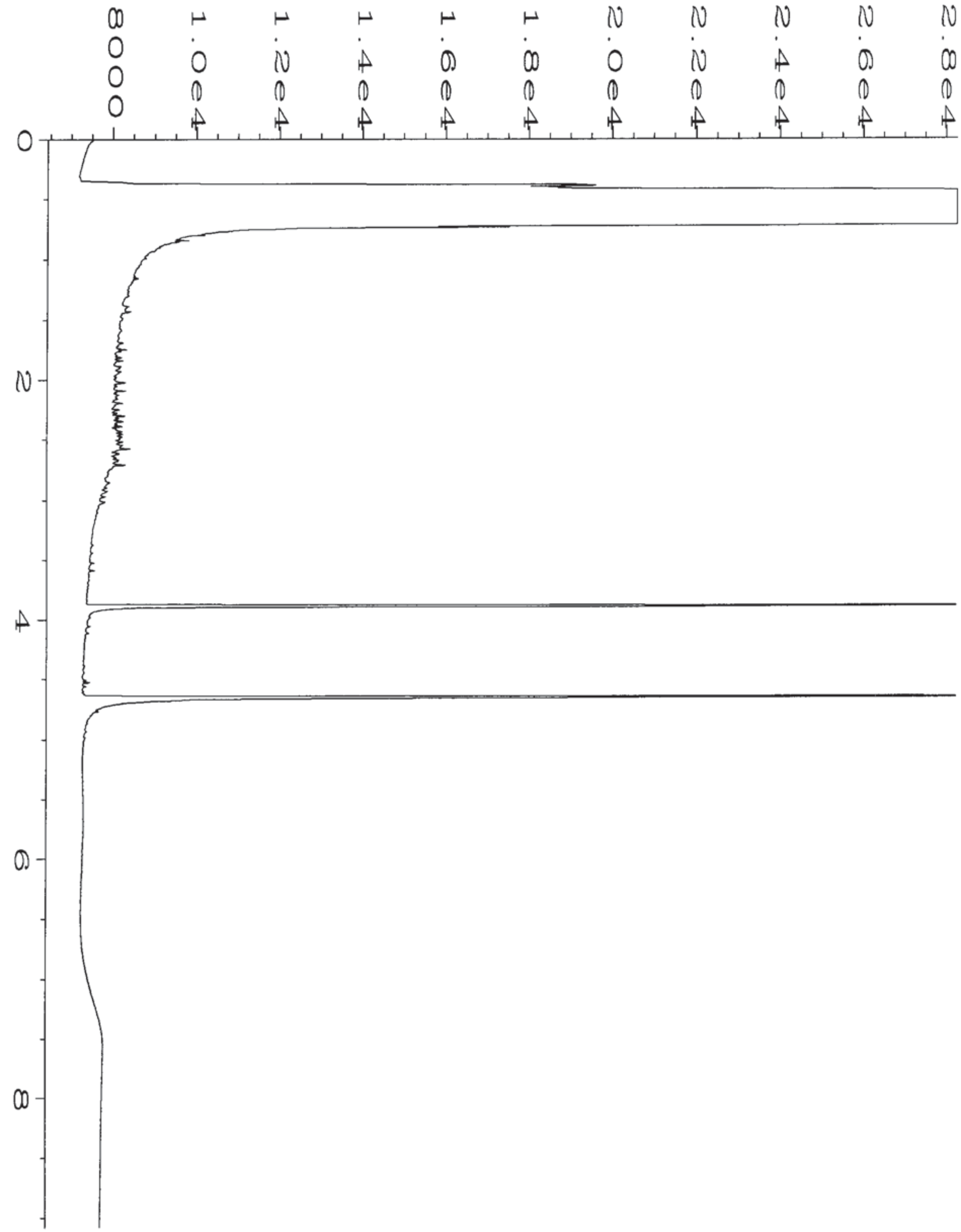
Data File Name : C:\HPCHEM\6\DATA\11-14-12\003F0301.D
Operator : mwdl
Instrument : GC #6
Sample Name : 500 Dx 39-14C
Run Time Bar Code:
Acquired on : 14 Nov 12 08:55 AM
Report Created on: 15 Nov 12 09:14 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DX.MTH

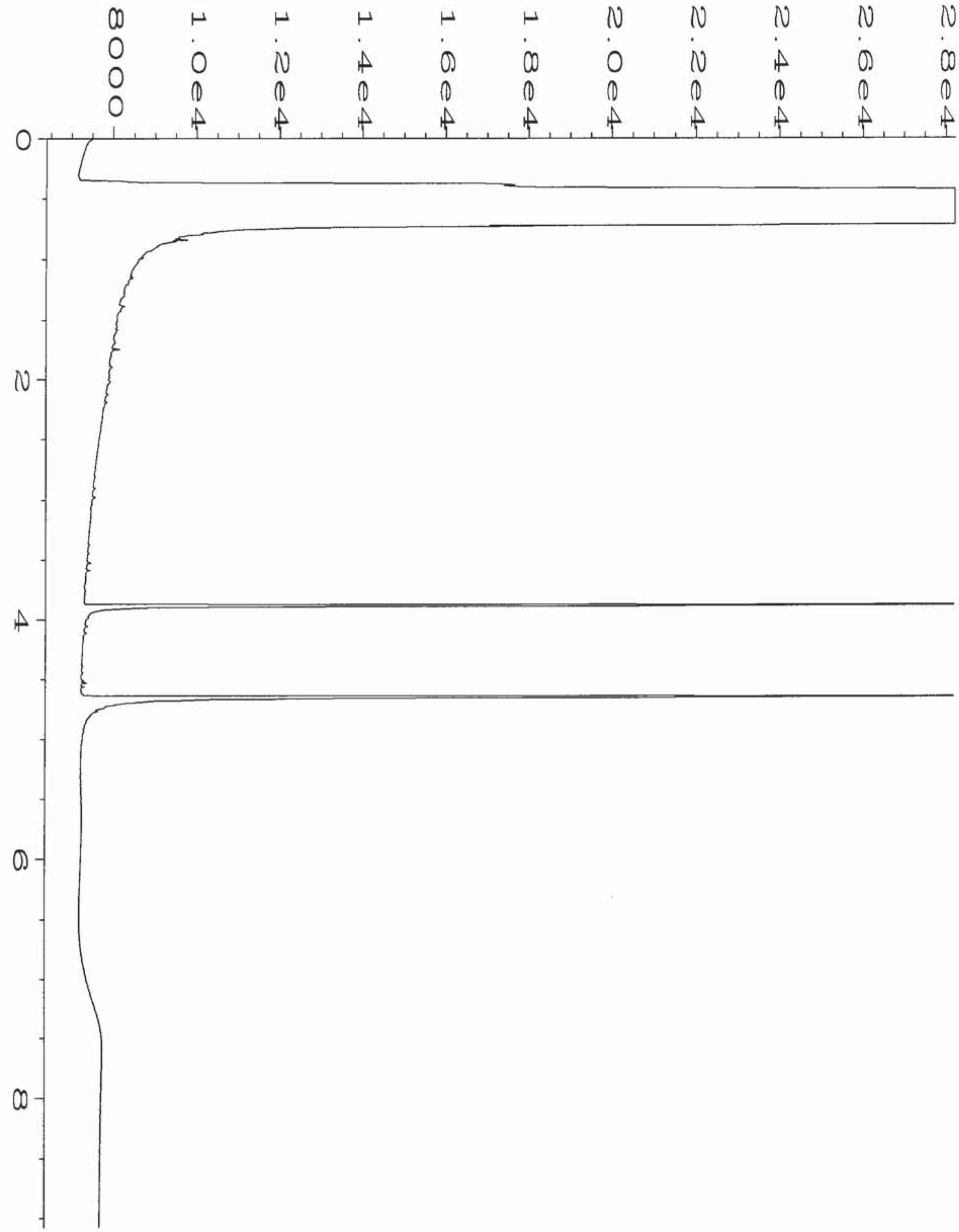


Data File Name : C:\HPCHEM\6\DATA\11-14-12\028F0601.D

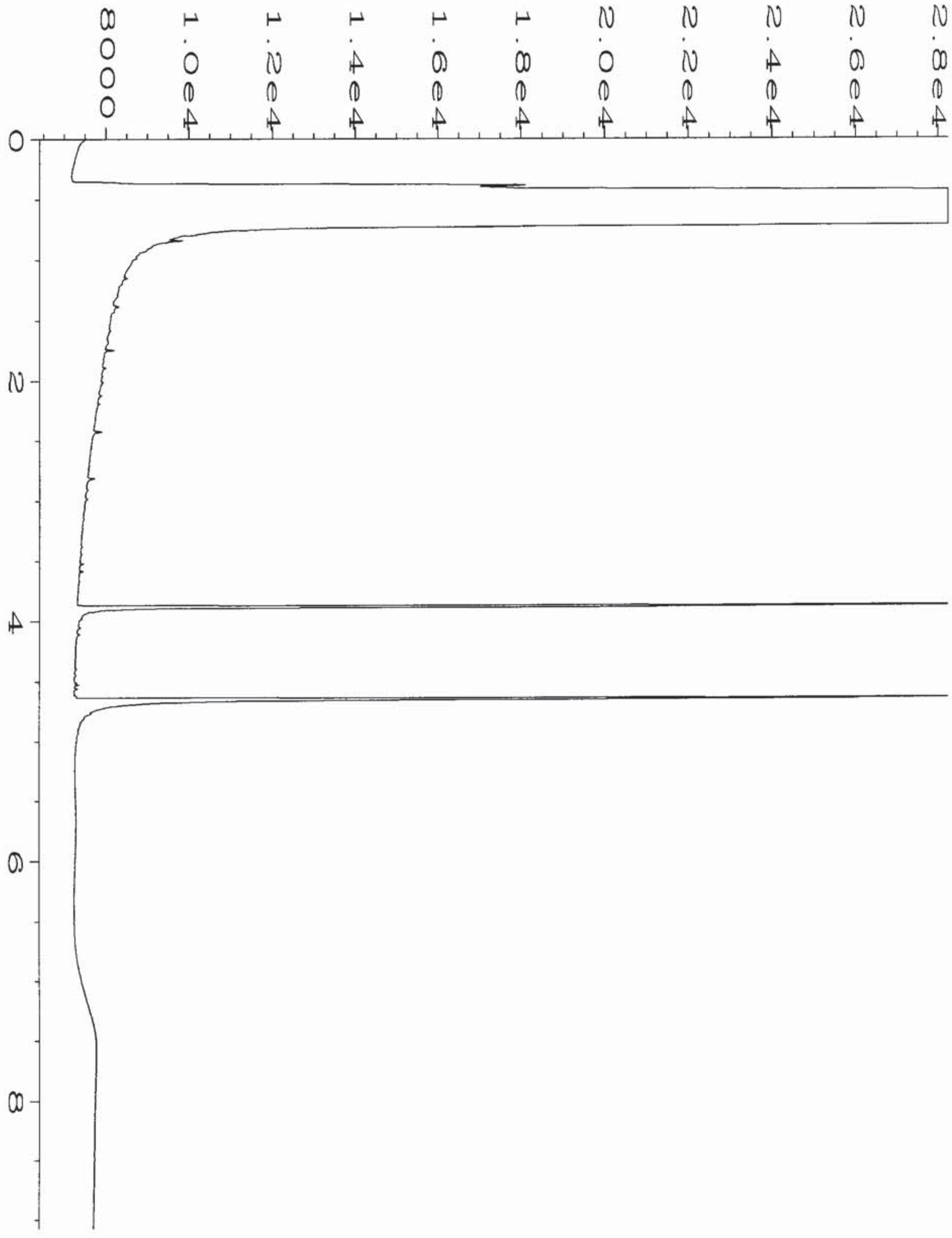
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 28
Sample Name	: 02-2105 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 14 Nov 12 02:17 PM	Instrument Method:	DX.MTH
Report Created on:	15 Nov 12 09:14 AM	Analysis Method	: DX.MTH



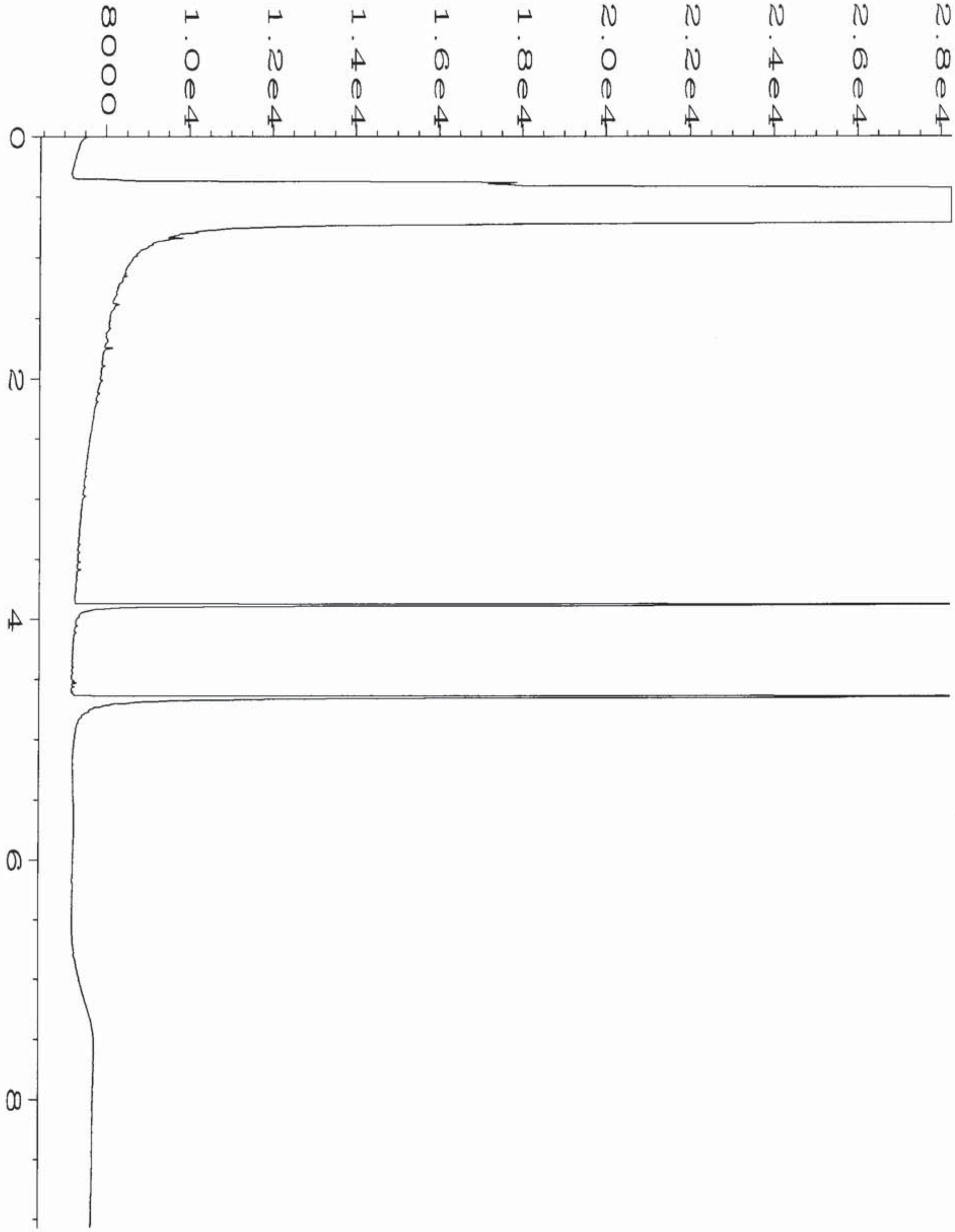
Data File Name	: C:\HPCHEM\6\DATA\11-14-12\041F0901.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 41
Sample Name	: 211071-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 14 Nov 12 05:53 PM	Instrument Method	: DX.MTH
Report Created on:	15 Nov 12 09:14 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\6\DATA\11-14-12\042F0901.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 42
Sample Name	: 211071-03	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 14 Nov 12 06:07 PM	Instrument Method	: DX.MTH
Report Created on	: 15 Nov 12 09:14 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\6\DATA\11-14-12\043F0901.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 43
Sample Name	: 211071-05	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 14 Nov 12 06:20 PM	Instrument Method:	DX.MTH
Report Created on:	15 Nov 12 09:14 AM	Analysis Method	: DX.MTH

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Data File Name    : C:\HPCHEM\6\DATA\11-14-12\044F0901.D
Operator          : mwdl                               Page Number       : 1
Instrument        : GC #6                              Vial Number       : 44
Sample Name       : 211071-12                          Injection Number  : 1
Run Time Bar Code:                                     Sequence Line     : 9
Acquired on       : 14 Nov 12  06:33 PM                Instrument Method: DX.MTH
Report Created on: 15 Nov 12  09:14 AM                 Analysis Method  : DX.MTH
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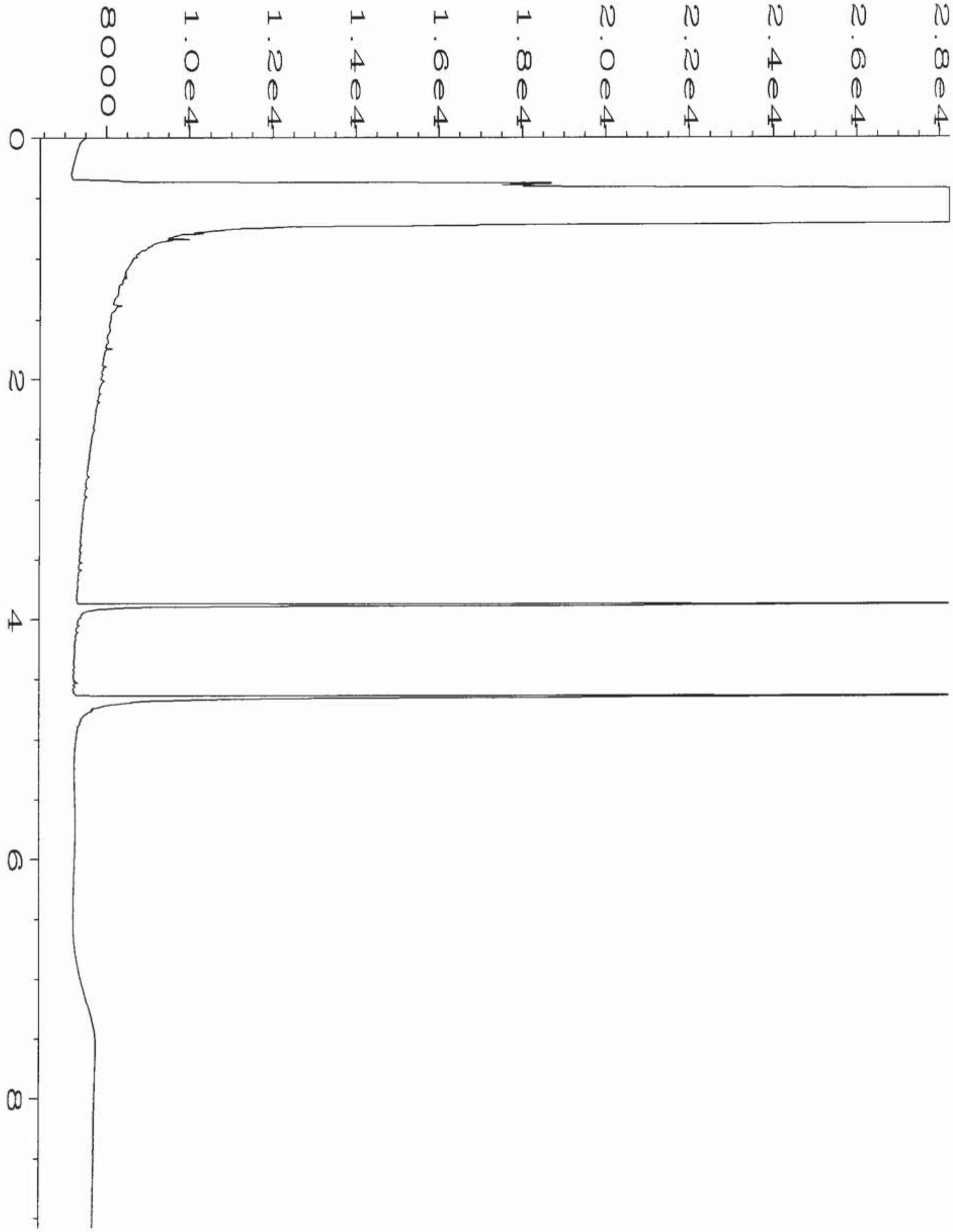


Data File Name	: C:\HPCHEM\6\DATA\11-14-12\045F0901.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 45
Sample Name	: 211071-18	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 14 Nov 12 06:47 PM	Instrument Method:	DX.MTH
Report Created on:	15 Nov 12 09:14 AM	Analysis Method	: DX.MTH

211071

SAMPLE CHAIN OF CUSTODY

ME 11-5-12

VS3/CT3

Page # 1 of 2

Send Report To Rob Roberts

Company SES

Address 2811 Fairview Ave E Suite 2000

City, State, ZIP Seattle WA 98102

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

SAMPLERS (signature)

PROJECT NAME/NO. 0914

PO #

REMARKS

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	SVOCs by 8270	RCRA-8 Metals			X-per RR 11/5/12 ME Notes ★-per RR 11/13/12 MG
MW104-20	MW104	20	01 A-E	11-5-12	0810	Soil	5	★	★	★						~~Held~~
MW104-23		23	02		0820	Soil	5		X	X						
MW104-25		25	03		0825	Soil	5	★	X	X						
MW104-28		28	04		0830	Soil	5		X	X						
MW104-30		30	05		0840	Soil	5	★	X	X						
MW104-33		33	06		0845	Soil	5		X	X						
MW104-35		35	07		0855	Soil	5									
SB201-15	SB201	15	08		1040	Soil	5									
SB201-20		20	09		1045	Soil	5		X	X						
SB201-23		23	10		1055	Soil	5		X	X						
SB201-25		25	11		1100	Soil	5		X	X						
SB201-30		30	12		1110	Soil	5	★	X	X						
SB201-33		33	13		1115	Soil	5		X	X						

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:	Ethan Marks	SES	11-5-12	1200
Received by:	Edwards	Postal Y	11-5-12	1200
Relinquished by:				
Received by:	Nhan Phan	FEBI	11/5/12	1320

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 5 °C

211071

SAMPLE CHAIN OF CUSTODY

ME 11-5-12

VS3/2 of 3

Page # 2 of

Send Report To

Company See Page 1

Address

City, State, ZIP

Phone # Fax #

SAMPLERS (signature)

PROJECT NAME/NO. 0914

PO #

REMARKS

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	VOCs by 8260	SVOCs by 8270	RCRA-8 Metals			Notes
SB202-20	SB202	20	14 A-E	11-3-12	1235	Soil	5		X	X						Hold
SB202-23	SB202	23	15		1245	Soil	5									
SB202-25	SB202	25	16		1250	Soil	5		X	X						
SB202-28	SB202	28	17		1255	Soil	5		X	X						
SB202-30	SB202	30	18		1300	Soil	5	X	X	X						
SB202-35	SB202	35	19		1315	Soil	5		X	X						
SB201-28			20	11-3-12	1105	soil	5									NW 11-05-12 Added at lab
SB-201-35			21	11-3-12	1120	soil	5									
SB 202-33			22		1305		5									

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:		Ethan Marks	SES	11-5-12	1200
Received by:		Edward. S	Postal Y	11-5-12	1200
Relinquished by:					
Received by:		Nhan Phan	FeBI	11/5/12	1320

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 5 °C

Friedman & Bruya, Inc. #211123

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

November 16, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on November 7, 2012 from the SOU_0914-001_20121107, F&BI 211123 project. There are 17 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
SOU1116R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 7, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001_20121107, F&BI 211123 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
211123-01	MW102-20121107
211123-02	MW103-20121107
211123-03	MW104-20121107
211123-04	MW99-20121107

All quality control requirements were acceptable.

Date of Report: 11/16/12
Date Received: 11/07/12
Project: SOU_0914-001_20121107, F&BI 211123
Date Extracted: 11/09/12
Date Analyzed: 11/09/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW102-20121107 211123-01	<100	104
MW103-20121107 211123-02	<100	103
MW104-20121107 211123-03	6,100	114
MW99-20121107 211123-04	5,800	112
Method Blank 02-2080 MB	<100	110

Date of Report: 11/16/12
Date Received: 11/07/12
Project: SOU_0914-001_20121107, F&BI 211123
Date Extracted: 11/08/12
Date Analyzed: 11/09/12

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 51-134)
MW102-20121107 211123-01	100	<250	109
MW103-20121107 211123-02	130	<250	105
MW104-20121107 211123-03	4,000	<250	93
MW99-20121107 211123-04	4,600	260 x	106
Method Blank 02-2071 MB	<50	<250	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW102-20121107	Client:	SoundEarth Strategies
Date Received:	11/07/12	Project:	SOU_0914-001, F&BI 211123
Date Extracted:	11/12/12	Lab ID:	211123-01
Date Analyzed:	11/12/12	Data File:	111227.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	113	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW103-20121107	Client:	SoundEarth Strategies
Date Received:	11/07/12	Project:	SOU_0914-001, F&BI 211123
Date Extracted:	11/12/12	Lab ID:	211123-02
Date Analyzed:	11/12/12	Data File:	111226.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	57	121
Toluene-d8	104	63	127
4-Bromofluorobenzene	113	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW104-20121107	Client:	SoundEarth Strategies
Date Received:	11/07/12	Project:	SOU_0914-001, F&BI 211123
Date Extracted:	11/08/12	Lab ID:	211123-03
Date Analyzed:	11/09/12	Data File:	110910.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	106	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	1,800 ve
Toluene	10
Ethylbenzene	190 ve
m,p-Xylene	530 ve
o-Xylene	38

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW104-20121107	Client:	SoundEarth Strategies
Date Received:	11/07/12	Project:	SOU_0914-001, F&BI 211123
Date Extracted:	11/12/12	Lab ID:	211123-03 1/100
Date Analyzed:	11/12/12	Data File:	111228.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	57	121
Toluene-d8	104	63	127
4-Bromofluorobenzene	110	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<100
1,2-Dichloroethane (EDC)	<100
1,2-Dibromoethane (EDB)	<100
Benzene	2,100
Toluene	<100
Ethylbenzene	120
m,p-Xylene	380
o-Xylene	<100

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW99-20121107	Client:	SoundEarth Strategies
Date Received:	11/07/12	Project:	SOU_0914-001, F&BI 211123
Date Extracted:	11/08/12	Lab ID:	211123-04
Date Analyzed:	11/09/12	Data File:	110927.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	104	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	1,600 ve
Toluene	9.7
Ethylbenzene	110
m,p-Xylene	490 ve
o-Xylene	38

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW99-20121107	Client:	SoundEarth Strategies
Date Received:	11/07/12	Project:	SOU_0914-001, F&BI 211123
Date Extracted:	11/12/12	Lab ID:	211123-04 1/100
Date Analyzed:	11/12/12	Data File:	111229.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	108	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<100
1,2-Dichloroethane (EDC)	<100
1,2-Dibromoethane (EDB)	<100
Benzene	2,200
Toluene	<100
Ethylbenzene	170
m,p-Xylene	440
o-Xylene	<100

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0914-001, F&BI 211123
Date Extracted:	11/12/12	Lab ID:	02-2027 mb
Date Analyzed:	11/12/12	Data File:	111225.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	111	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0914-001, F&BI 211123
Date Extracted:	11/08/12	Lab ID:	02-2021 mb
Date Analyzed:	11/08/12	Data File:	110826.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	112	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
1,2-Dibromoethane (EDB)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

Date of Report: 11/16/12
Date Received: 11/07/12
Project: SOU_0914-001_20121107, F&BI 211123

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 211116-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	98	69-134

Date of Report: 11/16/12
Date Received: 11/07/12
Project: SOU_0914-001_20121107, F&BI 211123

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	100	105	58-134	5

Date of Report: 11/16/12
Date Received: 11/07/12
Project: SOU_0914-001_20121107, F&BI 211123

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 211072-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	103	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	99	69-133
Benzene	ug/L (ppb)	50	<0.35	104	76-125
Toluene	ug/L (ppb)	50	10	102	76-122
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	104	69-134
Ethylbenzene	ug/L (ppb)	50	<1	102	69-135
m,p-Xylene	ug/L (ppb)	100	<2	108	69-135
o-Xylene	ug/L (ppb)	50	<1	110	68-137

Date of Report: 11/16/12
Date Received: 11/07/12
Project: SOU_0914-001_20121107, F&BI 211123

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	103	109	64-147	6
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	97	106	73-132	9
Benzene	ug/L (ppb)	50	101	110	69-134	9
Toluene	ug/L (ppb)	50	99	108	72-122	9
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	99	109	82-125	10
Ethylbenzene	ug/L (ppb)	50	99	109	77-124	10
m,p-Xylene	ug/L (ppb)	100	104	116	83-125	11
o-Xylene	ug/L (ppb)	50	106	116	86-121	9

Date of Report: 11/16/12
Date Received: 11/07/12
Project: SOU_0914-001_20121107, F&BI 211123

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	100	101	64-147	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	97	98	73-132	1
Benzene	ug/L (ppb)	50	104	105	69-134	1
Toluene	ug/L (ppb)	50	99	101	72-122	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	103	104	82-125	1
Ethylbenzene	ug/L (ppb)	50	99	100	77-124	1
m,p-Xylene	ug/L (ppb)	100	106	107	83-125	1
o-Xylene	ug/L (ppb)	50	109	110	86-121	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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recover y fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

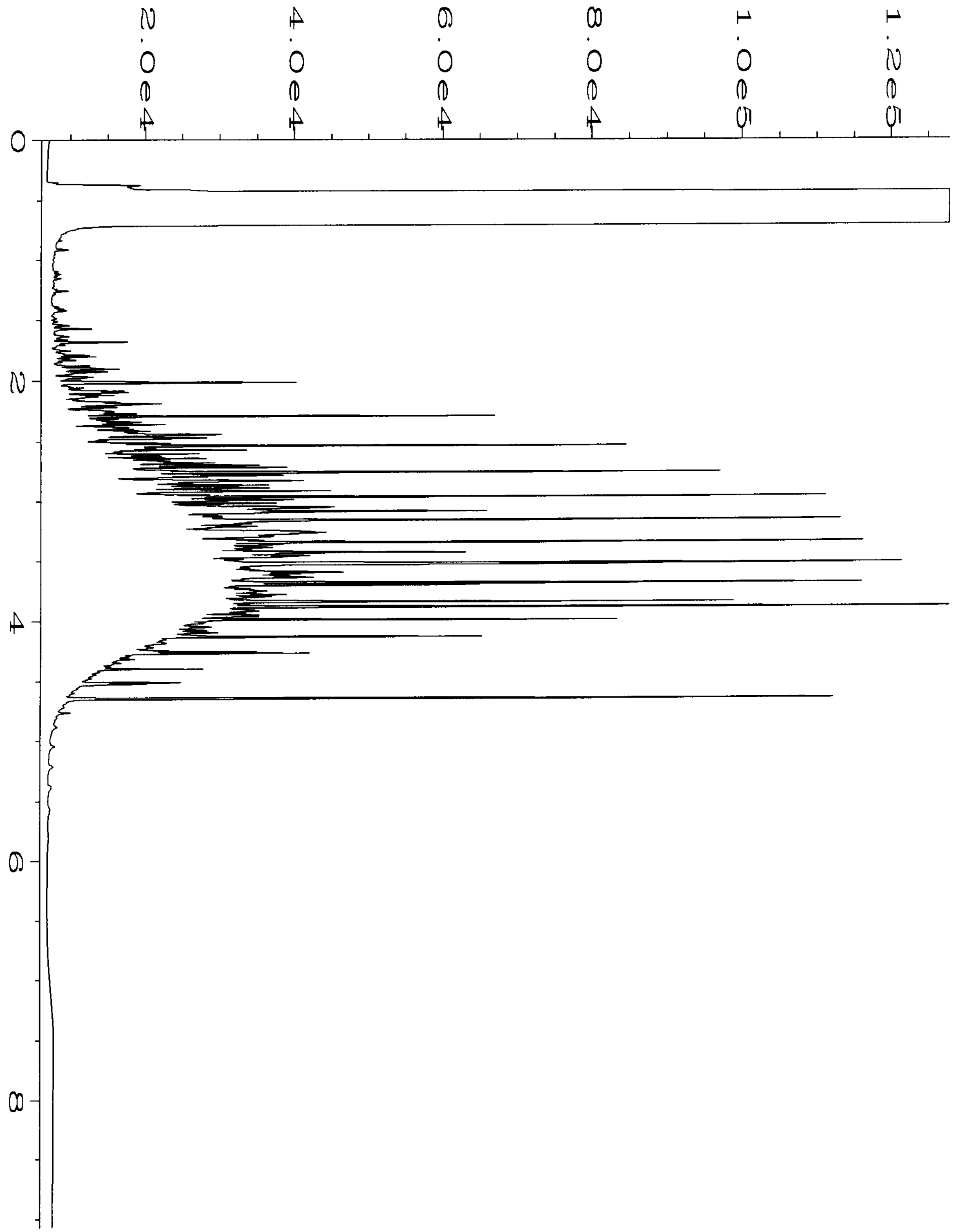
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

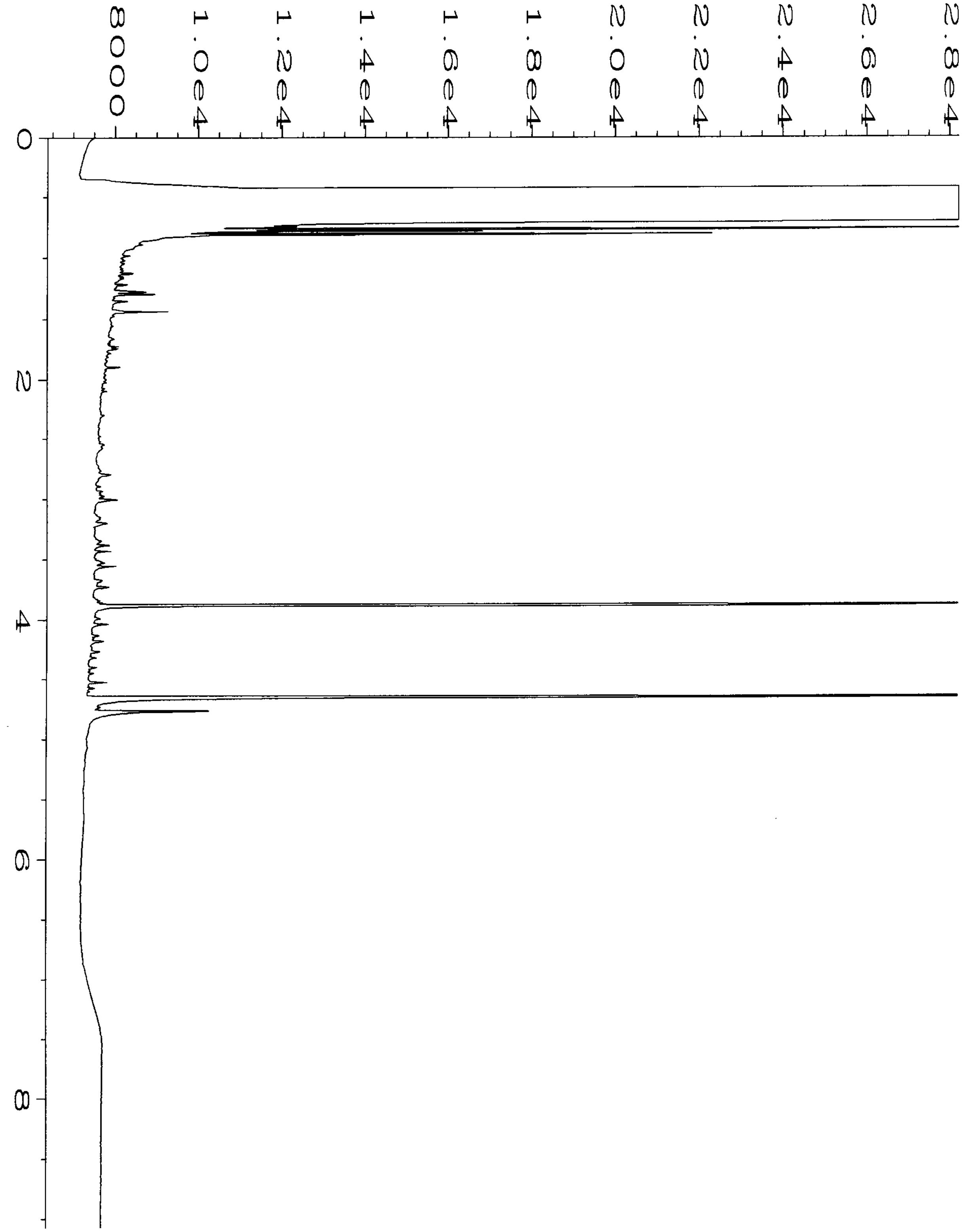
ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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\6\DATA\11-09-12\003F0201.D			
Operator	: mwdl	Page Number	:	1
Instrument	: GC #6	Vial Number	:	3
Sample Name	: 500 Dx 39-14C	Injection Number	:	1
Run Time Bar Code:		Sequence Line	:	2
Acquired on	: 09 Nov 12 08:50 AM	Instrument Method:		DX.MTH
Report Created on:	12 Nov 12 09:50 AM	Analysis Method	:	BAKEOUT.MTH



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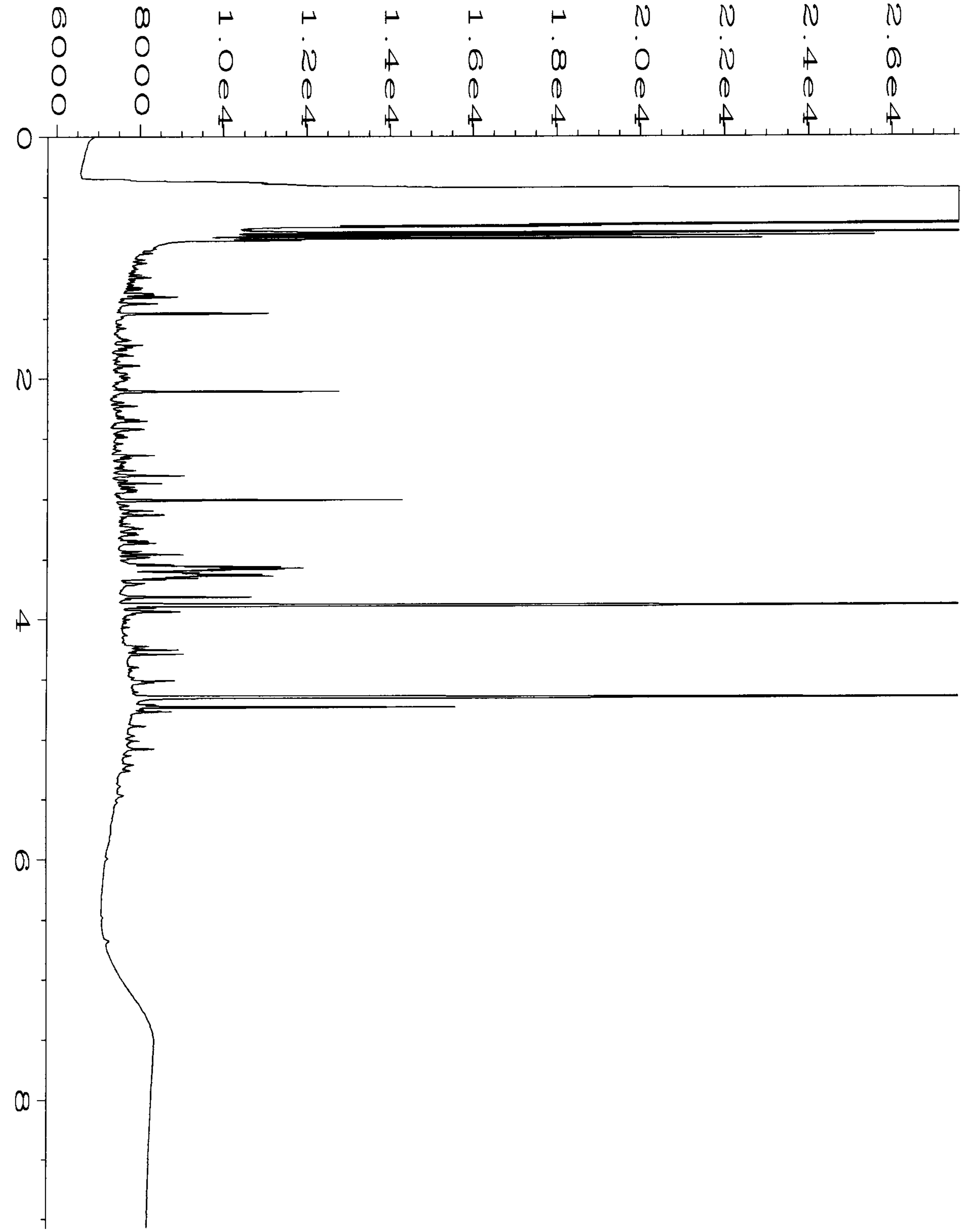
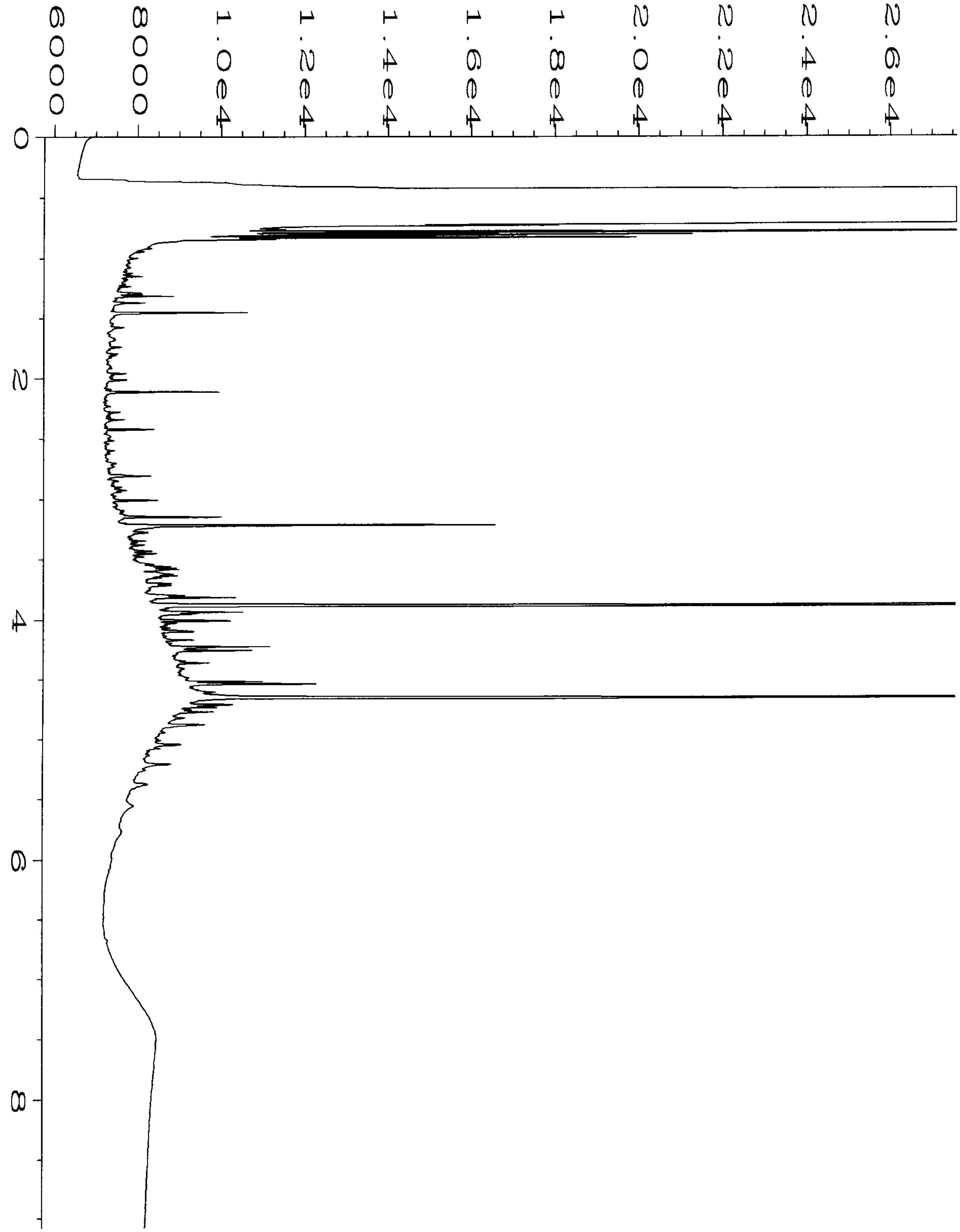
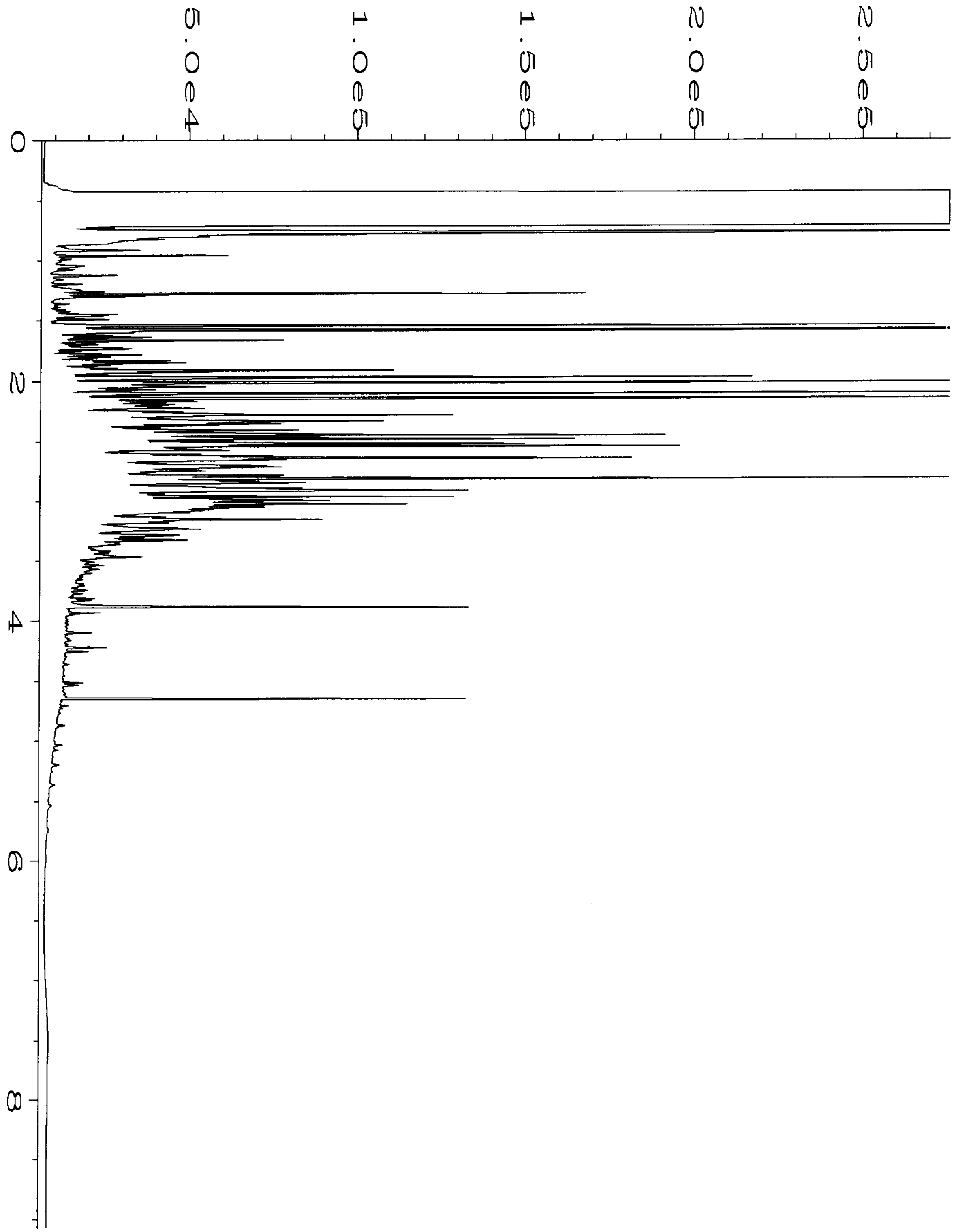
Operator	: mwdl	Page Number	:	1
Instrument	: GC #6	Vial Number	:	20
Sample Name	: 02-2071 mb	Injection Number	:	1
Run Time Bar Code:		Sequence Line	:	3
Acquired on	: 08 Nov 12 01:57 PM	Instrument Method:		DX.MTH
Report Created on:	12 Nov 12 09:50 AM	Analysis Method	:	BAKEOUT.MTH



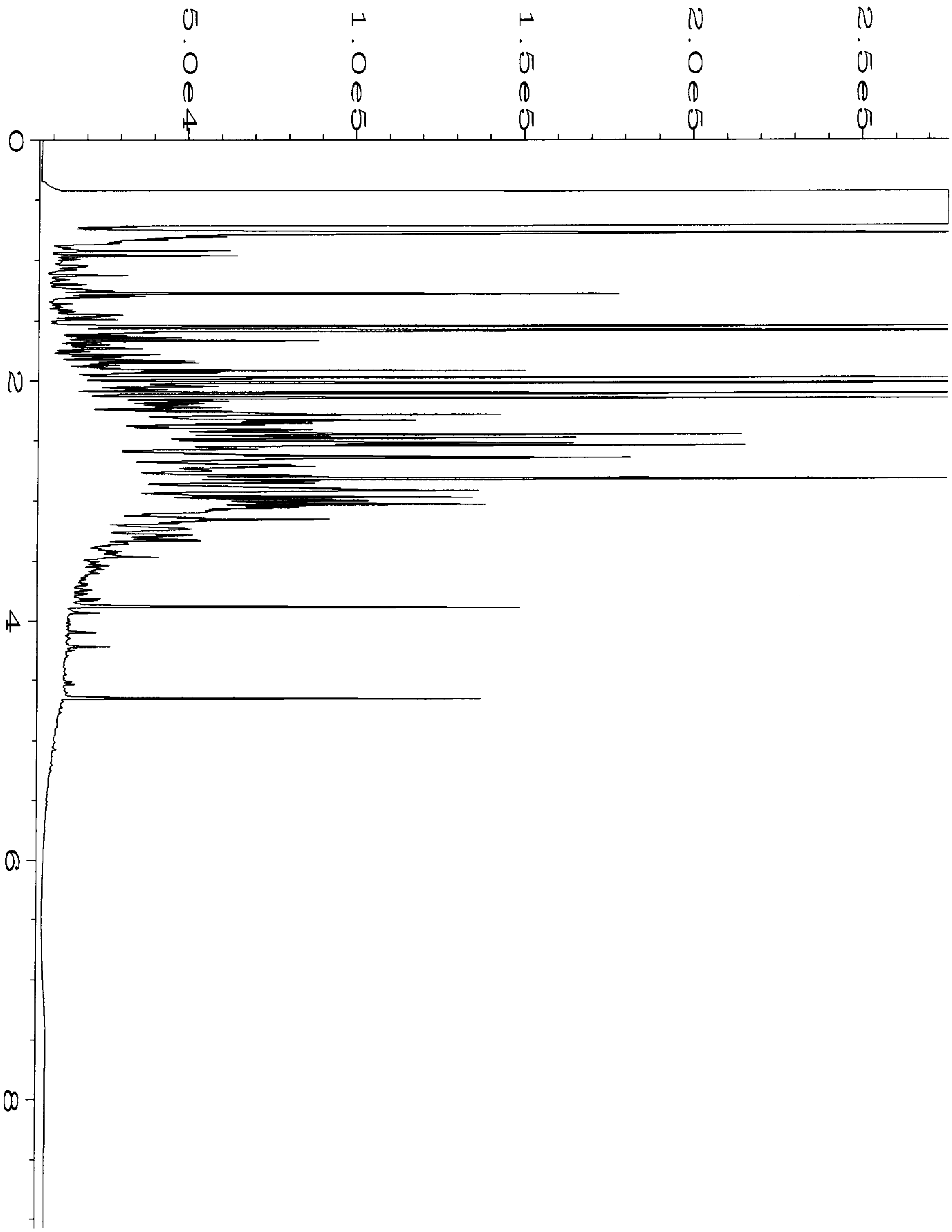
Data File Name	: C:\HPCHEM\6\DATA\11-09-12\023F0701.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 23
Sample Name	: 211123-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 09 Nov 12 02:25 PM	Instrument Method:	DX.MTH
Report Created on:	12 Nov 12 09:51 AM	Analysis Method	: BAKEOUT.MTH



Data File Name	: C:\HPCHEM\6\DATA\11-09-12\024F0701.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 24
Sample Name	: 211123-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 09 Nov 12 02:38 PM	Instrument Method:	DX.MTH
Report Created on:	12 Nov 12 09:51 AM	Analysis Method	: BAKEOUT.MTH



Data File Name	: C:\HPCHEM\6\DATA\11-09-12\025F0701.D			
Operator	: mwdl		Page Number	: 1
Instrument	: GC #6		Vial Number	: 25
Sample Name	: 211123-03		Injection Number	: 1
Run Time Bar Code:			Sequence Line	: 7
Acquired on	: 09 Nov 12	02:52 PM	Instrument Method:	DX.MTH
Report Created on:	12 Nov 12	09:51 AM	Analysis Method	: BAKEOUT.MTH



Data File Name : C:\HPCHEM\6\DATA\11-09-12\026F0701.D
Operator : mwdl
Instrument : GC #6
Sample Name : 211123-04
Run Time Bar Code:
Acquired on : 09 Nov 12 03:05 PM
Report Created on: 12 Nov 12 09:51 AM

Page Number : 1
Vial Number : 26
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH

211123

SAMPLE CHAIN OF CUSTODY ME 11-7-12

V2/B03

Send Report To: Rob Roberts

Company: Sound Earth Strategies

Address: 2811 Fairview Ave E.

City, State, ZIP: Seattle, WA 98112

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

SAMPLERS (signature):

PROJECT NAME/NO.: SES Shell 0914-001

PO #:

REMARKS:

GEMS Y / N

Page # 1 of 1

TURNAROUND TIME
- [x] Standard (2 Weeks)
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [x] 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			Notes
MW102-20121107	MW102	28	01A-E	11/07/2012	1008	H_2O	5	X	X		X					VOCs = BTEX, MTBE,
MW103-20121107	MW103	30	02		1150			X	X		X					EDB, EDC
MW104-20121107	MW104	27	03		1347			X	X		X					
MW99-20121107	MW99	27	04		1450			X	X		X					per RR 11/8/12

TJZ

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Travis Zandi	Sound Earth	11/7/2012	1550
Received by:		Nhan Phan	FeBI	11/7/12	
Relinquished by:					
Received by:			Samples received at 2 °C		

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

Friedman & Bruya, Inc. #211123 additional

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

November 28, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the additional results from the testing of material submitted on November 7, 2012 from the SOU_0914-001_20121107, F&BI 211123 project. There are 4 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
SOU1128R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 7, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001_20121107, F&BI 211123 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
211123-01	MW102-20121107
211123-02	MW103-20121107
211123-03	MW104-20121107
211123-04	MW99-20121107

All quality control requirements were acceptable.

Date of Report: 11/28/12
Date Received: 11/07/12
Project: SOU_0914-001_20121107, F&BI 211123
Date Extracted: 11/08/12
Date Analyzed: 11/20/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
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 51-134)
MW102-20121107 211123-01	<50	<250	81
MW103-20121107 211123-02	<50	<250	90
Method Blank 02-2071 MB	<50	<250	79

Date of Report: 11/28/12
Date Received: 11/07/12
Project: SOU_0914-001_20121107, F&BI 211123

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 Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	110	61-133	6

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

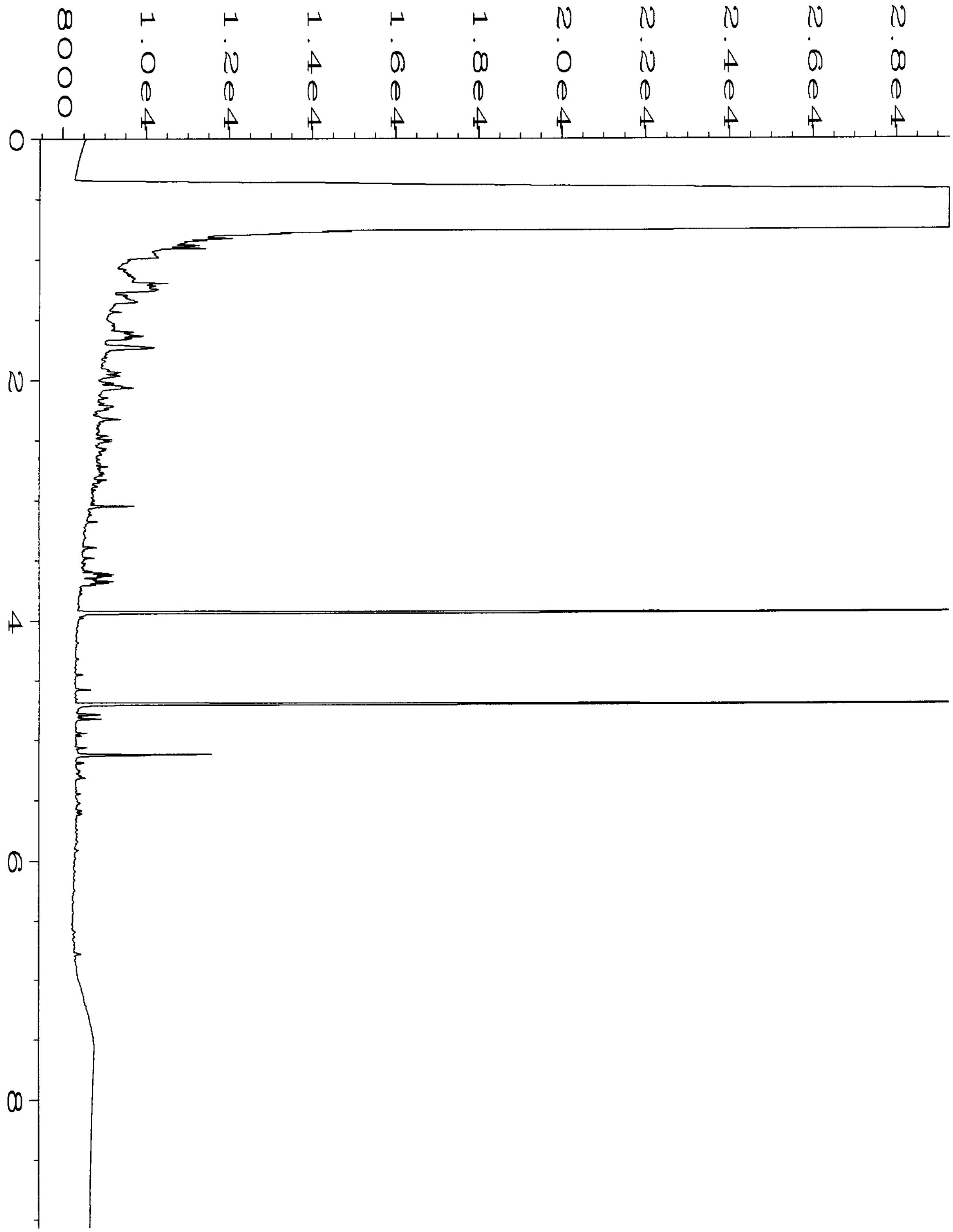
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

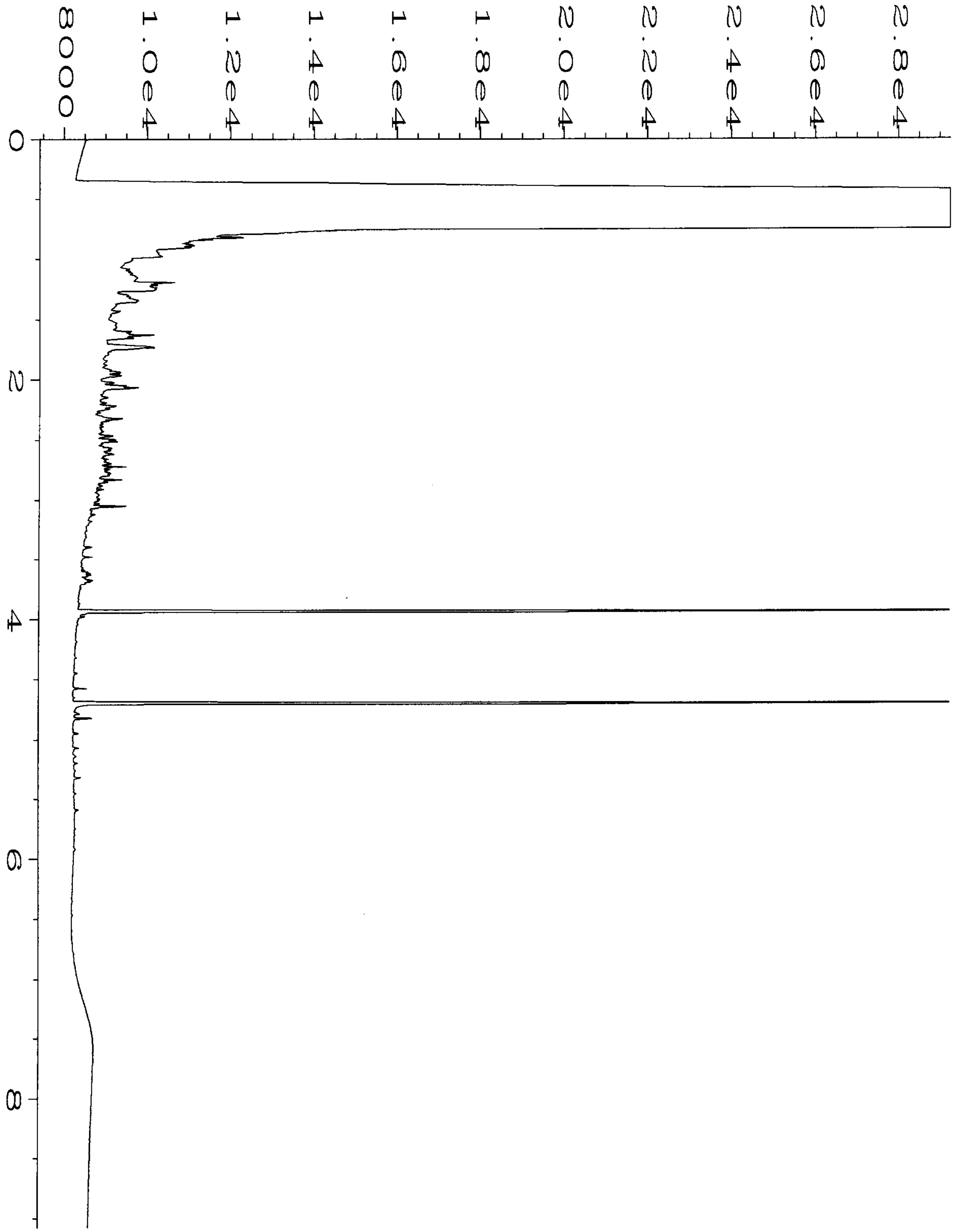
vo - The value reported fell outside the control limits established for this analyte.

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

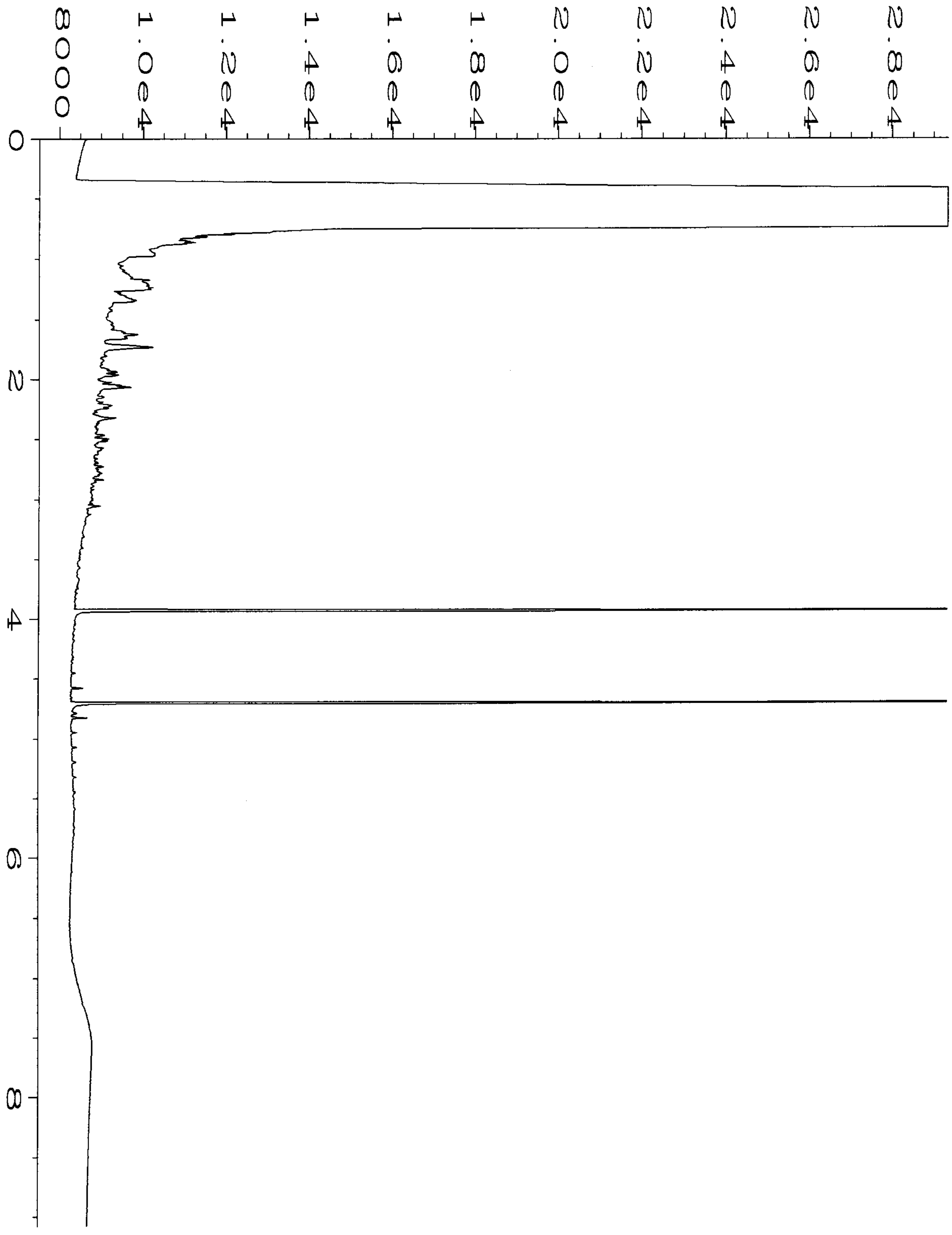


Data File Name : C:\HPCHEM\6\DATA\11-20-12\008F0301.D
Operator : mwdl
Instrument : GC #6
Sample Name : 211123-01 sg
Run Time Bar Code:
Acquired on : 20 Nov 12 09:15 AM
Report Created on: 20 Nov 12 12:44 PM

Page Number : 1
Vial Number : 8
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DX.MTH



Data File Name	: C:\HPCHEM\6\DATA\11-20-12\009F0301.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 9
Sample Name	: 211123-02 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 20 Nov 12 09:28 AM	Instrument Method	: DX.MTH
Report Created on:	20 Nov 12 12:44 PM	Analysis Method	: DX.MTH



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Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 7
Sample Name	: 02-2071 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 20 Nov 12 09:01 AM	Instrument Method:	DX.MTH
Report Created on:	20 Nov 12 12:44 PM	Analysis Method	: DX.MTH

211123

SAMPLE CHAIN OF CUSTODY ME 11-7-12

V2/B03

Send Report To Rob Roberts

Company Sound Earth Strategies

Address 2811 Fairview Ave E.

City, State, ZIP Seattle, WA 98112

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

SAMPLERS (signature)

PROJECT NAME/NO. SKS Shell 0914-001

PO #

REMARKS

GEMS Y / N

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	VOC's by 8260	SVOC's by 8270	RCRA-8 Metals	Dx w/SG		Notes
MW102-20121107	MW102	28	01A-E	11/07/2012	1008	H_2O	5	X	*		X			*		VOCs = BTEX, MTBE,
MW103-20121107	MW103	30	02	↓	1150	↓	↓	X	*		X			*		EDB, EDC
MW104-20121107	MW104	27	03	↓	1347	↓	↓	X	*		X					
MW99-20121107	MW99	27	04	↓	1450	↓	↓	X	*		X					* per RR 11/8/12 ME

TSC

* per RR 11/16/12 ME

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:		Travis Zondi	SoundEarth	11/7/2012	1550
Received by:		Nhan Phan	FEBI	11/7/12	✓
Relinquished by:					
Received by:			Samples received at 2 °C		

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Friedman & Bruya, Inc. #212207

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

December 18, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on December 12, 2012 from the SOU_0914-004_20121212, F&BI 212207 project. There are 6 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
SOU1218R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 12, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-004_20121212, F&BI 212207 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
212207-01	MW106-15
212207-02	MW106-20
212207-03	MW106-25
212207-04	MW106-30
212207-05	MW106-35
212207-06	MW105-20
212207-07	MW105-25
212207-08	MW105-30
212207-09	MW105-35

All quality control requirements were acceptable.

Date of Report: 12/18/12
Date Received: 12/12/12
Project: SOU_0914-004_20121212, F&BI 212207
Date Extracted: 12/13/12
Date Analyzed: 12/13/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 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)
MW105-20 212207-06	<0.02	<0.02	<0.02	<0.06	<2	88
MW105-25 212207-07	<0.02	<0.02	<0.02	<0.06	<2	90
MW105-30 212207-08	<0.02	<0.02	<0.02	<0.06	<2	89
Method Blank 02-2264 MB	<0.02	<0.02	<0.02	<0.06	<2	85

Date of Report: 12/18/12
Date Received: 12/12/12
Project: SOU_0914-004_20121212, F&BI 212207
Date Extracted: 12/13/12
Date Analyzed: 12/13/12

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 53-144)
MW106-15 212207-01	<50	<250	101
MW106-20 212207-02	<50	<250	102
MW106-25 212207-03	<50	<250	101
MW105-20 212207-06	<50	<250	99
MW105-25 212207-07	<50	<250	99
MW105-30 212207-08	<50	<250	85
Method Blank 02-2320 MB	<50	<250	105

Date of Report: 12/18/12
Date Received: 12/12/12
Project: SOU_0914-004_20121212, F&BI 212207

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: 212206-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (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	85	69-120
Toluene	mg/kg (ppm)	0.5	90	70-117
Ethylbenzene	mg/kg (ppm)	0.5	91	65-123
Xylenes	mg/kg (ppm)	1.5	95	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 12/18/12
Date Received: 12/12/12
Project: SOU_0914-004_20121212, F&BI 212207

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 212207-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	102	106	64-133	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	103	58-147

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

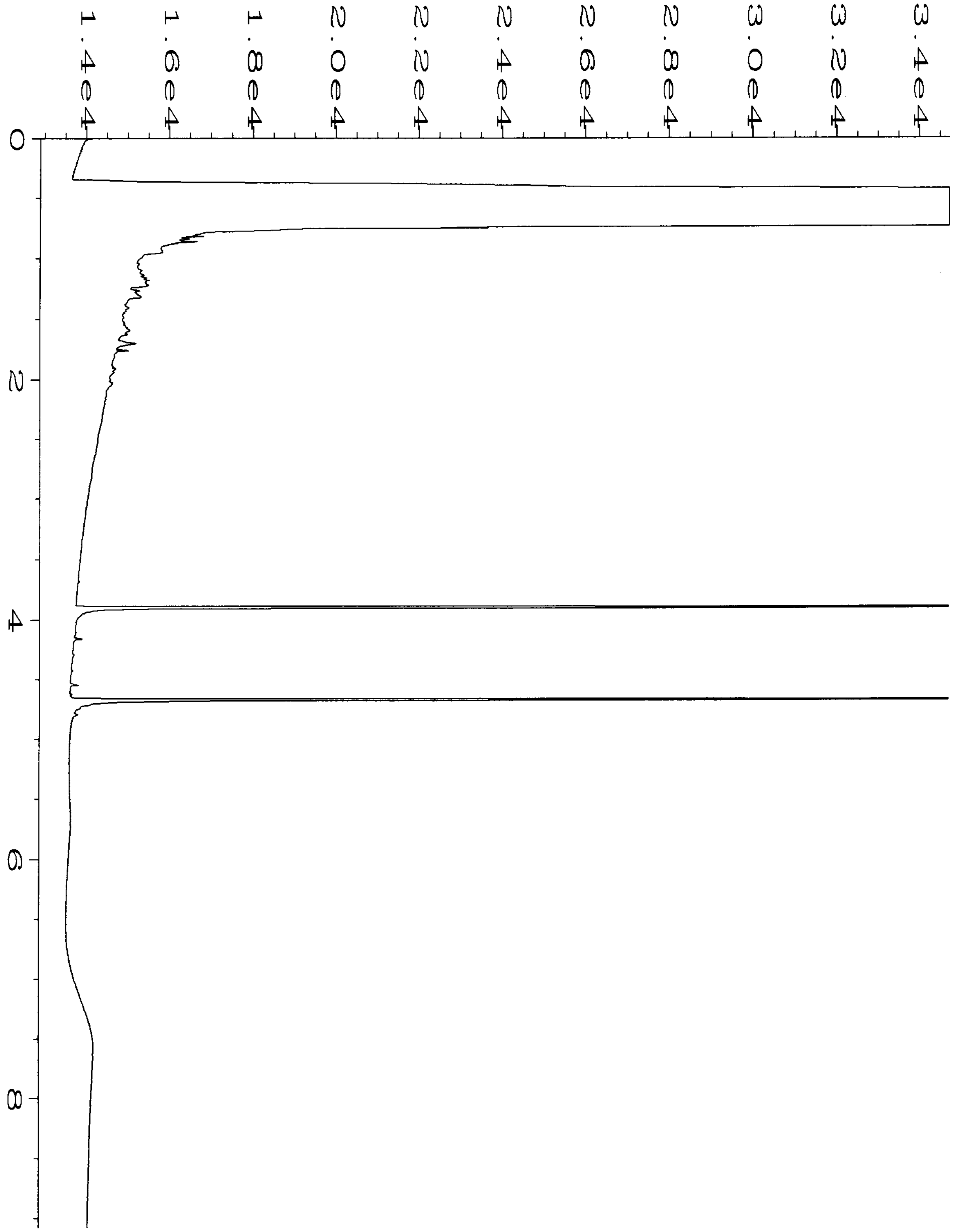
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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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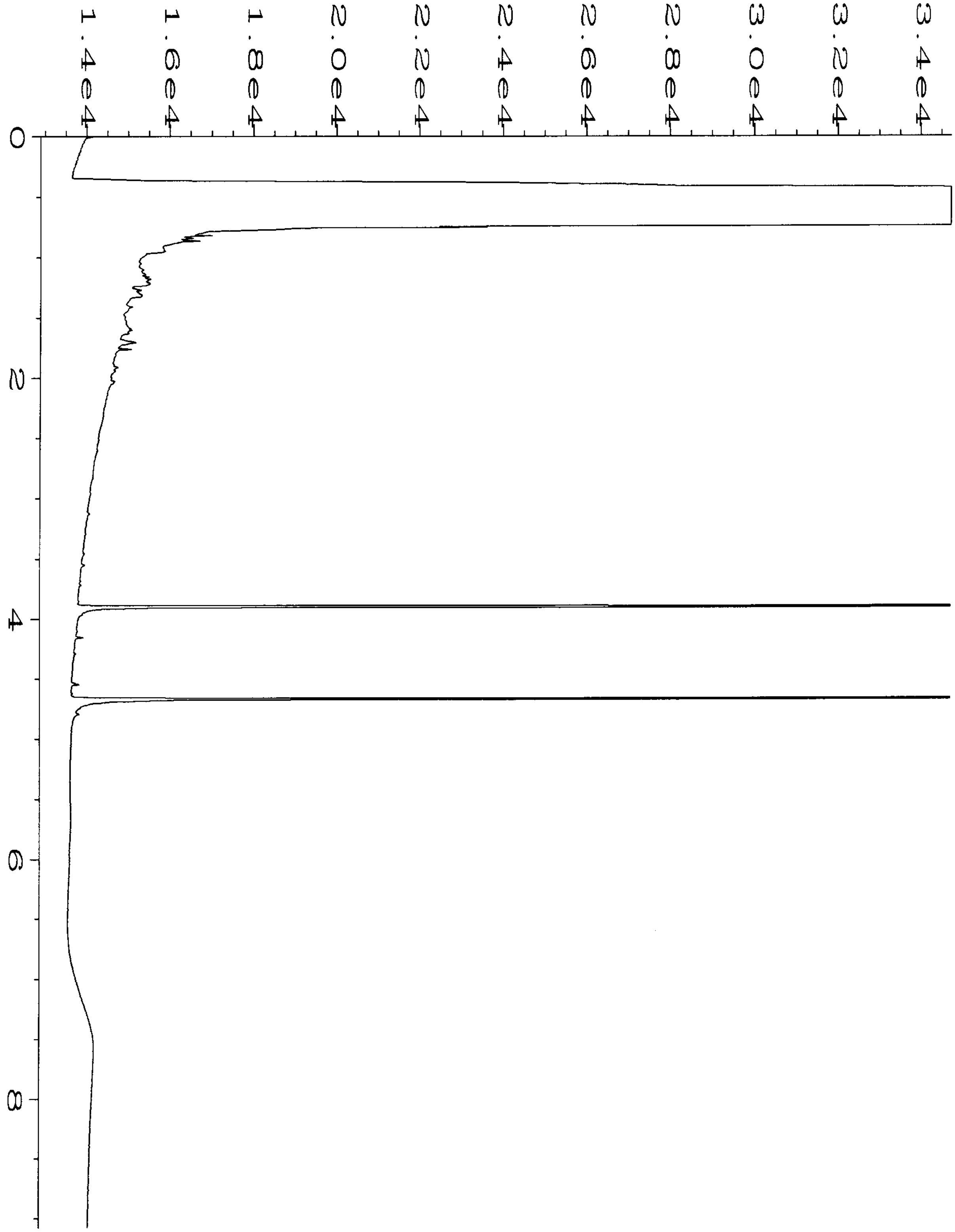
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 33
Sample Name	: 212207-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 13 Dec 12 05:07 PM	Instrument Method:	DX.MTH
Report Created on:	14 Dec 12 09:36 AM	Analysis Method	: DX.MTH



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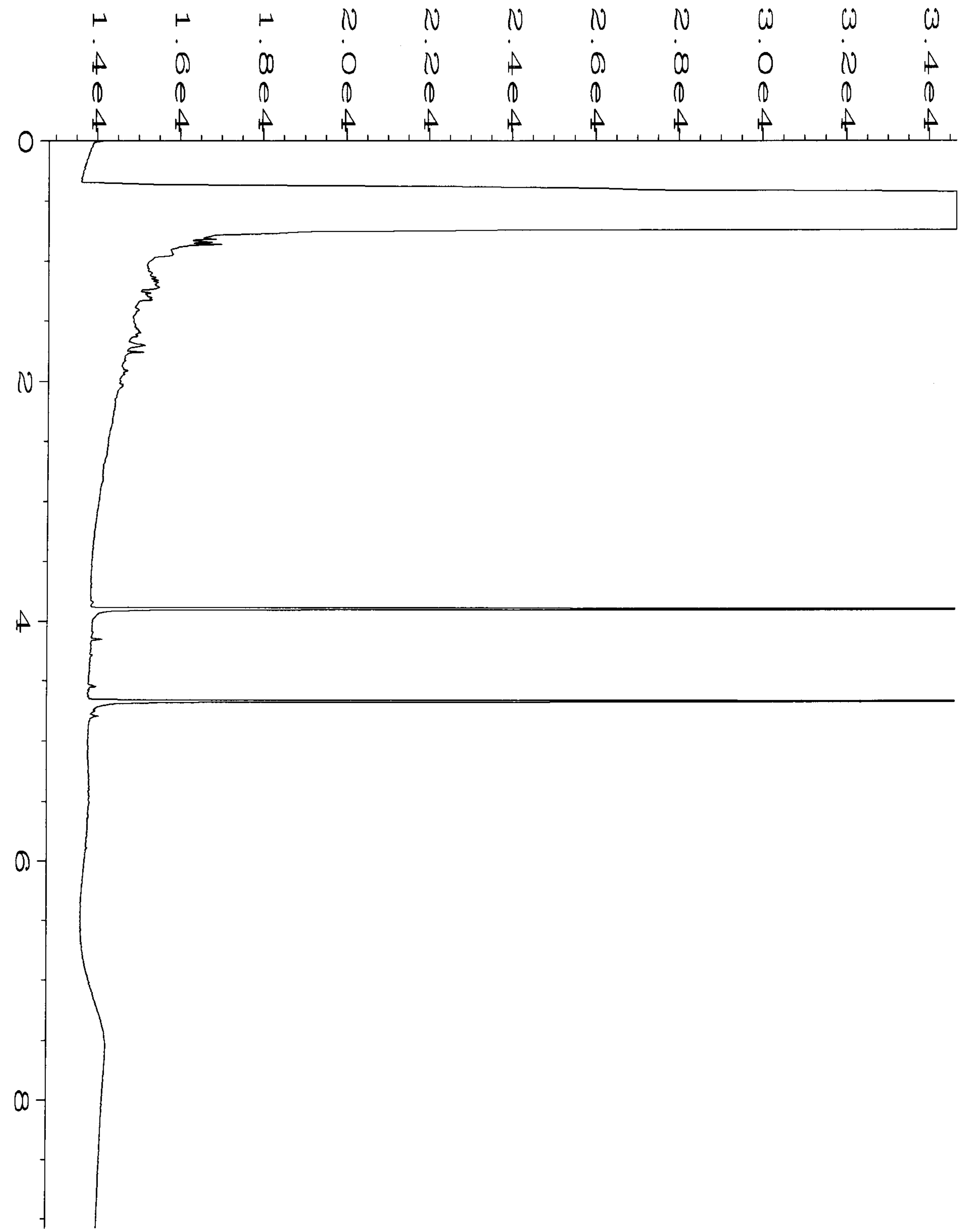
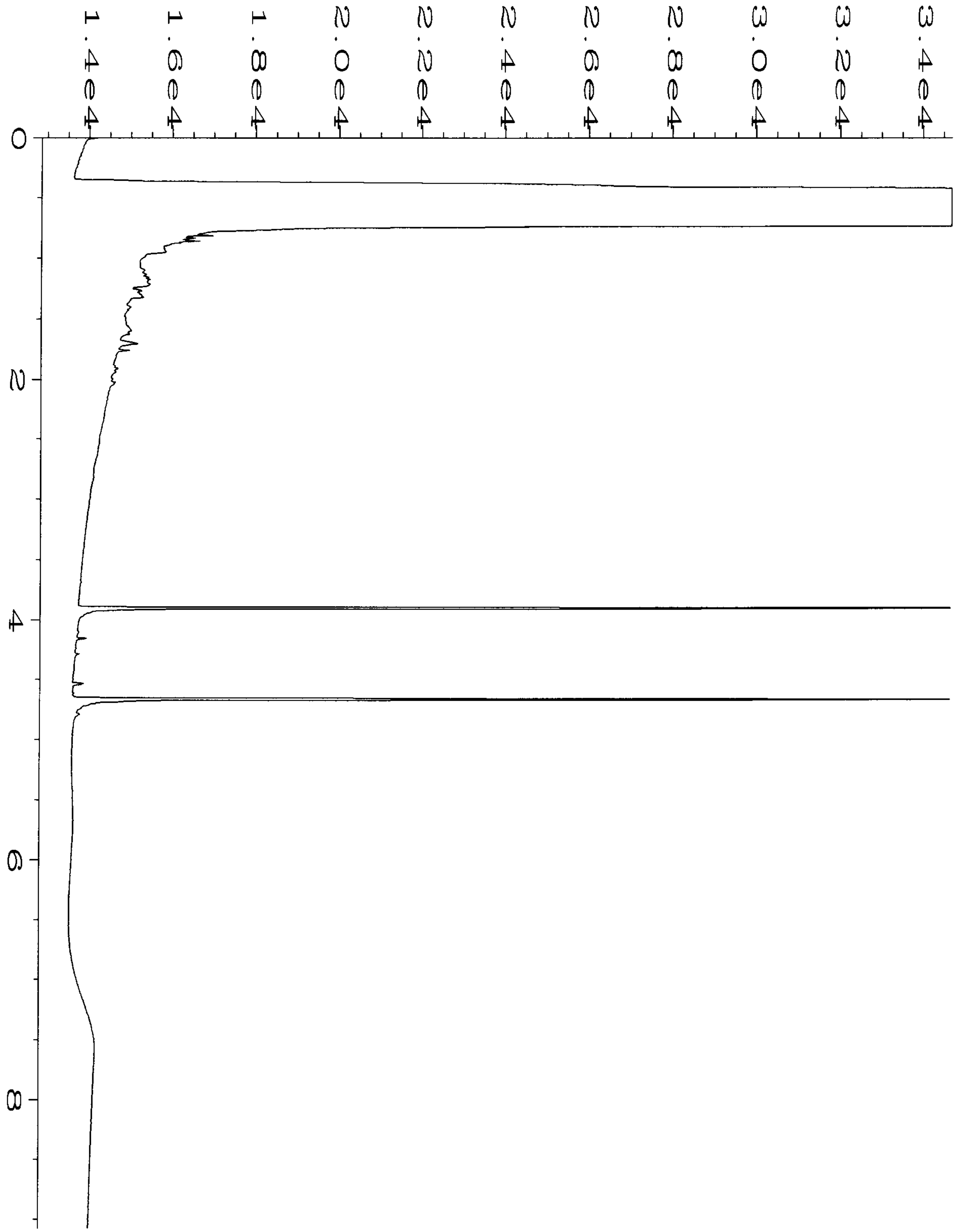
Instrument	: GC #6		Vial Number	: 34
Sample Name	: 212207-02		Injection Number	: 1
Run Time Bar Code:			Sequence Line	: 5
Acquired on	: 13 Dec 12	05:20 PM	Instrument Method:	DX.MTH
Report Created on:	14 Dec 12	09:36 AM	Analysis Method	: DX.MTH

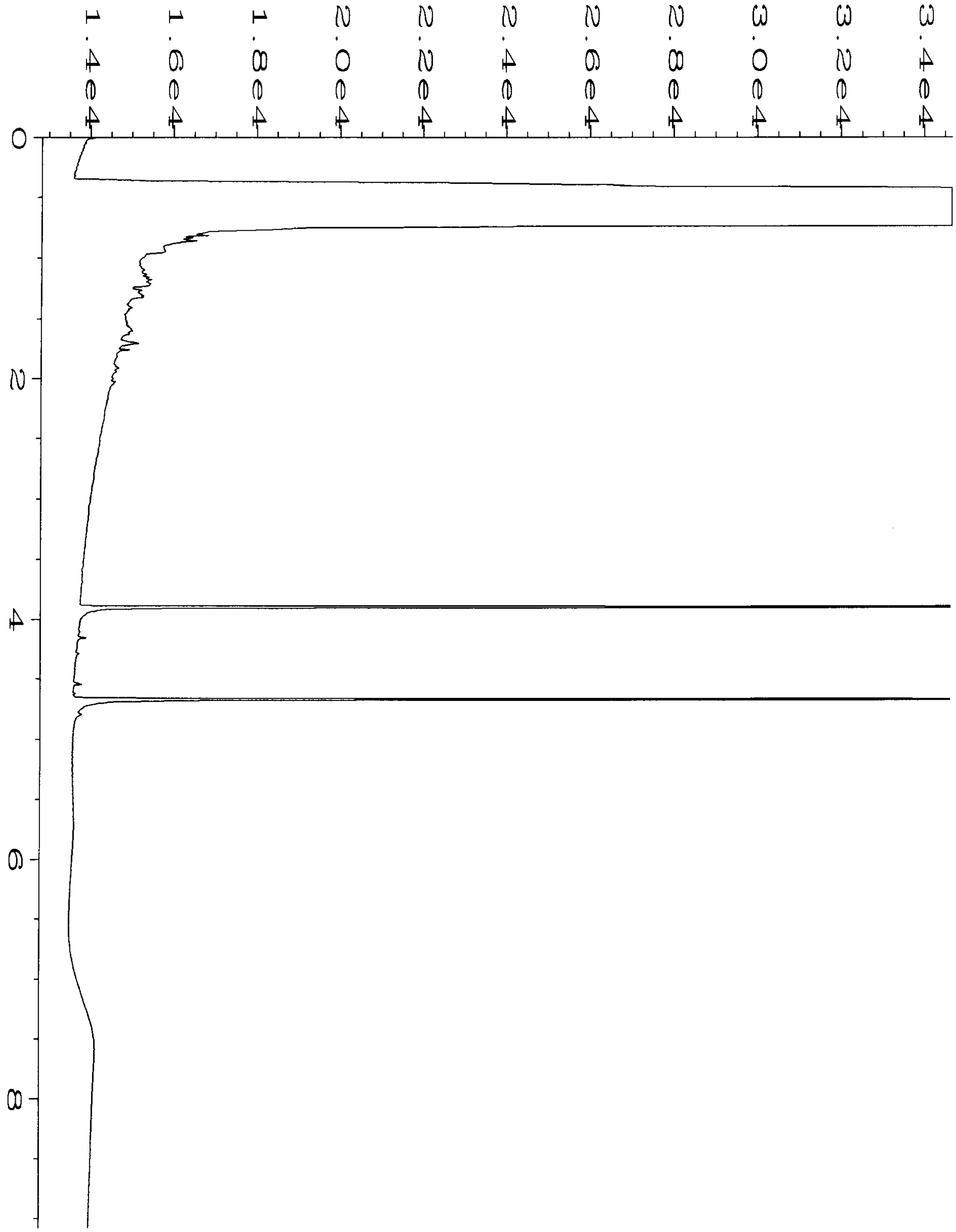


Data File Name	: C:\HPCHEM\6\DATA\12-13-12\035F0501.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 35
Sample Name	: 212207-03	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 13 Dec 12 05:34 PM	Instrument Method:	DX.MTH
Report Created on:	14 Dec 12 09:36 AM	Analysis Method	: DX.MTH

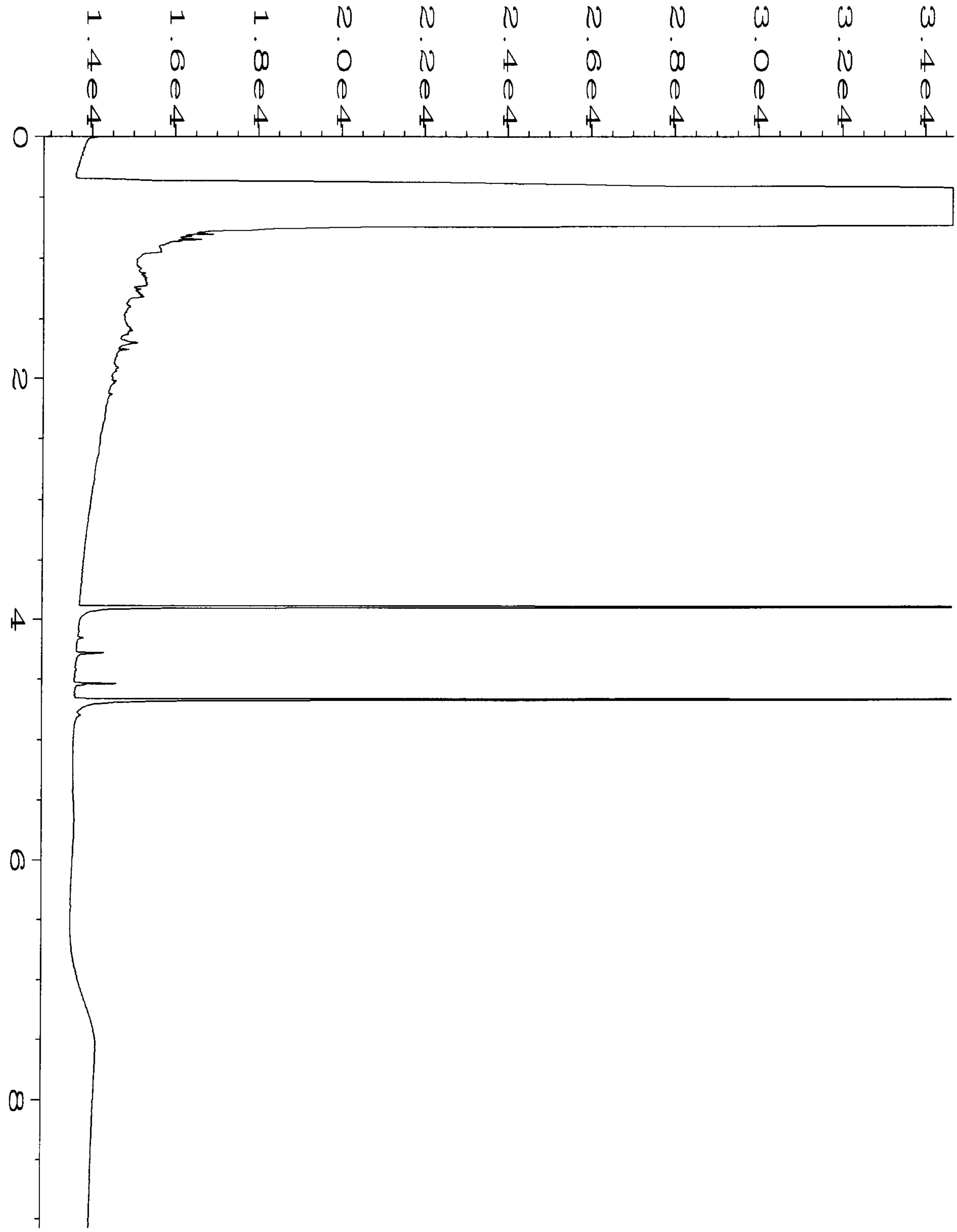


Data File Name   : C:\HPCHEM\6\DATA\12-13-12\036F0501.D
Operator   : mwdl
Instrument   : GC #6
Sample Name   : 212207-06
Run Time Bar Code:
Acquired on   : 13 Dec 12 05:47 PM
Report Created on: 14 Dec 12 09:36 AM

Page Number   : 1
Vial Number   : 36
Injection Number : 1
Sequence Line   : 5
Instrument Method: DX.MTH
Analysis Method   : DX.MTH



Data File Name	: C:\HPCHEM\6\DATA\12-13-12\037F0501.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 37
Sample Name	: 212207-07	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 13 Dec 12 06:01 PM	Instrument Method:	DX.MTH
Report Created on:	14 Dec 12 09:36 AM	Analysis Method	: DX.MTH



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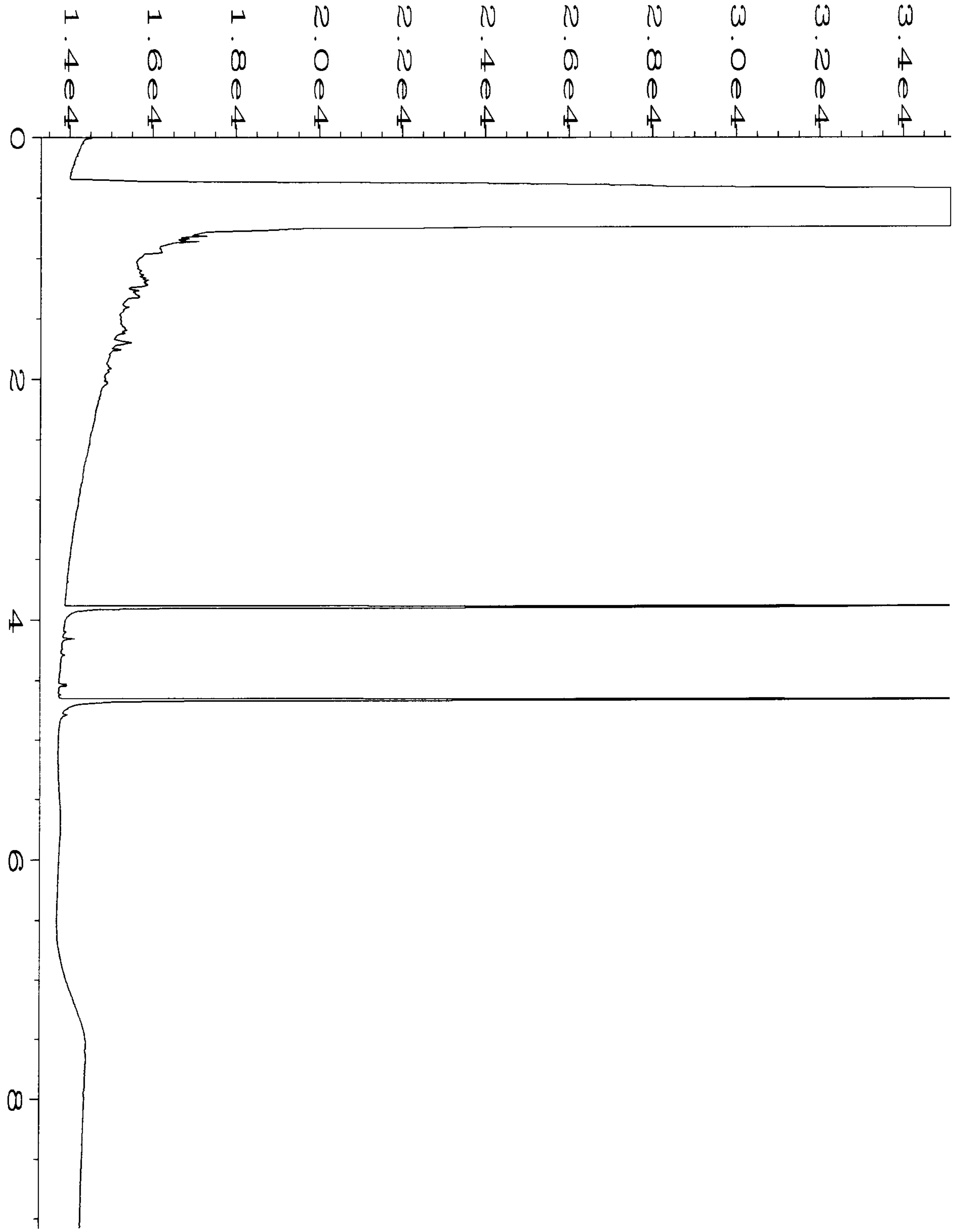
Operator	: mwdl		Page Number	: 1
Instrument	: GC #6		Vial Number	: 38
Sample Name	: 212207-08		Injection Number	: 1
Run Time Bar Code:			Sequence Line	: 5
Acquired on	: 13 Dec 12	06:14 PM	Instrument Method:	DX.MTH
Report Created on:	14 Dec 12	09:36 AM	Analysis Method	: DX.MTH



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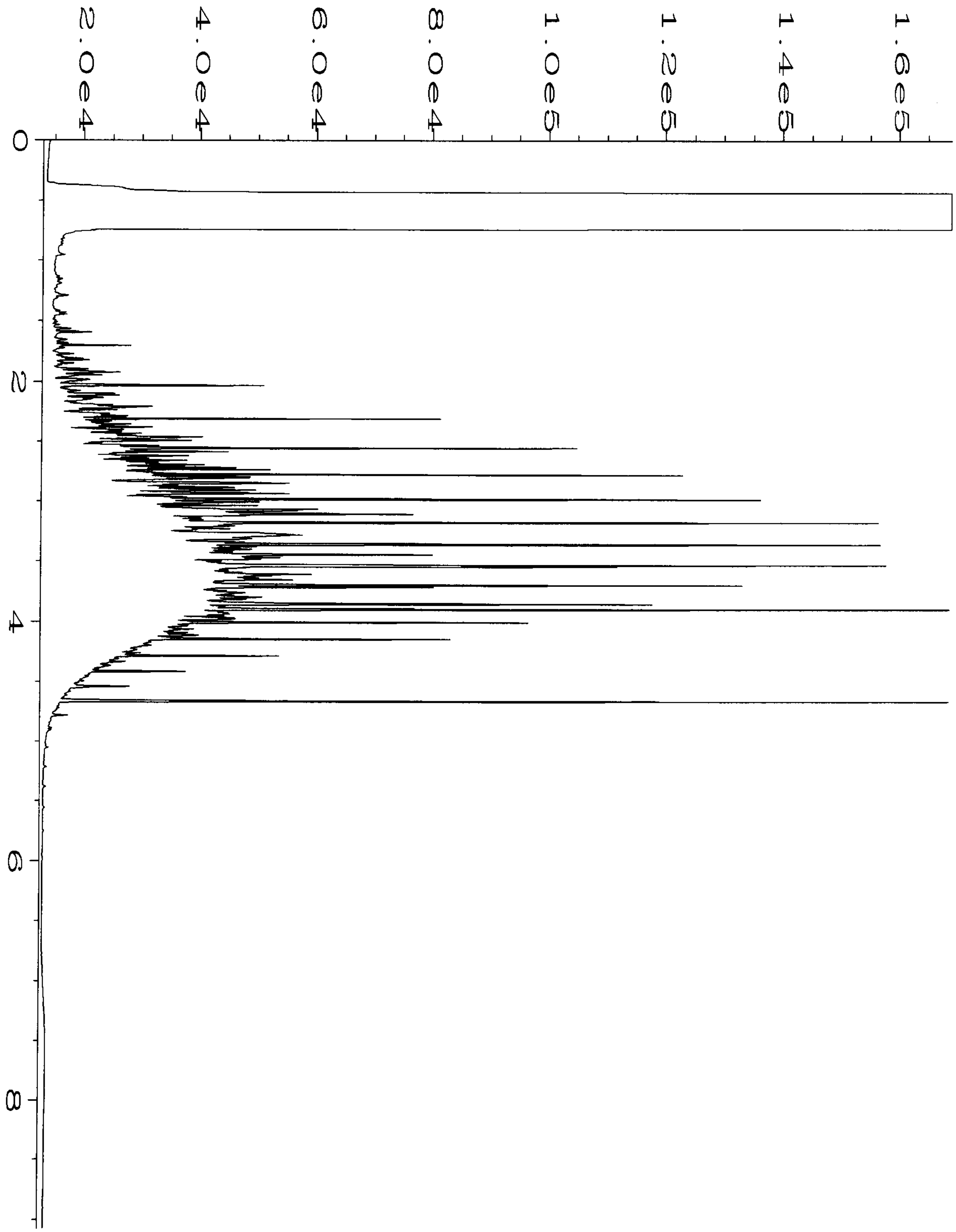
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 26
Sample Name	: 02-2320 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 13 Dec 12 03:32 PM	Instrument Method:	DX.MTH
Report Created on:	14 Dec 12 09:34 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\6\DATA\12-13-12\003F0201.D				
Operator	: mwdl		Page Number	:	1
Instrument	: GC #6		Vial Number	:	3
Sample Name	: 500 Dx 39-143C		Injection Number	:	1
Run Time Bar Code:			Sequence Line	:	2
Acquired on	: 13 Dec 12	08:43 AM	Instrument Method:		DX.MTH
Report Created on:	14 Dec 12	09:34 AM	Analysis Method	:	DX.MTH

212207

SAMPLE CHAIN OF CUSTODY

ME 12/12/12

VS2/A02

Page # 1 of 1

Send Report To: Rob Roberts

Company: SoundEarth Strategies

Address: 2811 Fairview Ave E

City, State, ZIP: Seattle, WA

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

SAMPLERS (signature): [signature]

PROJECT NAME/NO.: 0914-004

PO #:

REMARKS: Run per R. Roberts instructions

GEMS Y / N

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH: 2 DAY TAT
- 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			Notes
MW106-15	MW106	15	01 A-E	12/12/12	0825	SOIL	5	X								
MW106-20		20	02		0830		5	X								
MW106-25		25	03		0840		5	X								
MW106-30		30	04		0850		5									
MW106-35		35	05		0900		5									
MW105-20	MW105	20	06		1235		5	X	X	X						
MW105-25		25	07		1240		5	X	X	X						
MW105-30		30	08		1250		5	X	X	X						
MW105-35		35	09		1310		5									

EP 12/12/12

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]	Liz Forbes	SES	12/12/12	1600
Received by:	[signature]	HONG NGUYEN	FBI	✓	✓
Relinquished by:					
Received by:					

Samples received at 4 °C

Friedman & Bruya, Inc. #212232

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

December 19, 2012

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on December 13, 2012 from the SOU_0914-004_20121213, F&BI 212232 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
SOU1219R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 13, 2012 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-004_20121213, F&BI 212232 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
212232-01	MW105-20121213
212232-02	MW106-20121213

All quality control requirements were acceptable.

Date of Report: 12/19/12
Date Received: 12/13/12
Project: SOU_0914-004_20121213, F&BI 212232
Date Extracted: 12/13/12
Date Analyzed: 12/13/12 and 12/14/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 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)
MW105-20121213 212232-01	<1	<1	<1	<3	140	115
MW106-20121213 212232-02	<1	<1	<1	<3	<100	107
Method Blank 02-2322 MB	<1	<1	<1	<3	<100	88

Date of Report: 12/19/12
Date Received: 12/13/12
Project: SOU_0914-004_20121213, F&BI 212232
Date Extracted: 12/13/12
Date Analyzed: 12/14/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
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)
MW105-20121213 212232-01	<50	<250	90
MW106-20121213 212232-02	110 x	<250	92
Method Blank 02-2293 MB	<50	<250	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/19/12
Date Received: 12/13/12
Project: SOU_0914-004_20121213, F&BI 212232
Date Extracted: 12/13/12
Date Analyzed: 12/13/12

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)
MW105-20121213 212232-01	820 x	<250	91
MW106-20121213 212232-02	850 x	<250	89
Method Blank 02-2293 MB	<50	<250	80

Date of Report: 12/19/12
Date Received: 12/13/12
Project: SOU_0914-004_20121213, F&BI 212232

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: 212236-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (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	92	72-119
Toluene	ug/L (ppb)	50	94	71-113
Ethylbenzene	ug/L (ppb)	50	95	72-114
Xylenes	ug/L (ppb)	150	96	72-113
Gasoline	ug/L (ppb)	1,000	100	70-119

Date of Report: 12/19/12
Date Received: 12/13/12
Project: SOU_0914-004_20121213, F&BI 212232

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 Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	119	122	61-133	2

Date of Report: 12/19/12
Date Received: 12/13/12
Project: SOU_0914-004_20121213, F&BI 212232

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	117	117	61-133	0

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

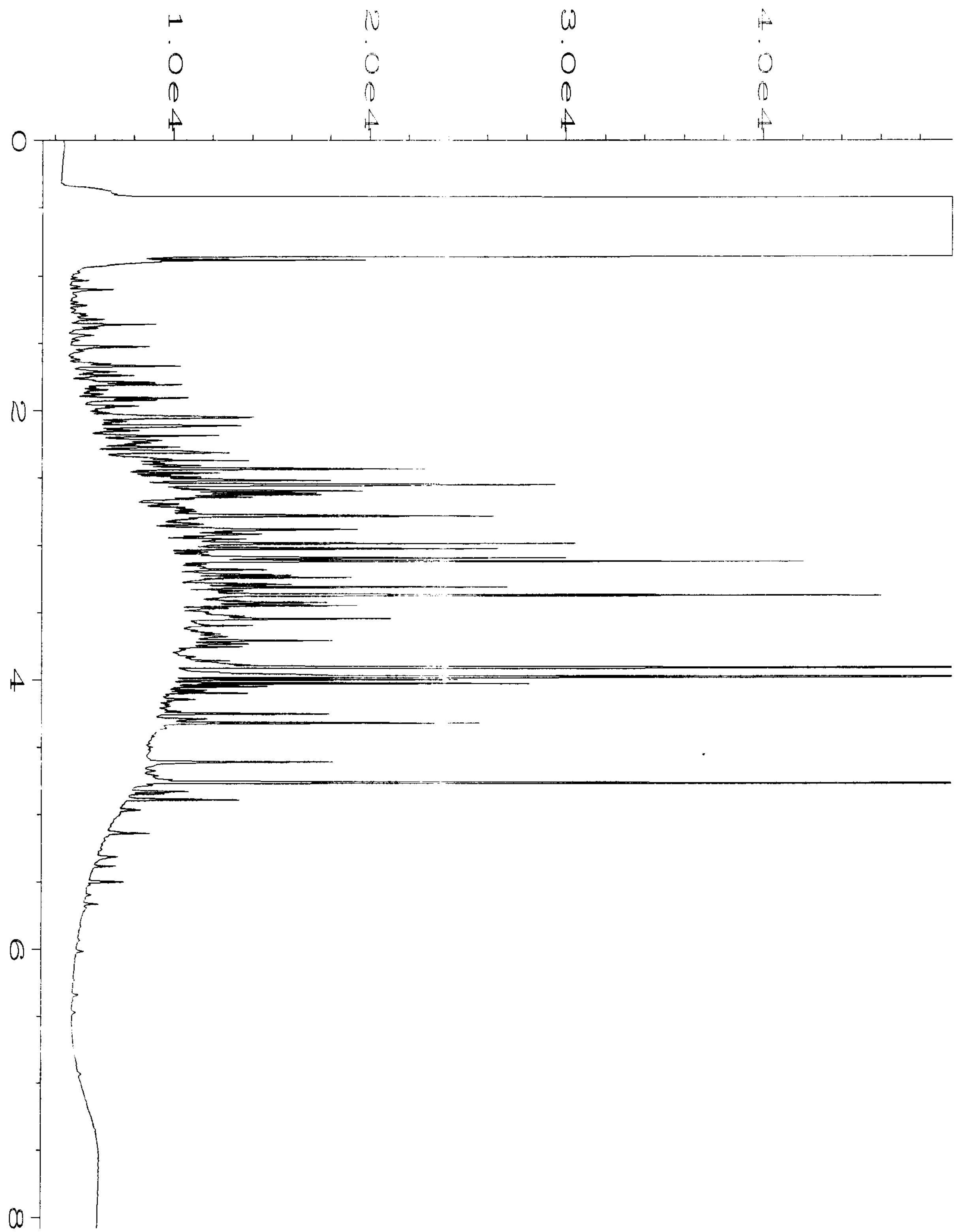
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

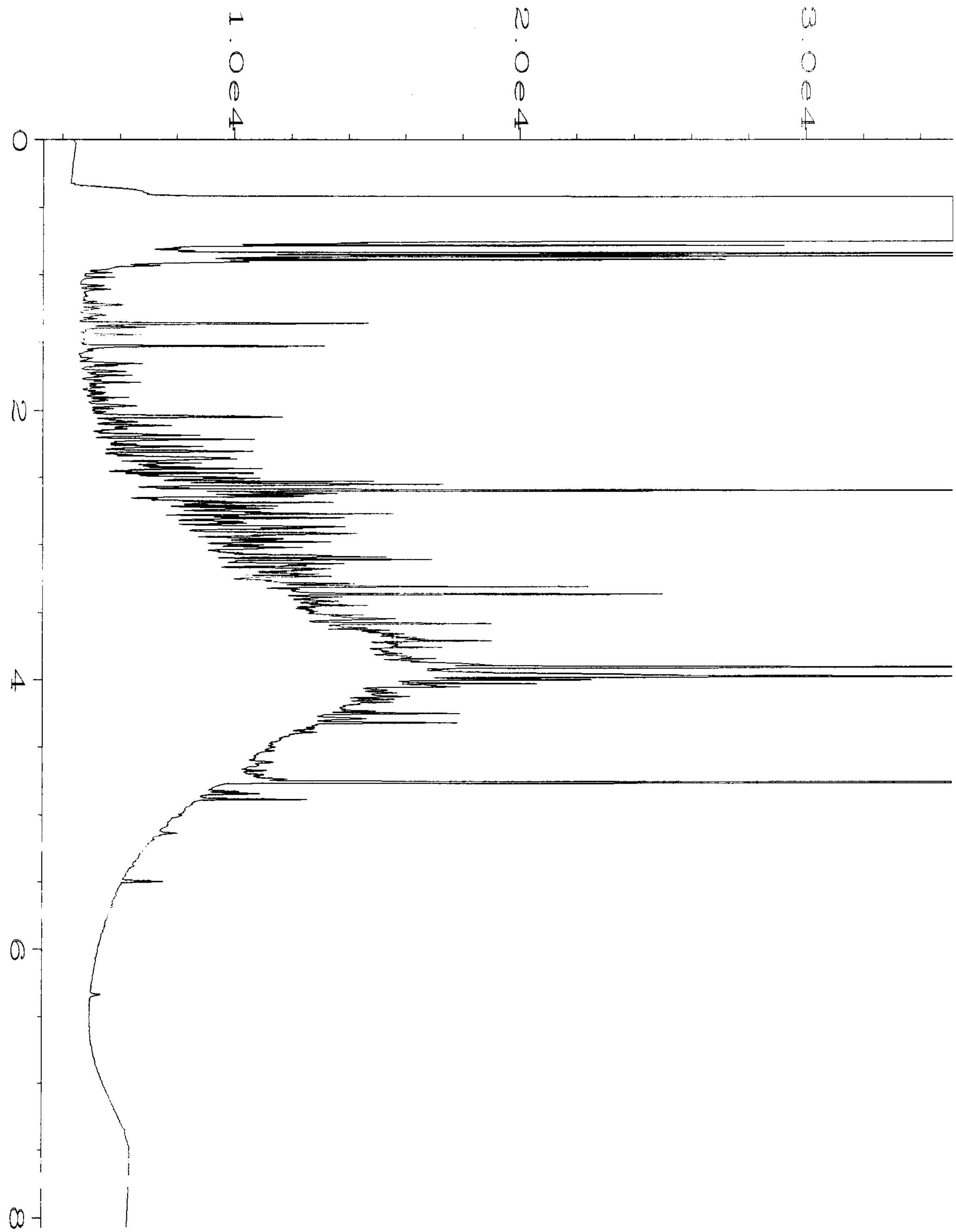
ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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\12-13-12\046F0701.D			
Operator : mwdl		Page Number : 1	
Instrument : GC#4		Vial Number : 46	
Sample Name : 212232-01		Injection Number : 1	
Run Time Bar Code:		Sequence Line : 7	
Acquired on : 13 Dec 12 07:50 PM		Instrument Method: DX.MTH	
Report Created on: 14 Dec 12 10:44 AM		Analysis Method : ISTNDDX.MTH	



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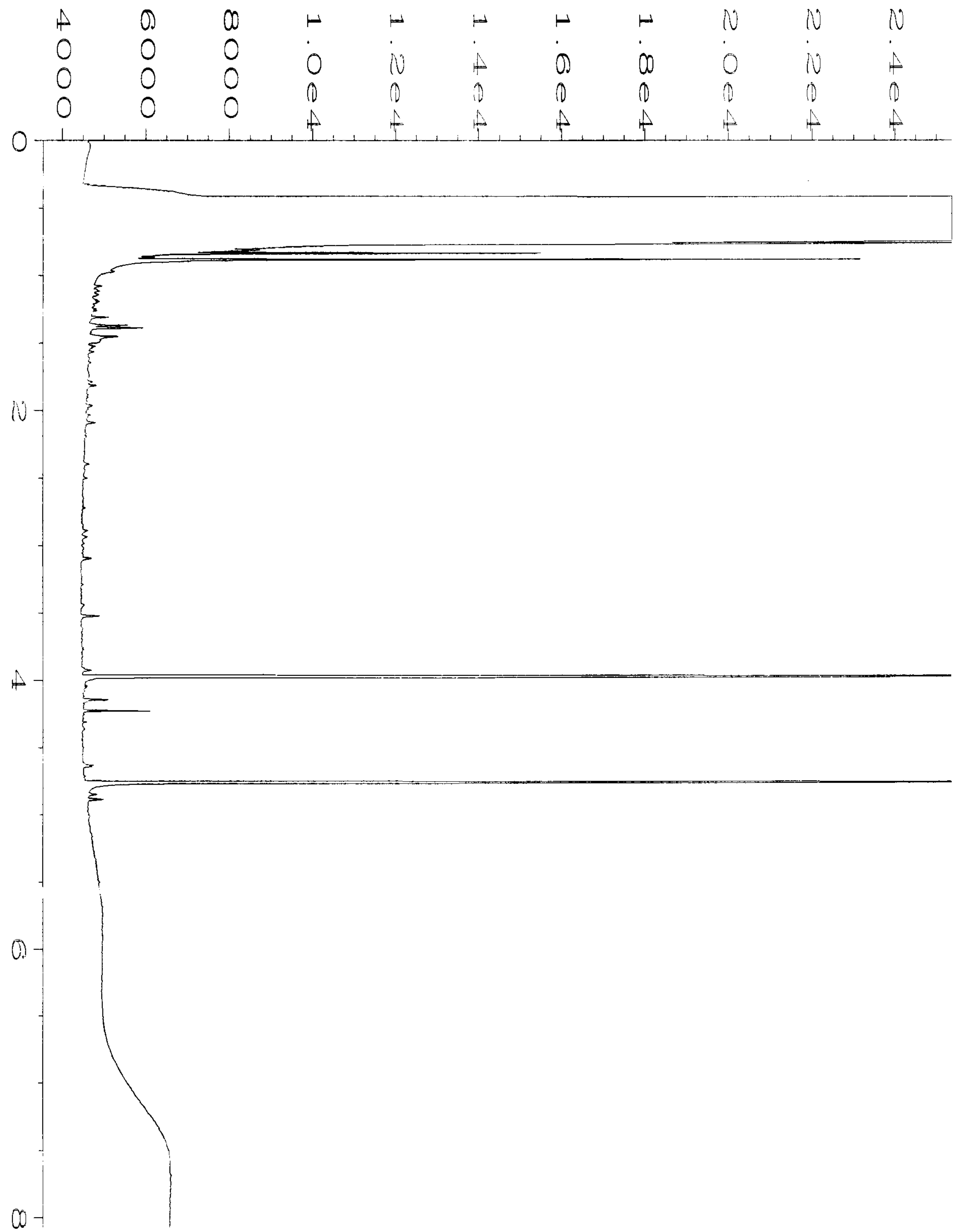
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 47
Sample Name	: 212232-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 13 Dec 12 08:03 PM	Instrument Method:	DX.MTH
Report Created on:	14 Dec 12 10:44 AM	Analysis Method	: ISTNDDX.MTH



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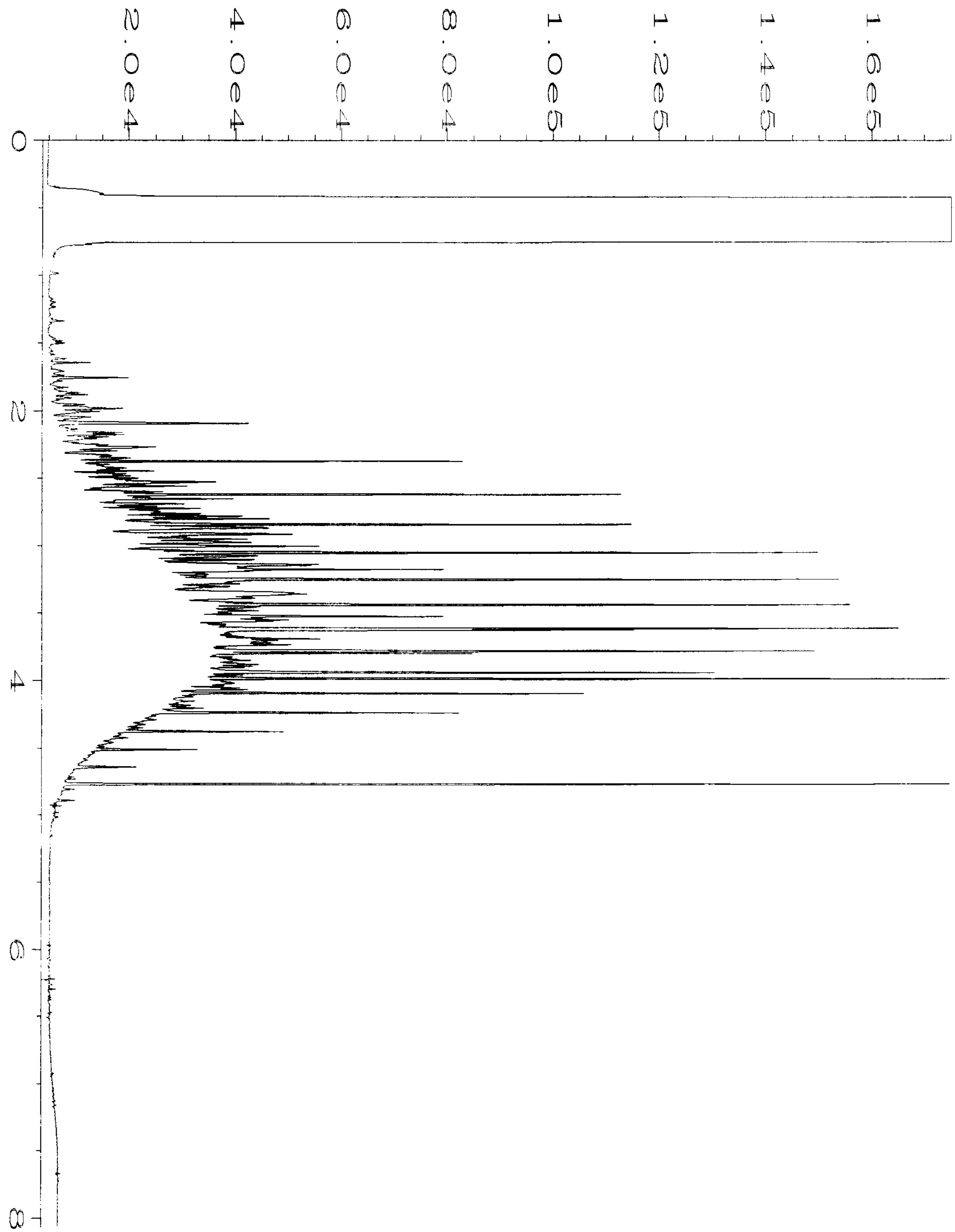
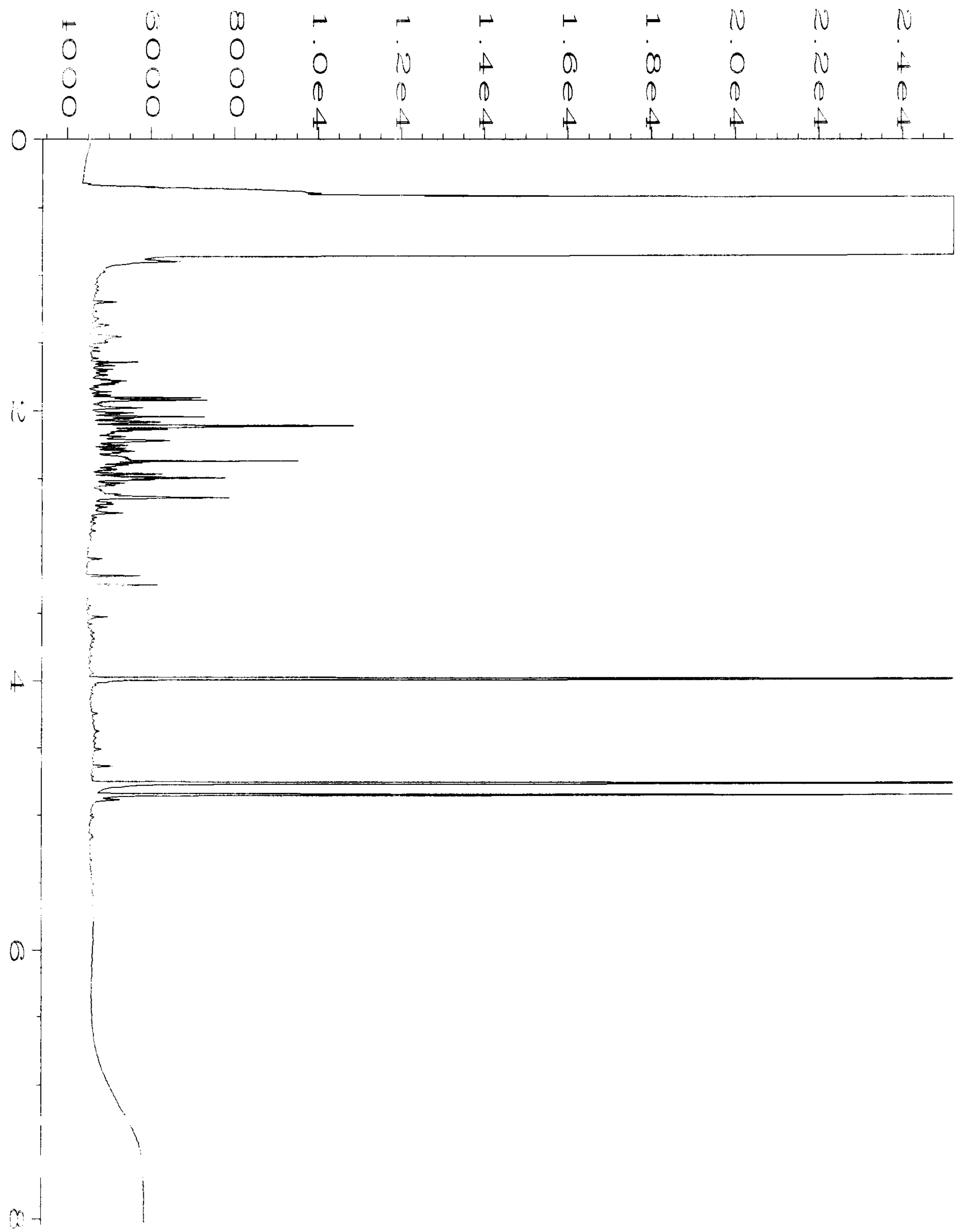
Operator   : mwdl   Page Number   : 1
Instrument   : GC#4   Vial Number   : 21
Sample Name   : 02-2293 mb   Injection Number : 1
Run Time Bar Code: Sequence Line   : 3
Acquired on   : 13 Dec 12 12:17 PM   Instrument Method: DX.MTH
Report Created on: 14 Dec 12 10:44 AM   Analysis Method : ISTNDDX.MTH



Data File Name : C:\HPCHEM\4\DATA\12-13-12\003F0201.D
Operator : mwdl
Instrument : GC#4
Sample Name : 500 Dx 39-143C
Run Time Bar Code:
Acquired on : 13 Dec 12 08:46 AM
Report Created on: 14 Dec 12 10:43 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : ISTNDDX.MTH



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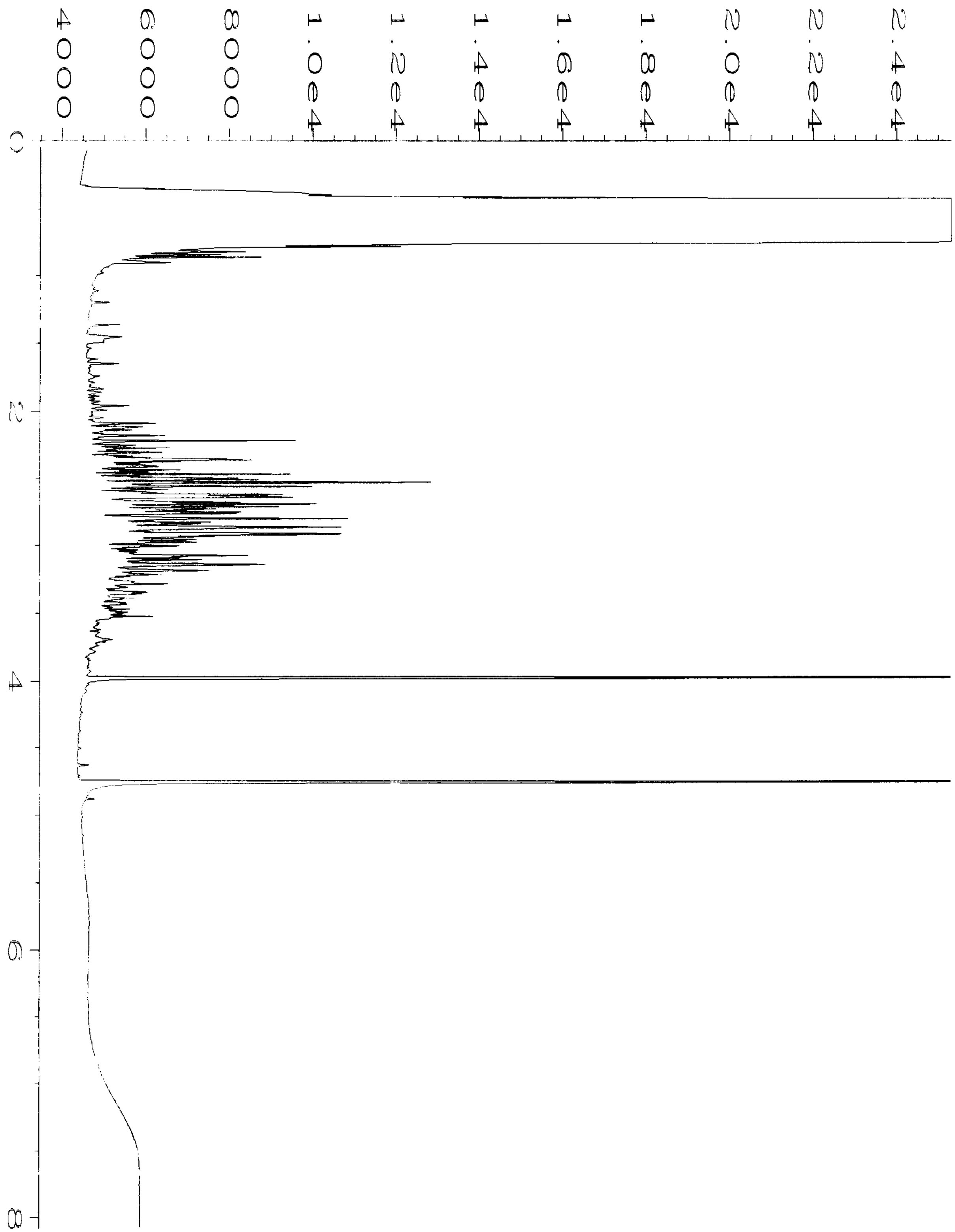
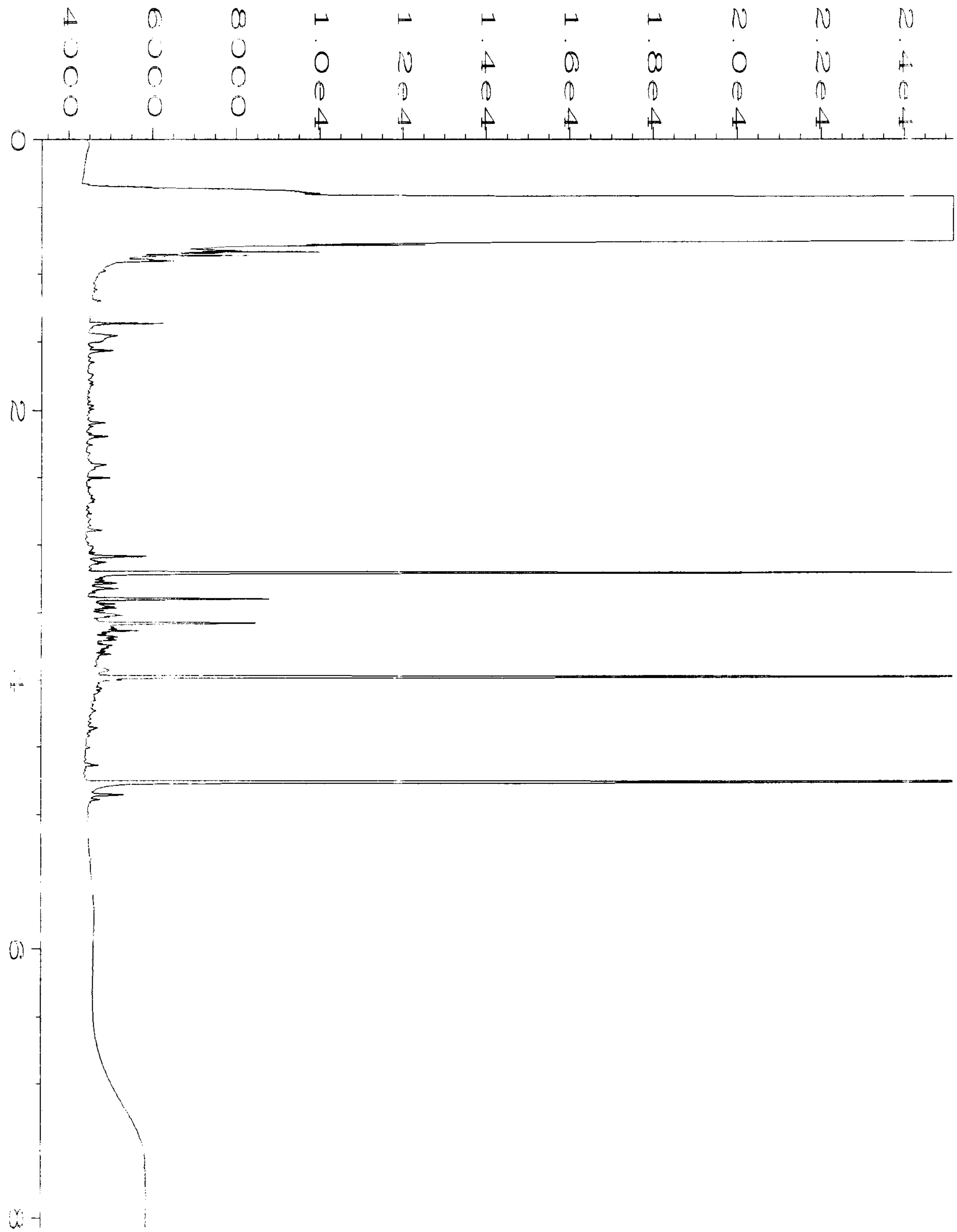
Operator : mwdl
Instrument : GC#4
Sample Name : 212232-01 sg
Run Time Bar Code:
Acquired on : 14 Dec 12 08:10 PM
Report Created on: 17 Dec 12 09:54 AM

Page Number : 1
Vial Number : 41
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DX.MTH



Data File Name : C:\HPCHEM\4\DATA\12-14-12\042F0801.D
Operator : mwdl
Instrument : GC#4
Sample Name : 212232-02 sg
Run Time Bar Code:
Acquired on : 14 Dec 12 08:23 PM
Report Created on: 17 Dec 12 09:54 AM

Page Number : 1
Vial Number : 42
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DX.MTH



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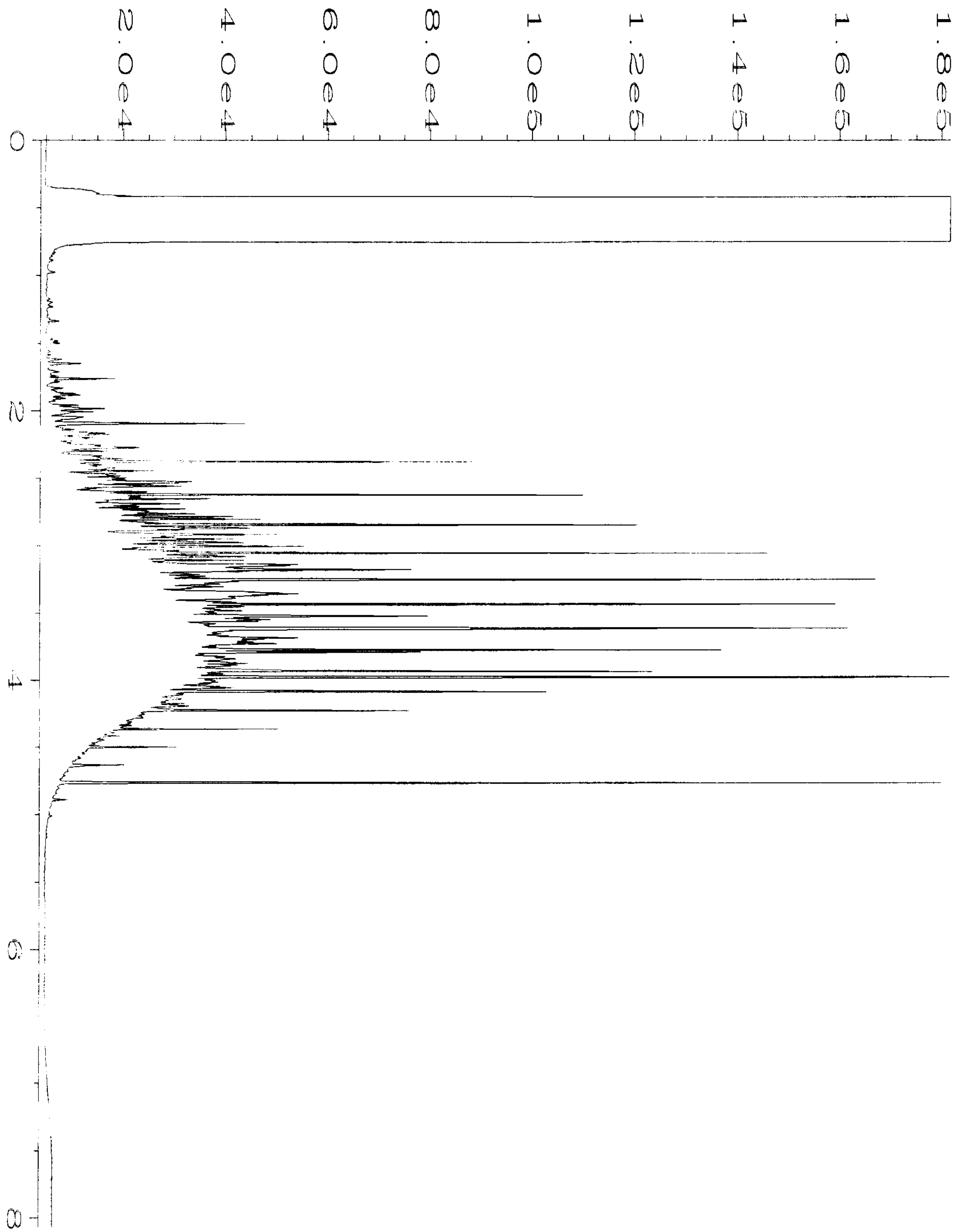
Operator	: mwdl		Page Number	: 1
Instrument	: GC#4		Vial Number	: 38
Sample Name	: 02-2293 mb sg		Injection Number	: 1
Run Time Bar Code:			Sequence Line	: 8
Acquired on	: 14 Dec 12	07:31 PM	Instrument Method:	DX.MTH
Report Created on:	17 Dec 12	09:54 AM	Analysis Method	: DX.MTH



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Operator : mwdl
Instrument : GC#4
Sample Name : 500 Dx 39-143C
Run Time Bar Code:
Acquired on : 14 Dec 12 09:28 AM
Report Created on: 17 Dec 12 09:52 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DX.MTH

212232

SAMPLE CHAIN OF CUSTODY

ME 12/13/12 V2/1 A05

Send Report To Rob Roberts

Company SoundEarth Strategies

Address 2811 Fairview Ave E

City, State, ZIP Seattle, WA 98102

Phone # 206-306-1900 Fax #

SAMPLERS (signature)

PROJECT NAME/NO. 0914-004

PO #

REMARKS

GEMS Y / N

Page # 1 of

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH 24 HR

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	Dx w/SG		Notes
MW105-20121213	MW105	27	01 A-D	12/13/12	1030	WATER	4	X	X	X				★		
MW106-20121213	MW106	29	02 A-D	12/13/12	1222	WATER	4	X	X	X				★		

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]	Liz Forbes	SES	12/13/12	1350
Received by:	[signature]	Nhan Phan	F&BI	12/13/12	1350
Relinquished by:					
Received by:					

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 4 °C

Friedman & Bruya, Inc. #303068

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

March 13, 2013

Chuck Cacek, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Cacek:

Included are the results from the testing of material submitted on March 6, 2013 from the SOU_0914-004_20130306, F&BI 303068 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
SOU0313R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 6, 2013 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-004_20130306, F&BI 303068 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
303068 -01	MW104-20130306
303068 -02	MW105-20130306

All quality control requirements were acceptable.

Date of Report: 03/13/13
Date Received: 03/06/13
Project: SOU_0914-004_20130306, F&BI 303068
Date Extracted: 03/07/13
Date Analyzed: 03/07/13

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW104-20130306 303068-01	9,900	ip
MW105-20130306 303068-02	<100	96
Method Blank 03-0377 MB	<100	92

Date of Report: 03/13/13
Date Received: 03/06/13
Project: SOU_0914-004_20130306, F&BI 303068
Date Extracted: 03/07/13
Date Analyzed: 03/07/13

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
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 51-134)
MW104-20130306 303068-01	1,900 x	<250	96
MW105-20130306 303068-02	61 x	<250	86
Method Blank 03-418 MB2	<50	<250	94

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW104-20130306	Client:	SoundEarth Strategies
Date Received:	03/06/13	Project:	SOU_0914-004_20130306, F&BI 303068
Date Extracted:	03/07/13	Lab ID:	303068-01 1/100
Date Analyzed:	03/07/13	Data File:	030717.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)
Benzene	2,300
Toluene	110
Ethylbenzene	470
m,p-Xylene	770
o-Xylene	100
Naphthalene	200

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW105-20130306	Client:	SoundEarth Strategies
Date Received:	03/06/13	Project:	SOU_0914-004_20130306, F&BI 303068
Date Extracted:	03/07/13	Lab ID:	303068-02
Date Analyzed:	03/07/13	Data File:	030714.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0914-004_20130306, F&BI 303068
Date Extracted:	03/07/13	Lab ID:	03-0388 mb
Date Analyzed:	03/07/13	Data File:	030711.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

Date of Report: 03/13/13
Date Received: 03/06/13
Project: SOU_0914-004_20130306, F&BI 303068

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 303086-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	100	70-119

Date of Report: 03/13/13
Date Received: 03/06/13
Project: SOU_0914-004_20130306, F&BI 303068

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 Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	108	104	61-133	4

Date of Report: 03/13/13
Date Received: 03/06/13
Project: SOU_0914-004_20130306, F&BI 303068

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 303068-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	94	80-108
Toluene	ug/L (ppb)	50	<1	96	74-116
Ethylbenzene	ug/L (ppb)	50	<1	96	71-120
m,p-Xylene	ug/L (ppb)	100	<2	96	64-128
o-Xylene	ug/L (ppb)	50	<1	96	66-129
Naphthalene	ug/L (ppb)	50	<1	107	63-136

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	50	89	87	81-108	2
Toluene	ug/L (ppb)	50	91	89	83-108	2
Ethylbenzene	ug/L (ppb)	50	91	90	84-110	1
m,p-Xylene	ug/L (ppb)	100	91	90	84-112	1
o-Xylene	ug/L (ppb)	50	91	89	82-113	2
Naphthalene	ug/L (ppb)	50	92	98	75-131	6

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

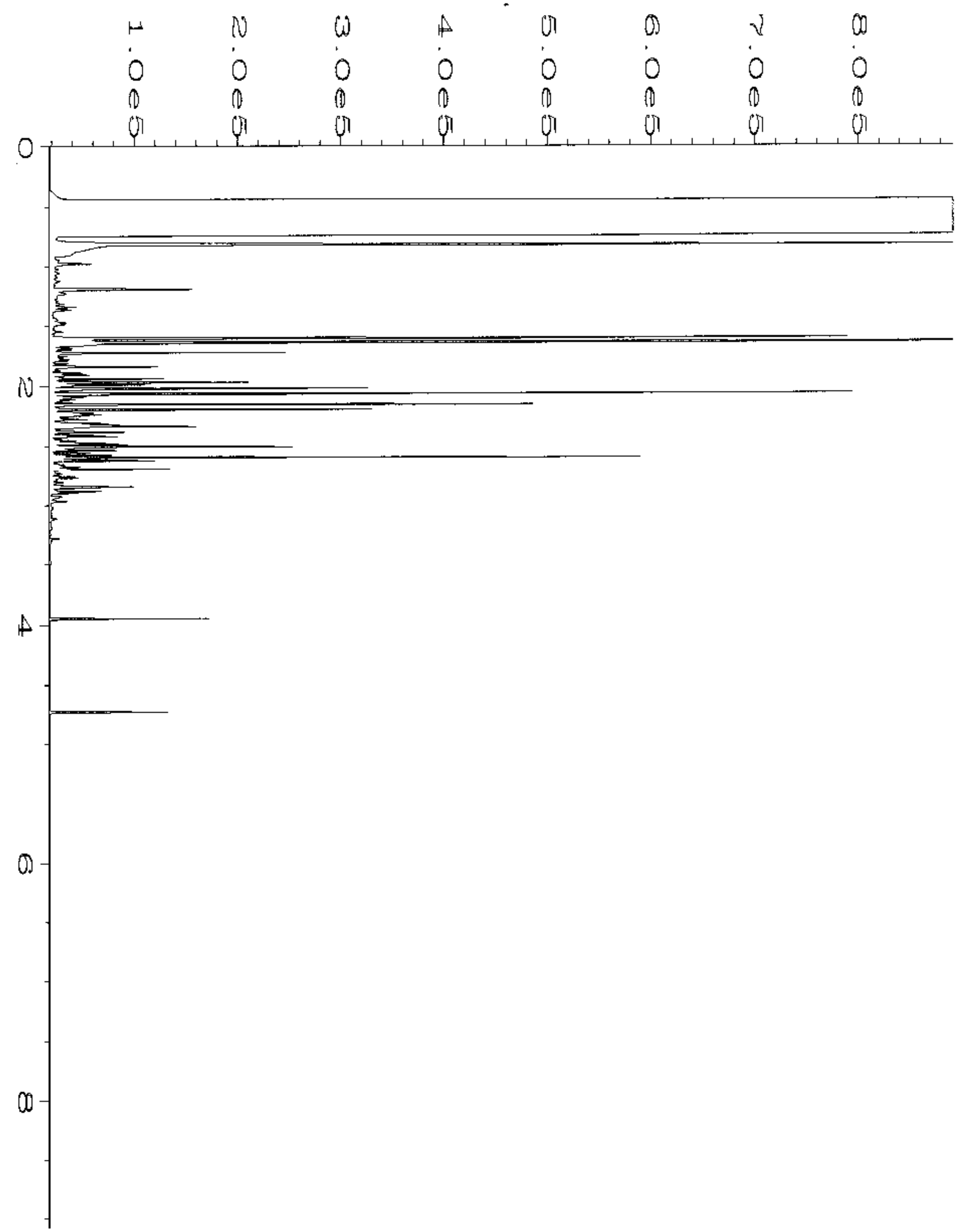
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

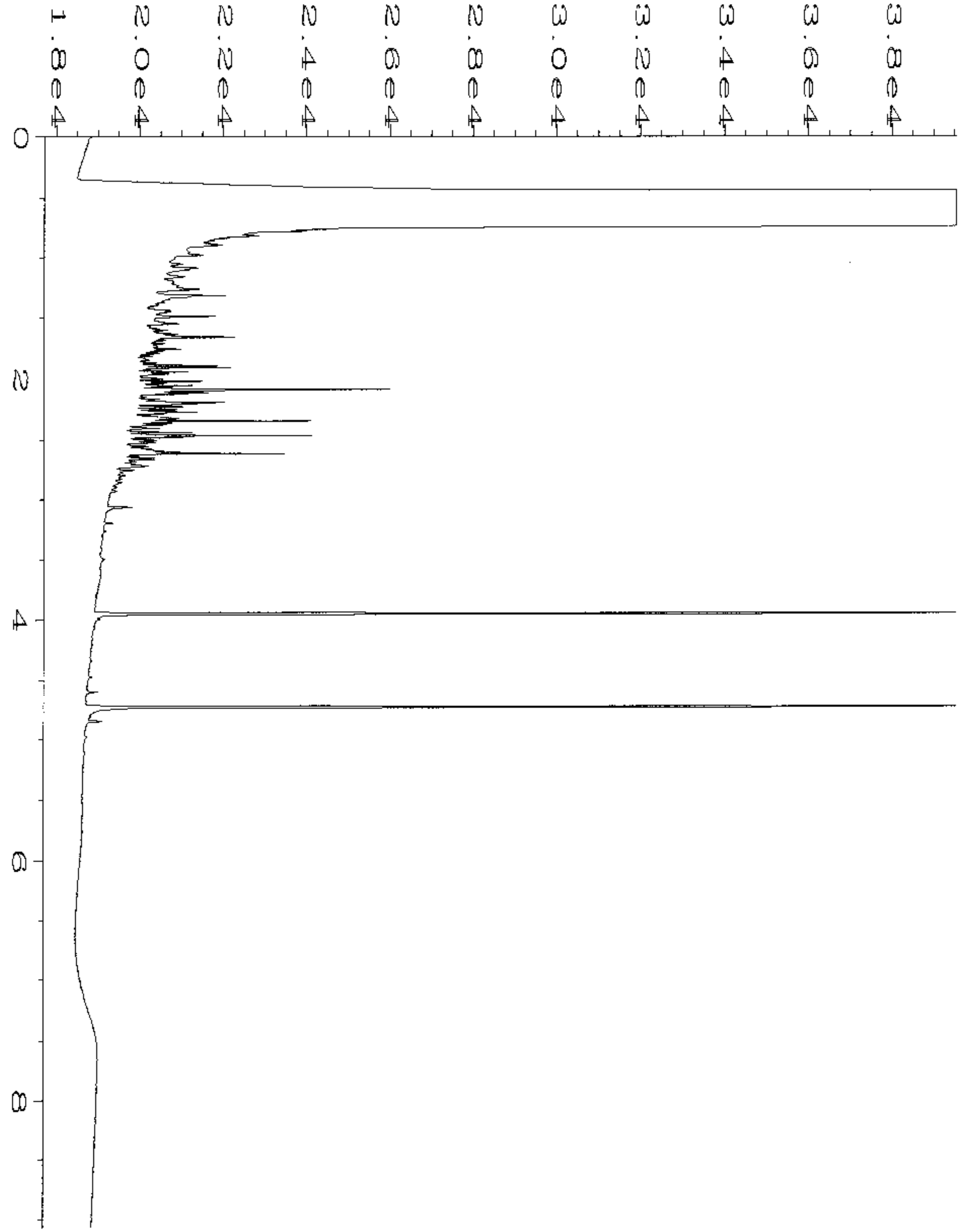
vo - The value reported fell outside the control limits established for this analyte.

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



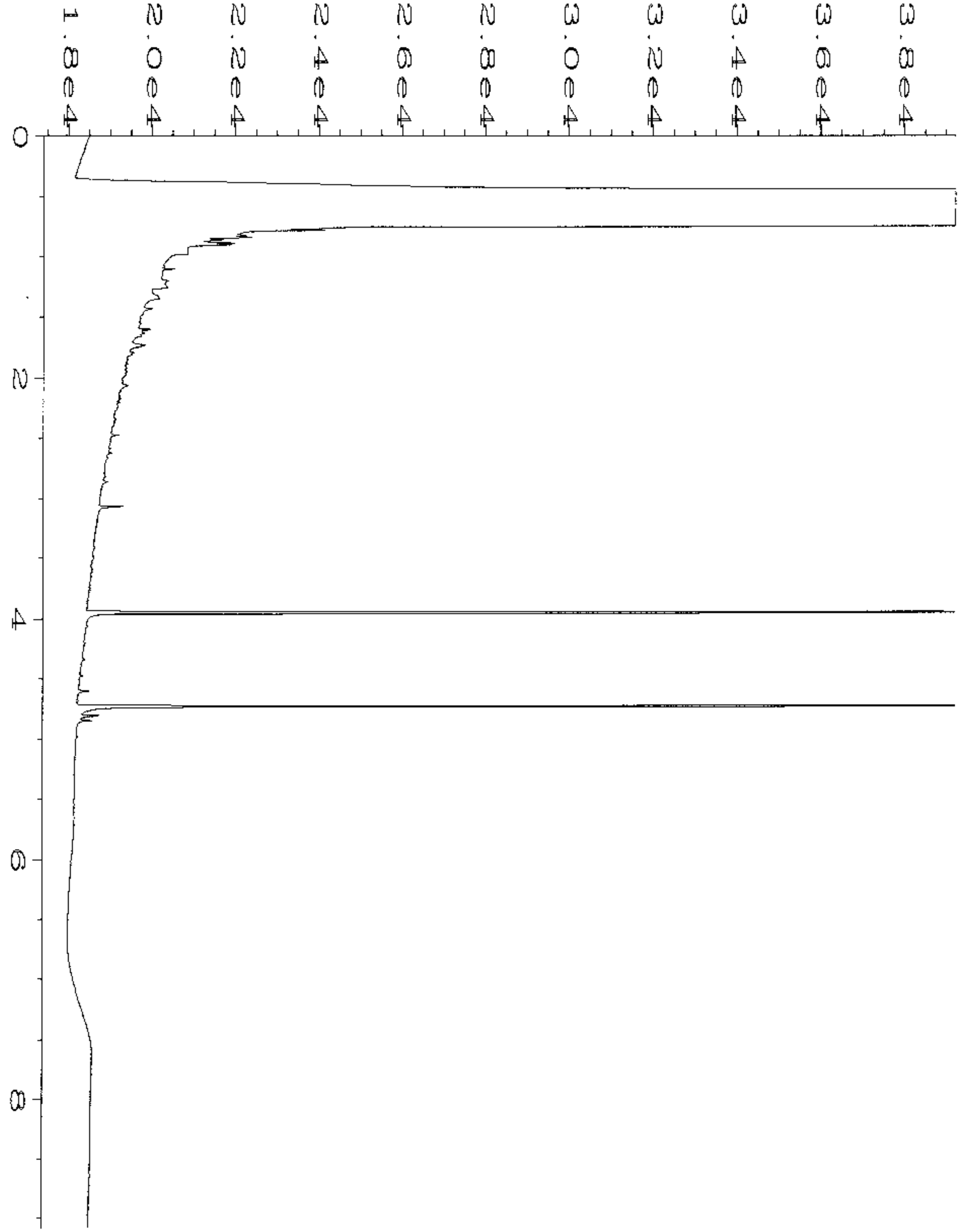
Data File Name : C:\HPCHEM\6\DATA\03-07-13\055F0901.D
Operator : mwdl
Instrument : GC #6
Sample Name : 303068-01 sg
Run Time Bar Code:
Acquired on : 07 Mar 13 10:03 PM
Report Created on: 08 Mar 13 10:12 AM

Page Number : 1
Vial Number : 55
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX.MTH

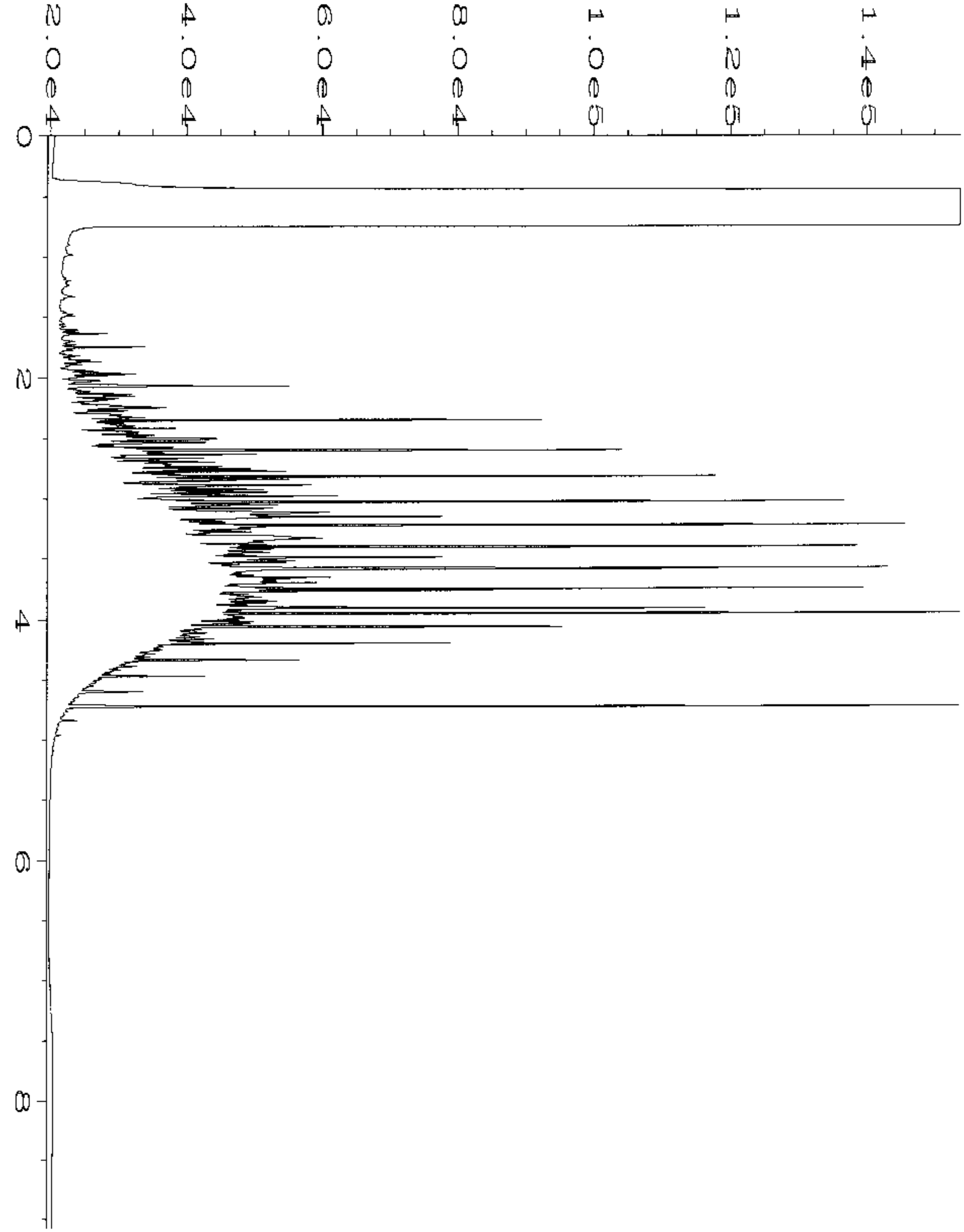


Data File Name : C:\HPCHEM\6\DATA\03-07-13\056F0901.D

Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 56
Sample Name	: 303068-02 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 07 Mar 13 10:16 PM	Instrument Method:	DX.MTH
Report Created on:	08 Mar 13 10:12 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\6\DATA\03-07-13\054F0901.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 54
Sample Name	: 03-418 mb2 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 07 Mar 13 09:49 PM	Instrument Method:	DX.MTH
Report Created on:	08 Mar 13 10:12 AM	Analysis Method	: DX.MTH

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Data File Name    : C:\HPCHEM\6\DATA\03-07-13\003F0201.D
Operator          : mwdl                         Page Number       : 1
Instrument        : GC #6                        Vial Number       : 3
Sample Name       : 500 Dx 39-143                Injection Number : 1
Run Time Bar Code:                               Sequence Line     : 2
Acquired on       : 07 Mar 13   09:08 AM         Instrument Method: DX.MTH
Report Created on: 08 Mar 13   10:12 AM          Analysis Method   : DX.MTH
```

303068

SAMPLE CHAIN OF CUSTODY

ME 3/6/13 C04/V2

Send Report To: Chuck Cacek; Rob Roberts

Company: Sound Earth Strategies

Address: 2811 Fairview Ave

City, State, ZIP: Seattle, WA

Phone #: 206-306-1900 Fax #:

SAMPLERS (signature): Krista Garrett

PROJECT NAME/NO.: 0914-004

PO #:

REMARKS: * silica gel on Dx per KG 3/6/13 * ME.

Page # 1 of 1

TURNAROUND TIME
- [x] Standard (2 Weeks)
- [ ] RUSH

Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	GRPH	DRPH	ORPH	Naphthalene		Notes
MW104-20130306	01 A-H	03/06/13	1417	H2O	8			X				X	X	X	X		
MW105-20130306	02 A-H	03/06/13	1248	H2O	8			X				X	X	X	X		

KKG 03/06/2013

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:	Krista Garrett	KRISTA GARRETT	SES	03/06/13	1530
Received by:	[signature]	HONG NGUYEN	FBI	3/6/13	✓
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

Samples received at 6 °C

Friedman & Bruya, Inc. #304020

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

April 9, 2013

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on April 1, 2013 from the SOU_0914-001-05_20130401, F&BI 304020 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
SOU0409R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 1, 2013 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001-05_20130401, F&BI 304020 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
304020 -01	MW106-20130401
304020 -02	SMW04-20130401
304020 -03	MW104-20130401
304020 -04	MW101-20130401

The samples were sent to Amtest for ferrous iron, sulfate, nitrate, and alkalinity analyses. Review of the enclosed report indicates that all quality assurance were acceptable

All quality control requirements were acceptable.

Date of Report: 04/09/13
Date Received: 04/01/13
Project: SOU_0914-001-05_20130401, F&BI 304020
Date Extracted: 04/02/13 and 04/04/13
Date Analyzed: 04/02/13 and 04/04/13

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)
MW106-20130401 304020-01	<1	<1	<1	<3	130	115
SMW04-20130401 304020-02	5.4	13	220	380	4,900	114
MW104-20130401 304020-03 1/100	2,600	140	640	1,300	20,000	110
MW101-20130401 304020-04	<1	<1	<1	<3	<100	111
Method Blank 03-0547 MB	<1	<1	<1	<3	<100	111

Date of Report: 04/09/13
Date Received: 04/01/13
Project: SOU_0914-001-05_20130401, F&BI 304020
Date Extracted: 04/04/13
Date Analyzed: 04/04/13

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 51-134)
MW106-20130401 304020-01	1,400 x	280 x	93
SMW04-20130401 304020-02	620 x	<250	106
MW104-20130401 304020-03	4,000 x	<250	110
MW101-20130401 304020-04	<50	<250	114
Method Blank 03-590 MB	<50	<250	115

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW106-20130401	Client:	SoundEarth Strategies
Date Received:	04/01/13	Project:	SOU_0914-001-05_20130401, F&BI 304020
Date Extracted:	04/03/13	Lab ID:	304020-01
Date Analyzed:	04/03/13	Data File:	304020-01.029
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	94	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	5,170
Iron	484

Analysis For Total Metals By EPA Method 200.8

Client ID:	SMW04-20130401	Client:	SoundEarth Strategies
Date Received:	04/01/13	Project:	SOU_0914-001-05_20130401, F&BI 304020
Date Extracted:	04/03/13	Lab ID:	304020-02
Date Analyzed:	04/03/13	Data File:	304020-02.030
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	2,990
Iron	2,680

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW104-20130401	Client:	SoundEarth Strategies
Date Received:	04/01/13	Project:	SOU_0914-001-05_20130401, F&BI 304020
Date Extracted:	04/03/13	Lab ID:	304020-03 x10
Date Analyzed:	04/03/13	Data File:	304020-03 x10.040
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	10,800
Iron	16,300

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW101-20130401	Client:	SoundEarth Strategies
Date Received:	04/01/13	Project:	SOU_0914-001-05_20130401, F&BI 304020
Date Extracted:	04/03/13	Lab ID:	304020-04
Date Analyzed:	04/03/13	Data File:	304020-04.032
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	175
Iron	98.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0914-001-05_20130401, F&BI 304020
Date Extracted:	04/03/13	Lab ID:	I3-153 mb
Date Analyzed:	04/03/13	Data File:	I3-153 mb rr.041
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	112	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	<1
Iron	<10

Date of Report: 04/09/13
Date Received: 04/01/13
Project: SOU_0914-001-05_20130401, F&BI 304020

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 304022-01 (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	98	65-118
Toluene	ug/L (ppb)	50	96	72-122
Ethylbenzene	ug/L (ppb)	50	96	73-126
Xylenes	ug/L (ppb)	150	96	74-118
Gasoline	ug/L (ppb)	1,000	99	69-134

Date of Report: 04/09/13
Date Received: 04/01/13
Project: SOU_0914-001-05_20130401, F&BI 304020

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	110	96	58-134	14

Date of Report: 04/09/13
Date Received: 04/01/13
Project: SOU_0914-001-05_20130401, F&BI 304020

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 303466-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Manganese	ug/L (ppb)	20	127	96 b	107 b	47-155	11 b
Iron	ug/L (ppb)	100	982	69 b	91 b	50-150	27 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Manganese	ug/L (ppb)	20	105	76-120
Iron	ug/L (ppb)	100	105	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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

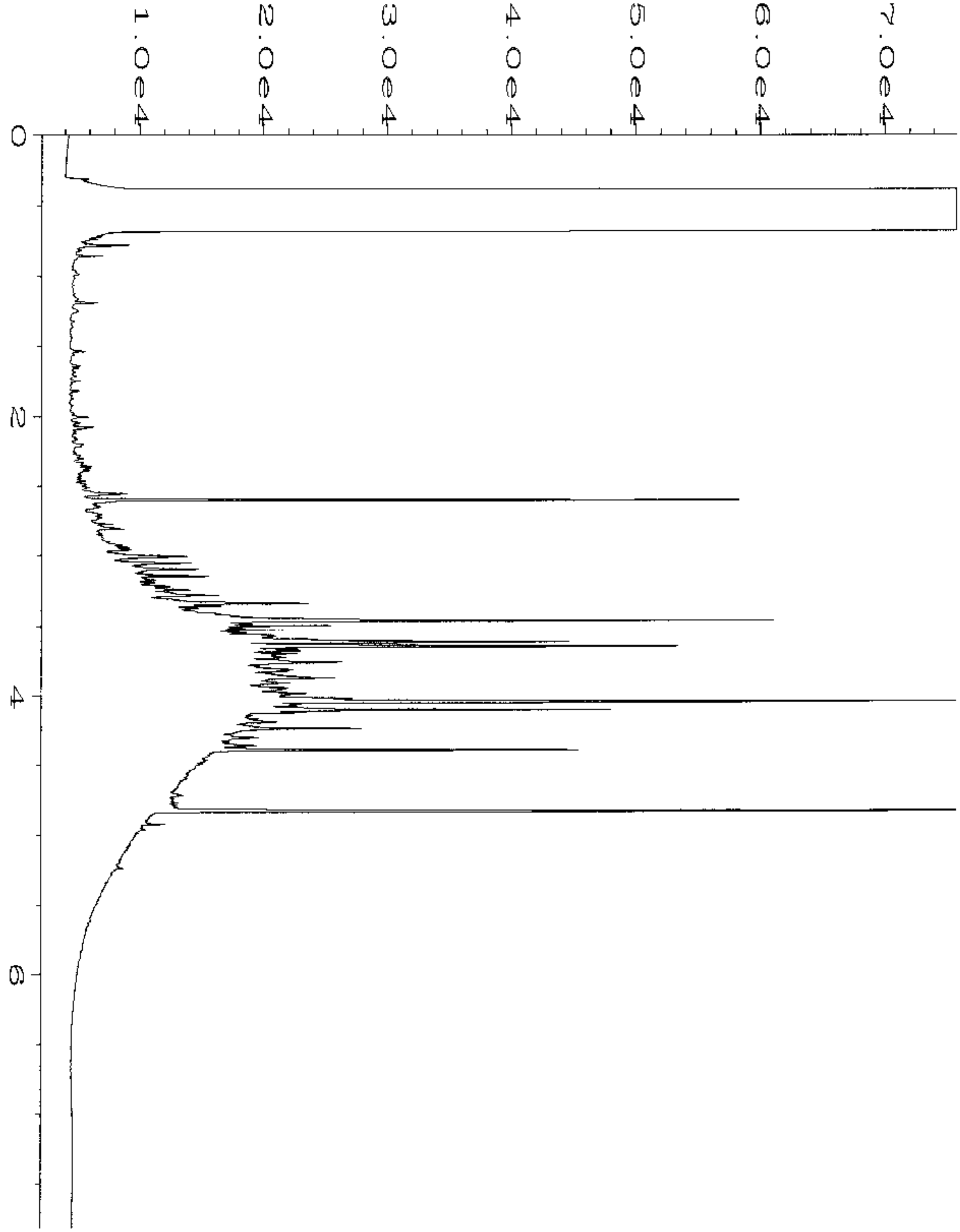
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

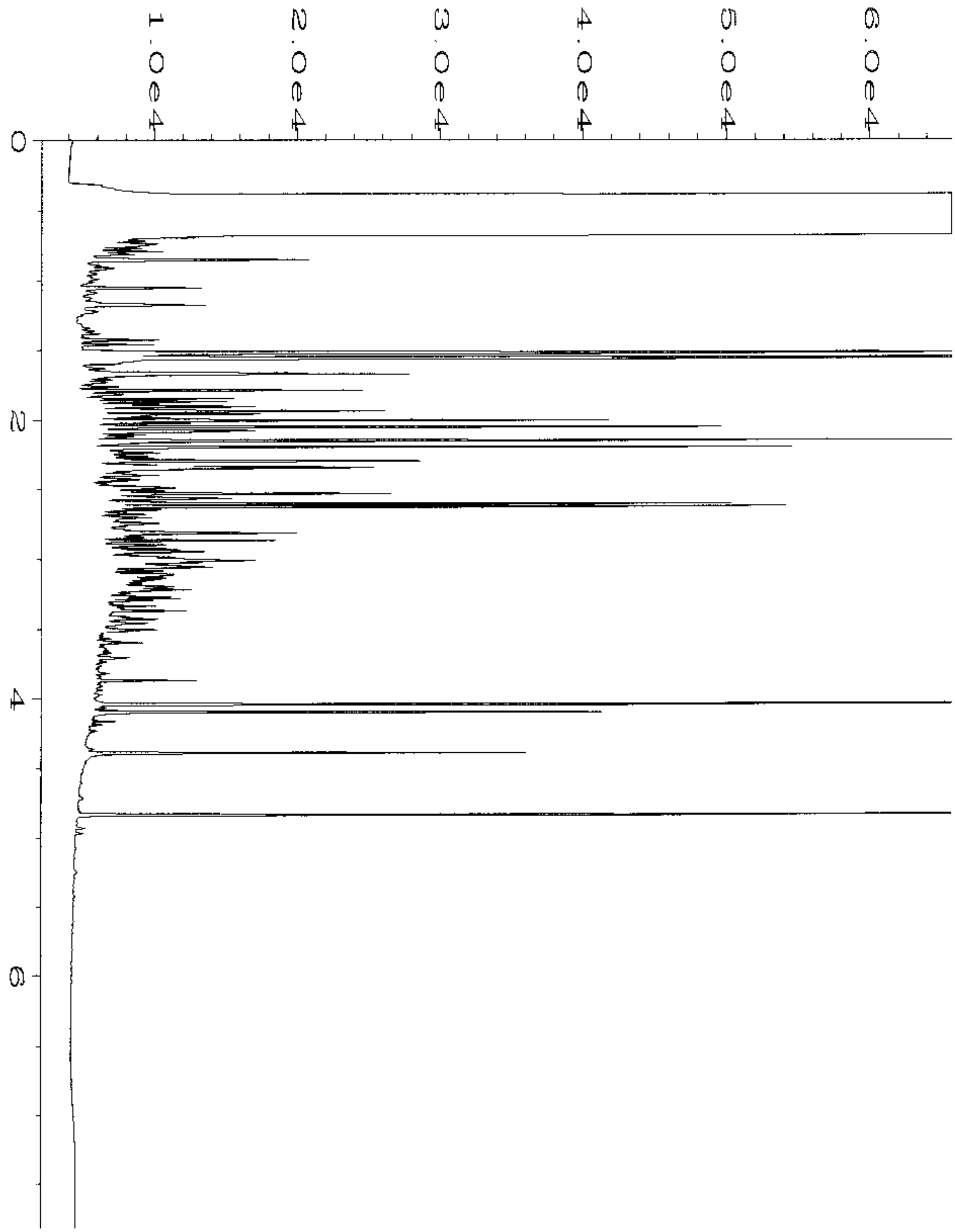
ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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.

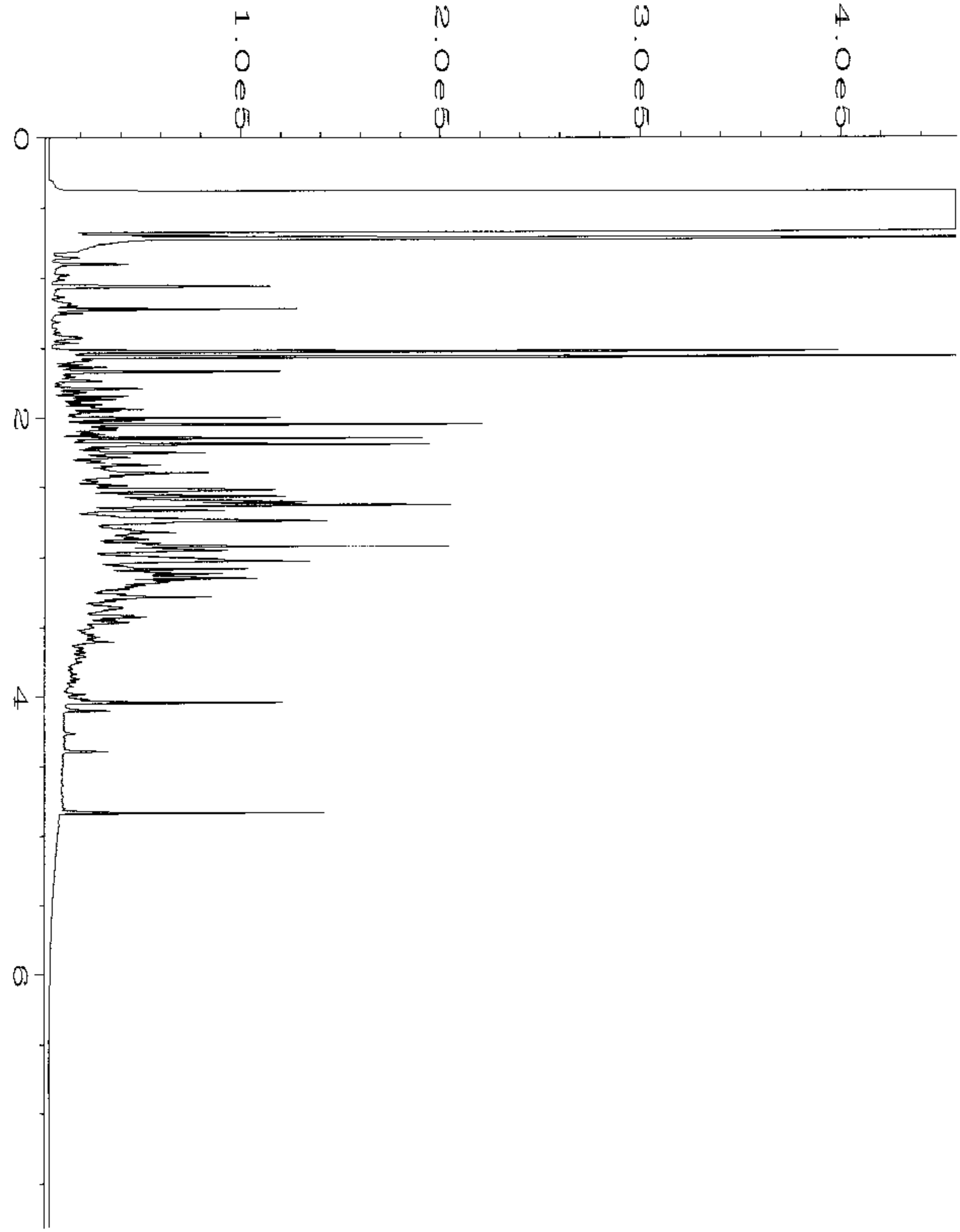


Data File Name	: C:\HPCHEM\6\DATA\04-04-13\024F0501.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 24
Sample Name	: 304020-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 04 Apr 13 01:34 PM	Instrument Method:	DX.MTH
Report Created on:	05 Apr 13 08:55 AM	Analysis Method	: DX.MTH



Data File Name : C:\HPCHEM\6\DATA\04-04-13\025F0701.D

Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 25
Sample Name	: 304020-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 04 Apr 13 01:55 PM	Instrument Method:	DX.MTH
Report Created on:	05 Apr 13 08:55 AM	Analysis Method	: DX.MTH

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Data File Name    : C:\HPCHEM\6\DATA\04-04-13\020F0501.D
Operator          : mwdl                              Page Number      : 1
Instrument        : GC #6                             Vial Number      : 20
Sample Name       : 304020-03                         Injection Number : 1
Run Time Bar Code:                                    Sequence Line    : 5
Acquired on       : 04 Apr 13  12:40 PM               Instrument Method: DX.MTH
Report Created on: 05 Apr 13  08:55 AM                Analysis Method  : DX.MTH
```
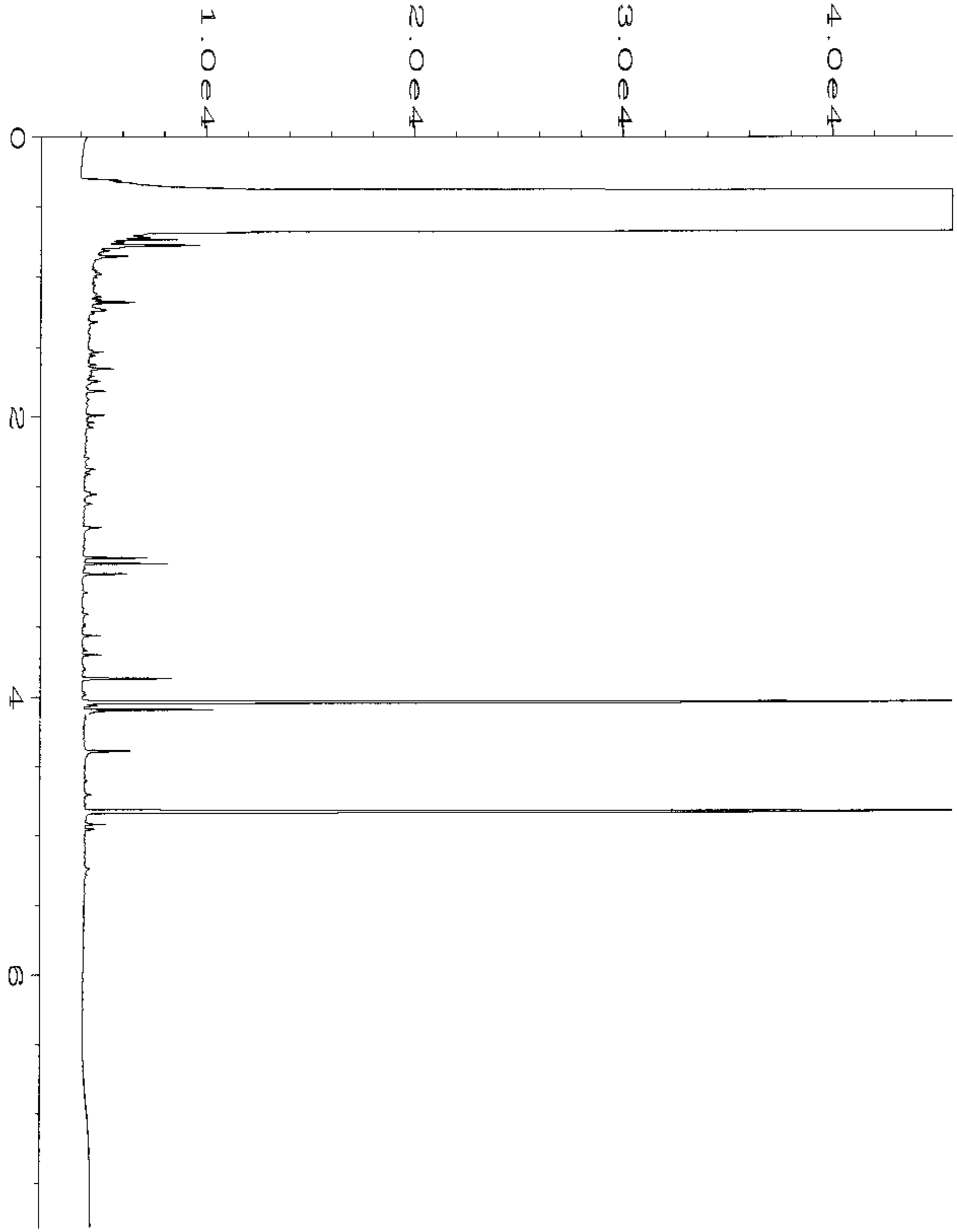
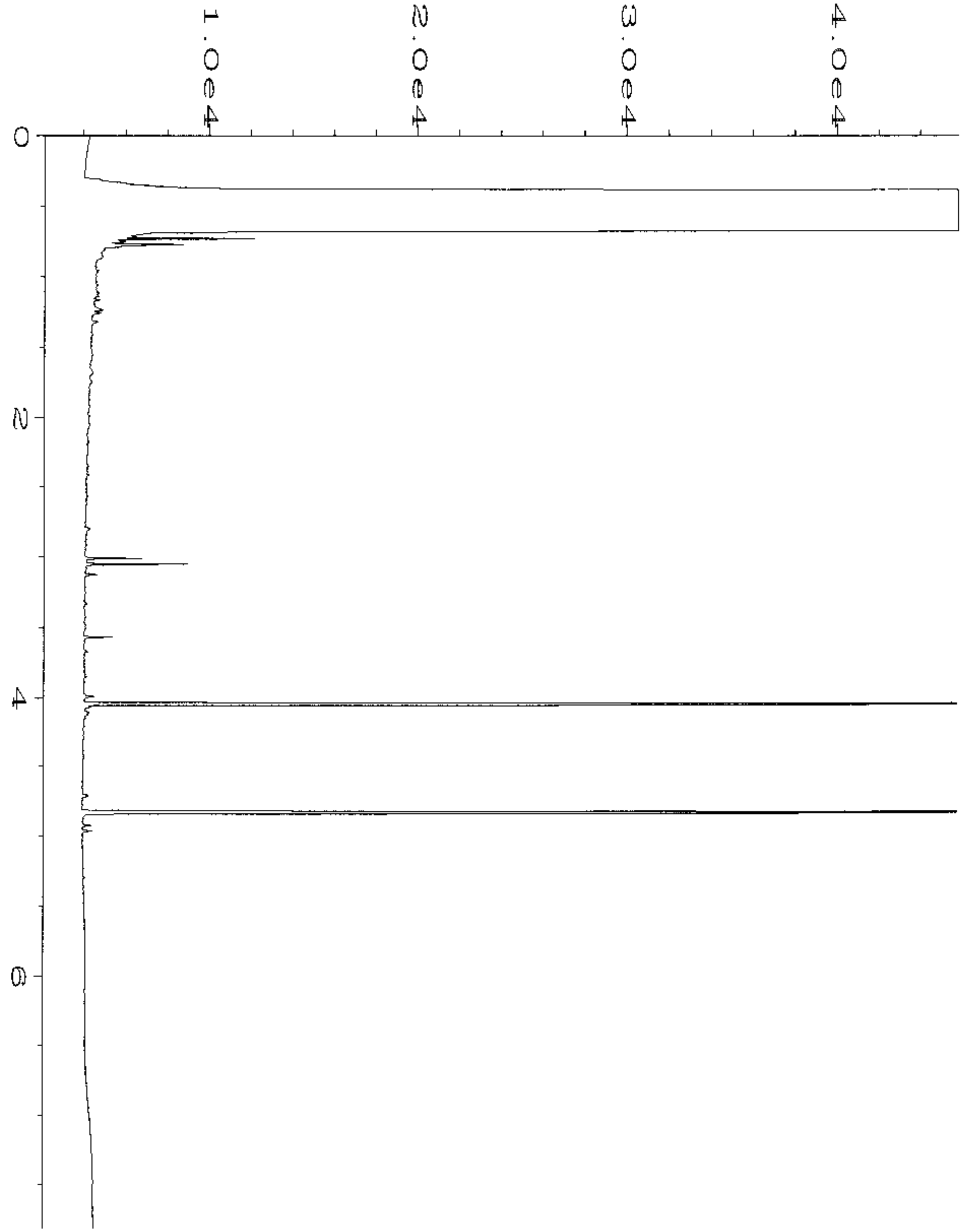
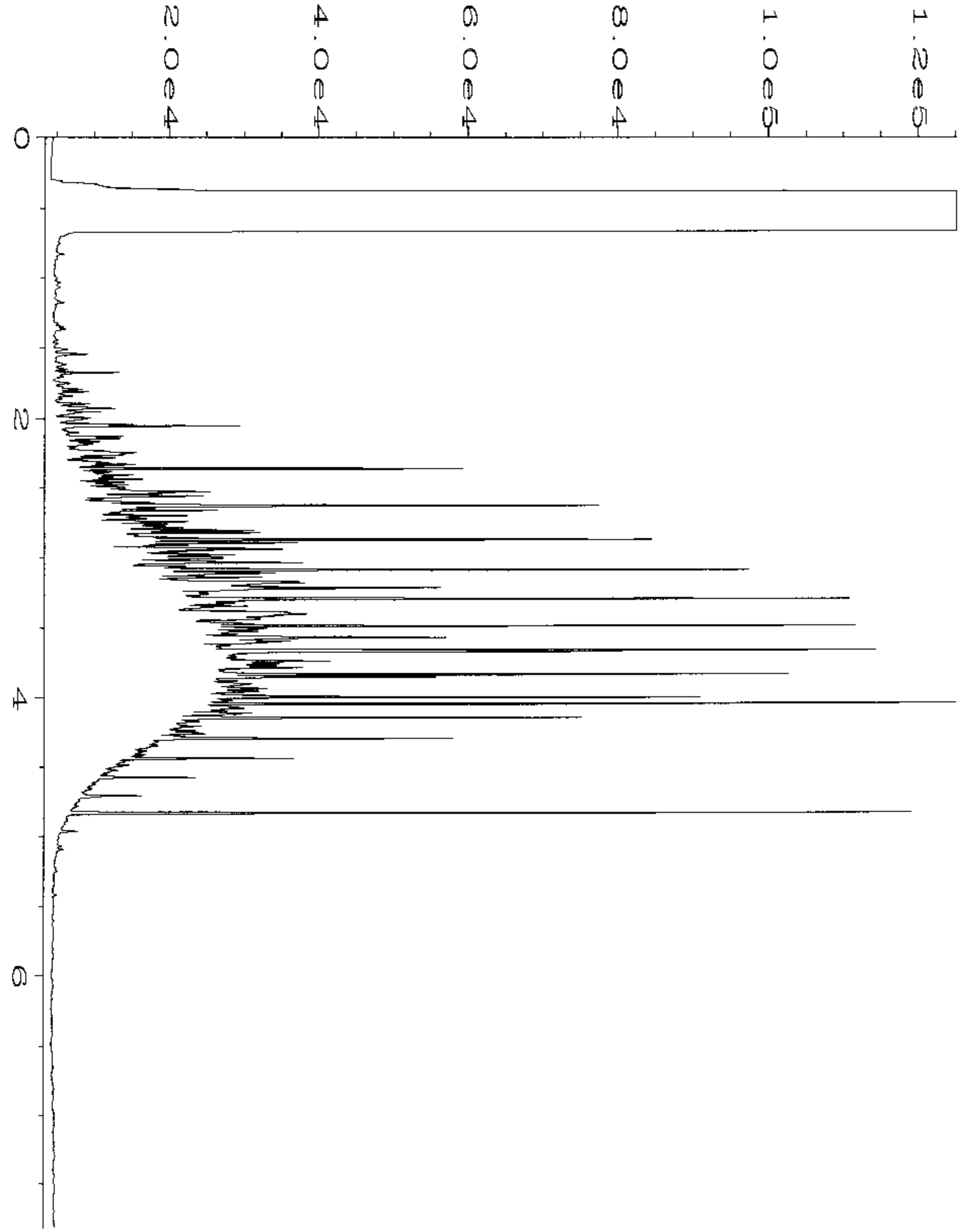



Data File Name   : C:\HPCHEM\6\DATA\04-04-13\026F0701.D
Operator   : mwdl   Page Number   : 1
Instrument   : GC #6   Vial Number   : 26
Sample Name   : 304020-04   Injection Number : 1
Run Time Bar Code: Sequence Line   : 7
Acquired on   : 04 Apr 13 02:07 PM   Instrument Method: DX.MTH
Report Created on: 05 Apr 13 08:55 AM   Analysis Method : DX.MTH



Data File Name : C:\HPCHEM\6\DATA\04-04-13\021F0501.D
Operator : mwdl
Instrument : GC #6
Sample Name : 03-590 mb
Run Time Bar Code:
Acquired on : 04 Apr 13 12:53 PM
Report Created on: 05 Apr 13 08:54 AM

Page Number : 1
Vial Number : 21
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DX.MTH



Data File Name : C:\HPCHEM\6\DATA\04-04-13\003F0201.D
Operator : mwdl
Instrument : GC #6
Sample Name : 500 Dx 40-42C
Run Time Bar Code:
Acquired on : 04 Apr 13 08:36 AM
Report Created on: 05 Apr 13 08:54 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DX.MTH

304020

SAMPLE CHAIN OF CUSTODY ME 04-01-13

AI5 / V2

Send Report to Rob Roberts/ Tom Cammarata

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, WA 98102

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

SAMPLERS (signature)

PROJECT NAME/NO.	PO #
SKS Shell	0914-001-05

REMARKS

Page # 1 of 1

TURNAROUND TIME
Standard (2 Weeks)
RUSH 48-h-TAT
Rush charges authorized by: Rob Roberts

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	Iron 2	Sulfate	Nitrate	Alkalinity	Total Iron	Manganese	Carbon Dioxide Hold	Dx/6-BTEX	Notes
MW106-20130401	MW106	—	01 A-H	4-1-13	1205	Water	8	X	X	X	X	X	X	X	⊗	Hold Carbon dioxide analysis.
SMW04-20130401	SMW04	—	02	4-1-13	1315	"	8	X	X	X	X	X	X	X		
MW104-20130401	MW104	—	03	4-1-13	1435	"	8	X	X	X	X	X	X	X		
MW101-20130401	MW101	—	04	4-1-13	1600	"	8	X	X	X	X	X	X	X		

⊗ per Sound Rec 4/2/13 ME standard TAT

Samples received at 11 °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	4-1-13	1727
Received by:	Matt Layton	FB Inc.	4/1/13	1727
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

April 16, 2013

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the additional results from the testing of material submitted on April 1, 2013 from the SOU_0914-001-05_20130401, F&BI 304020 project. There are 4 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
c: John Funderburk
SOU0416R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on April 1, 2013 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001-05_20130401, F&BI 304020 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
304020 -01	MW106-20130401
304020 -02	SMW04-20130401
304020 -03	MW104-20130401
304020 -04	MW101-20130401

All quality control requirements were acceptable.

Date of Report: 04/16/13
Date Received: 04/01/13
Project: SOU_0914-001-05_20130401, F&BI 304020
Date Extracted: 04/04/13
Date Analyzed: 04/11/13 and 04/15/13

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
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 51-134)
MW106-20130401 304020-01 1/1.1	<55	<280	93
SMW04-20130401 304020-02	150 x	<250	95
MW104-20130401 304020-03	540 x	<250	113
Method Blank 03-590 MB2	<50	<250	99

Date of Report: 04/16/13
Date Received: 04/01/13
Project: SOU_0914-001-05_20130401, F&BI 304020

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 Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	78	89	61-133	13

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

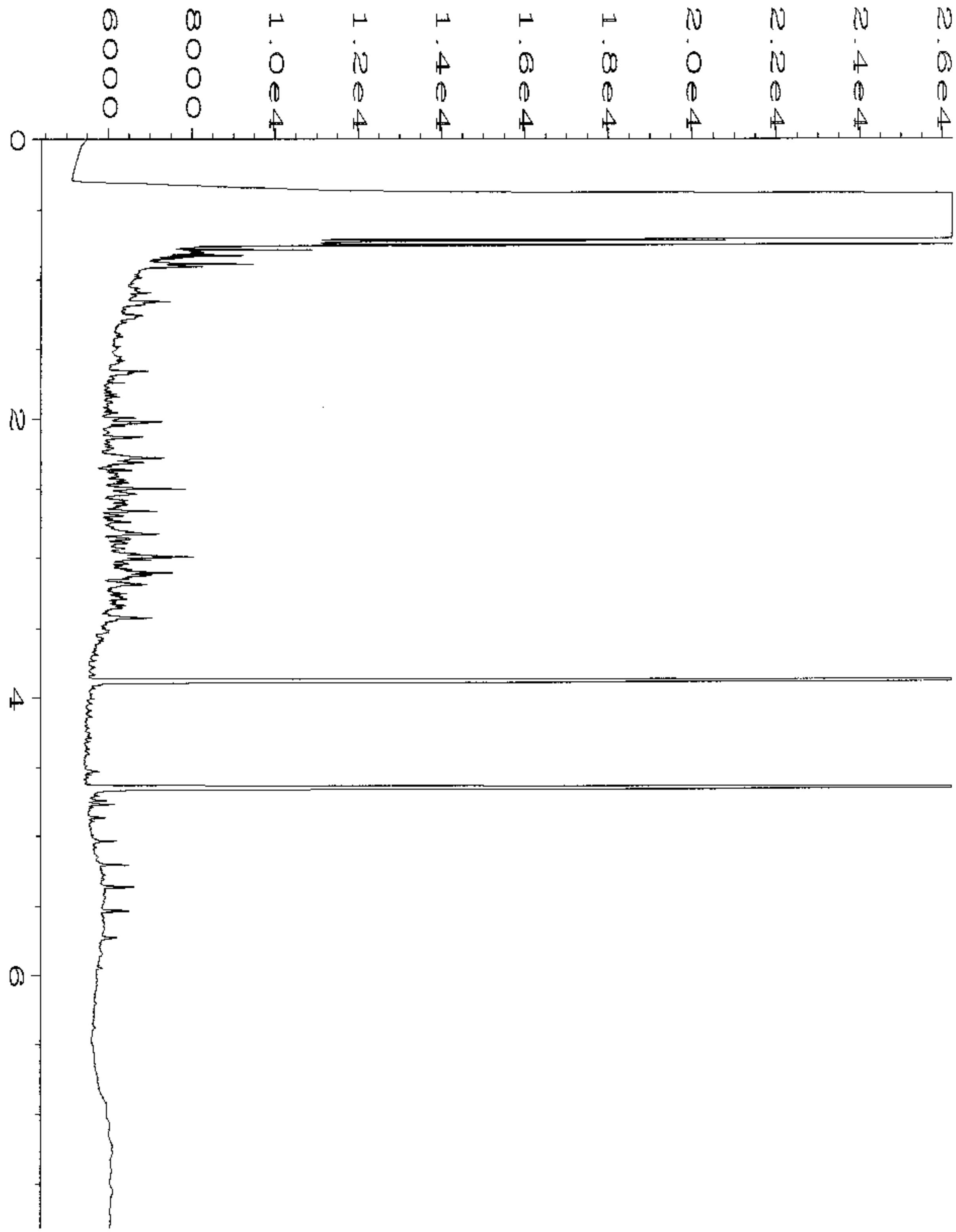
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

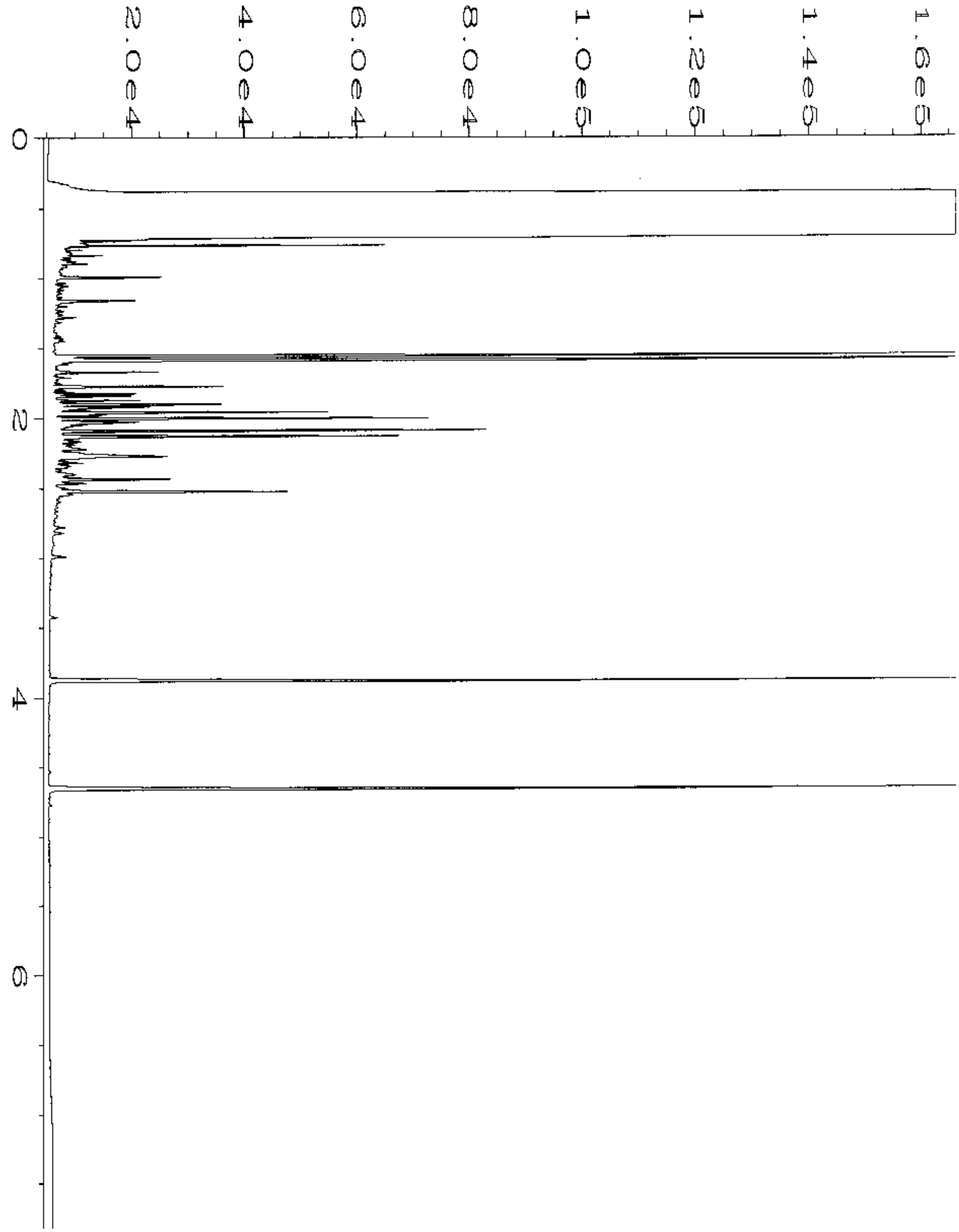
vo - The value reported fell outside the control limits established for this analyte.

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

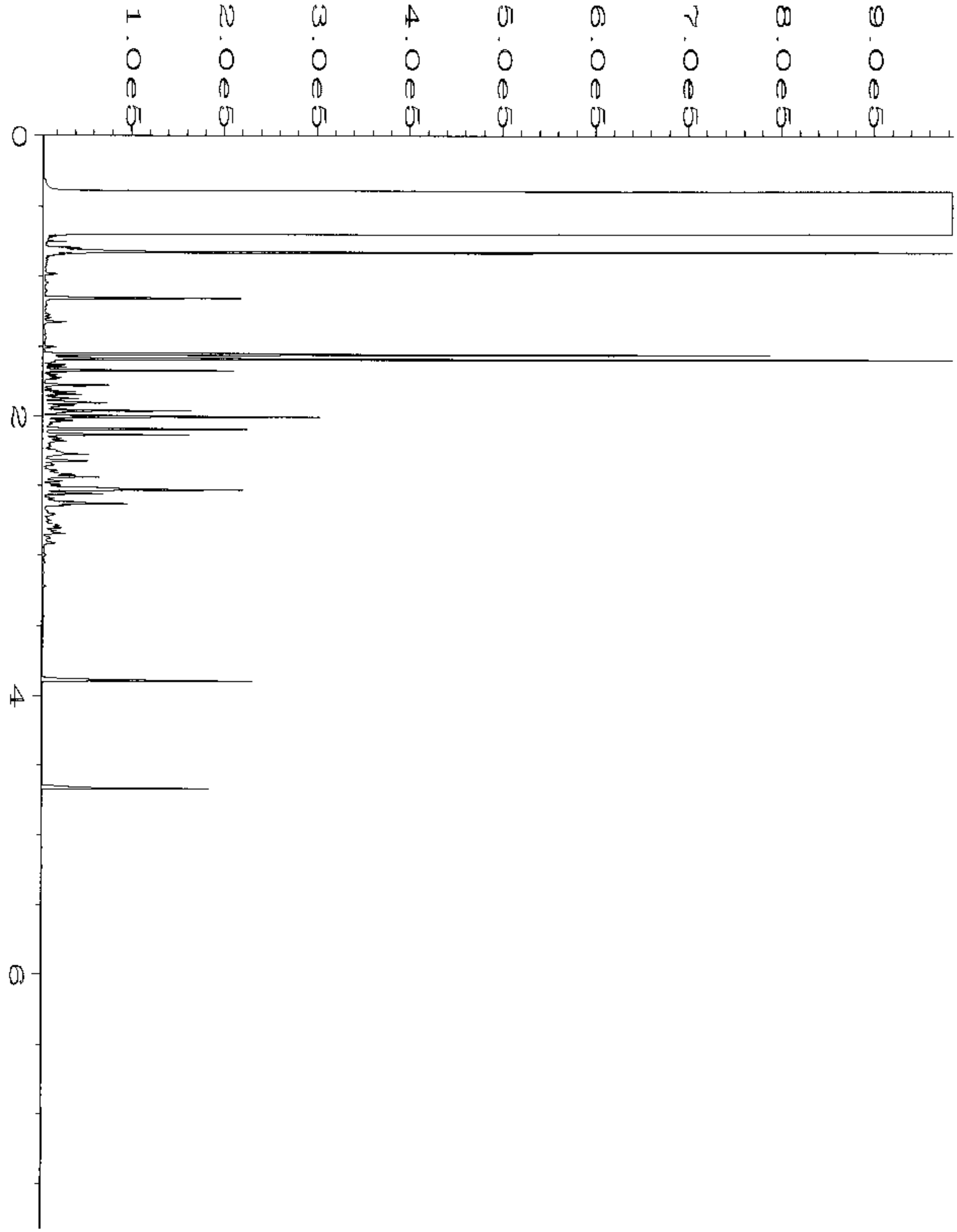


Data File Name : C:\HPCHEM\6\DATA\04-11-13\043F0701.D
Operator : mwdl
Instrument : GC #6
Sample Name : 304020-01 sg
Run Time Bar Code:
Acquired on : 11 Apr 13 04:40 PM
Report Created on: 12 Apr 13 09:27 AM

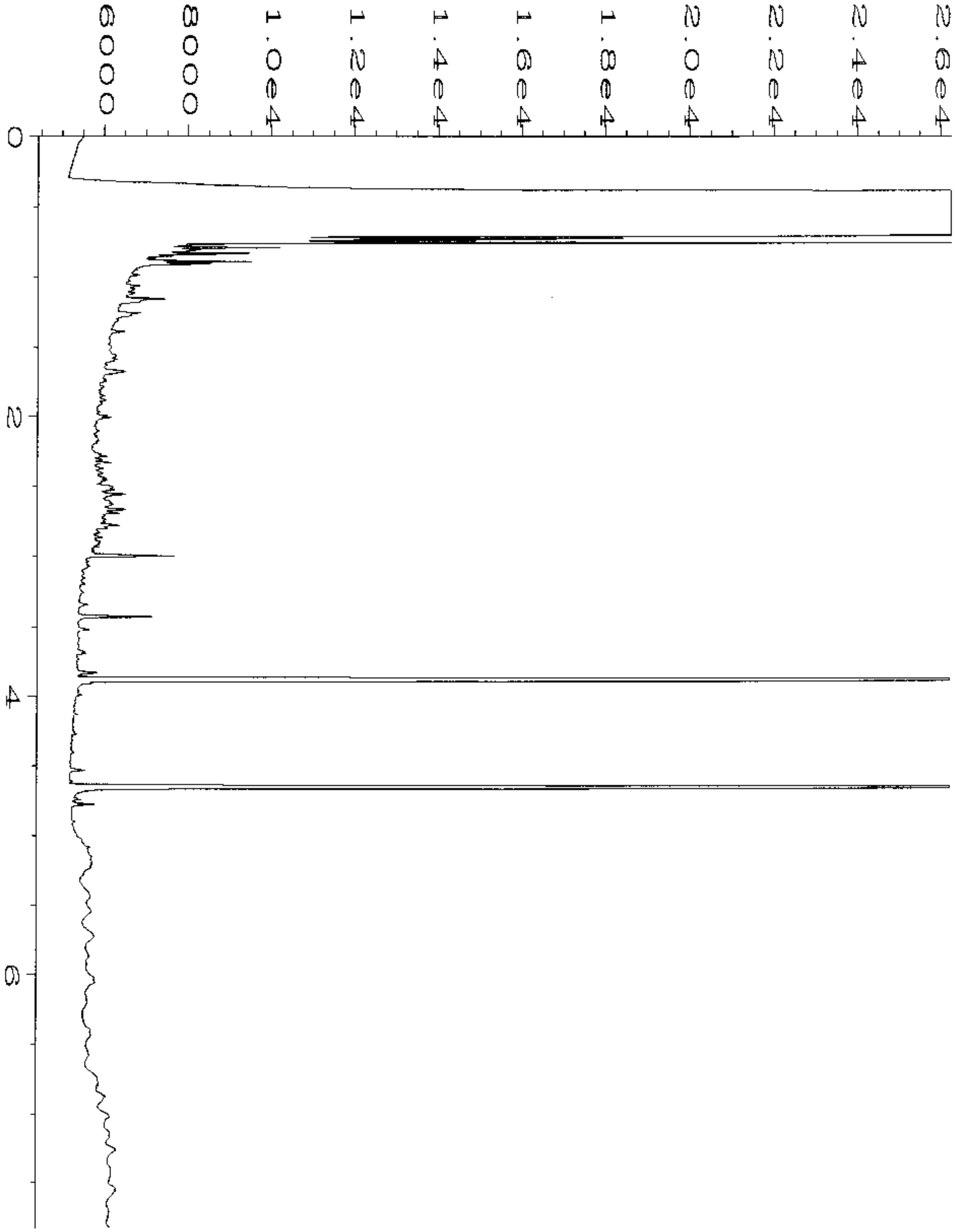
Page Number : 1
Vial Number : 43
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DX.MTH



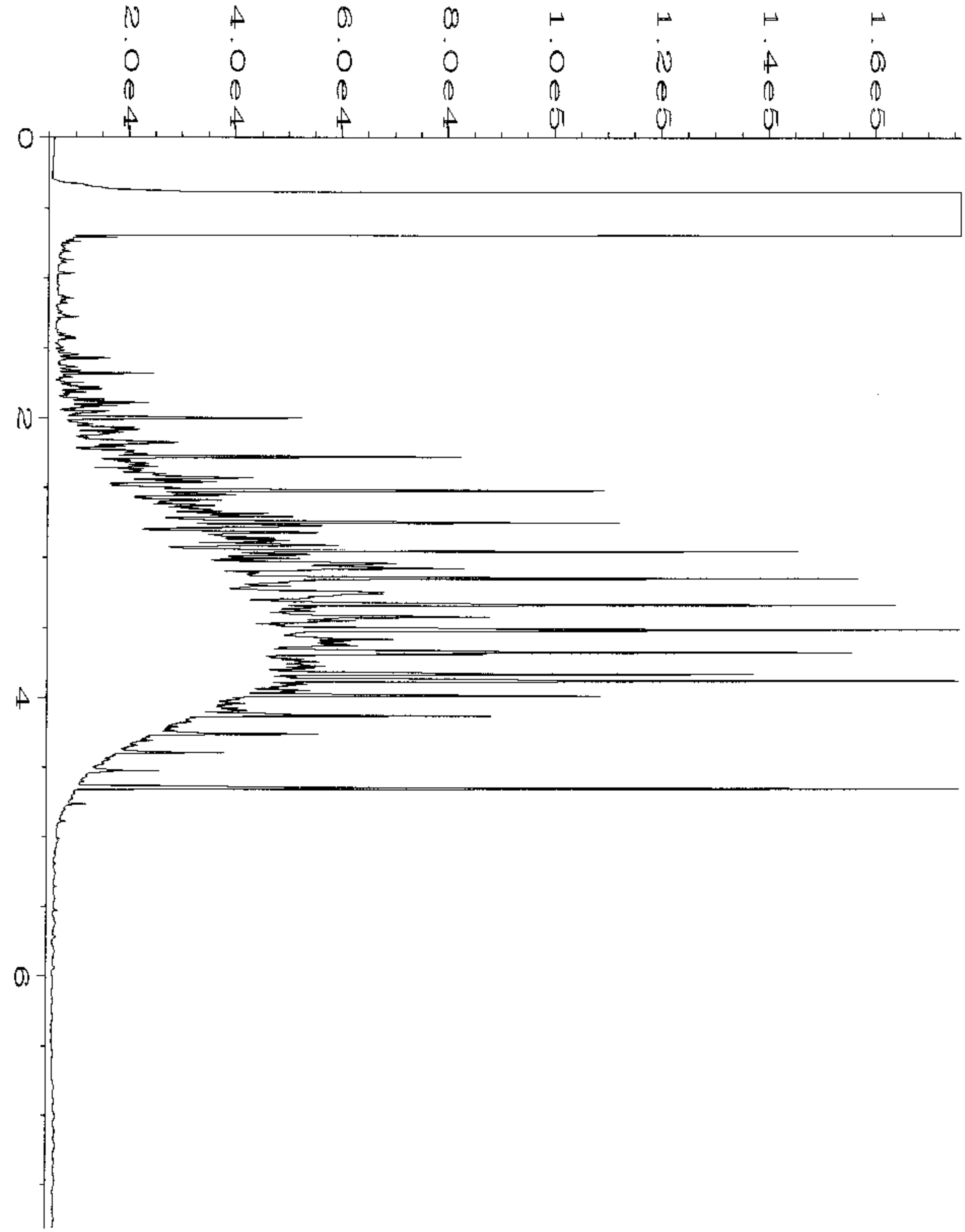
Data File Name	: C:\HPCHEM\6\DATA\04-11-13\044F0701.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 44
Sample Name	: 304020-02 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 11 Apr 13 04:53 PM	Instrument Method:	DX.MTH
Report Created on:	12 Apr 13 09:27 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\6\DATA\04-15-13\018F0301.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 18
Sample Name	: 304020-03 sg rr	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 15 Apr 13 12:23 PM	Instrument Method	: DX.MTH
Report Created on	: 15 Apr 13 02:15 PM	Analysis Method	: BAKEOUT.MTH



Data File Name	: C:\HPCHEM\6\DATA\04-11-13\042F0701.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 42
Sample Name	: 03-590 mb2 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 11 Apr 13 04:28 PM	Instrument Method:	DX.MTH
Report Created on:	12 Apr 13 09:26 AM	Analysis Method	: DX.MTH



Data File Name : C:\HPCHEM\6\DATA\04-11-13\003F0201.D
Operator : mwdl
Instrument : GC #6
Sample Name : 500 Dx 40-42C
Run Time Bar Code:
Acquired on : 11 Apr 13 08:23 AM
Report Created on: 12 Apr 13 09:26 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DX.MTH

304020

SAMPLE CHAIN OF CUSTODY ME 04-01-13

A15 1/2

Send Report to Rob Roberts/ Tom Cammarata

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, WA 98102

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

SAMPLERS (signature)

PROJECT NAME/NO.	PO #
SKS Shell	0914-001-05

REMARKS

Page # 1 of 1

TURNAROUND TIME
Standard (2 Weeks)
RUSH 48-hr TAT
Rush charges authorized by: Rob Roberts

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	Iron 2	Sulfate	Nitrate	Alkalinity	Total Iron	Manganese	Carbon Dioxide Hold	Dx ~~Gx~~/6-BTEX	Notes
MW106-20130401	MW106	—	01 A-H	4-1-13	1205	Water	8	X	X	X	X	X	X	X	X	X
SMW04-20130401	SMW04	—	02	4-1-13	1315	"	8	X	X	X	X	X	X	X		X
MW104-20130401	MW104	—	03	4-1-13	1435	"	8	X	X	X	X	X	X	X		X
MW101-20130401	MW101	—	04	4-1-13	1600	"	8	X	X	X	X	X	X	X		X

Notes: (X) -per RR 4/19/13 ME; Hold Carbon dioxide analysis; (X) per Sound 4/2/13 ME; Standard TAT

Samples received at 11 °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	4-1-13	1727
Received by:		Matt Haugen	FB	4/1/13	1727
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

Friedman & Bruya, Inc. #311091

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 13, 2013

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on November 5, 2013 from the SOU_0914-001-05_20131105, F&BI 311091 project. There are 6 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
SOU1113R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 5, 2013 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001-05_20131105, F&BI 311091 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
311091 -01	MW-2-20131105

All quality control requirements were acceptable.

Date of Report: 11/13/13
Date Received: 11/05/13
Project: SOU_0914-001-05_20131105, F&BI 311091
Date Extracted: 11/07/13
Date Analyzed: 11/07/13 and 11/08/13

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)
MW-2-20131105 311091-01	2.7	9.2	1,500	7,500	22,000	91
Method Blank 03-2285 MB	<1	<1	<1	<3	<100	102

Date of Report: 11/13/13
Date Received: 11/05/13
Project: SOU_0914-001-05_20131105, F&BI 311091
Date Extracted: 11/11/13
Date Analyzed: 11/11/13

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 51-134)
MW-2-20131105 311091-01	3,900 x	630 x	72
Method Blank 03-2328 MB	<50	<250	76

Date of Report: 11/13/13
Date Received: 11/05/13
Project: SOU_0914-001-05_20131105, F&BI 311091

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 311096-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	1.2	1.1	3
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	160	160	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	99	72-119
Toluene	ug/L (ppb)	50	107	71-113
Ethylbenzene	ug/L (ppb)	50	107	72-114
Xylenes	ug/L (ppb)	150	100	72-113
Gasoline	ug/L (ppb)	1,000	98	70-119

Date of Report: 11/13/13
Date Received: 11/05/13
Project: SOU_0914-001-05_20131105, F&BI 311091

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	85	93	58-134	9

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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.

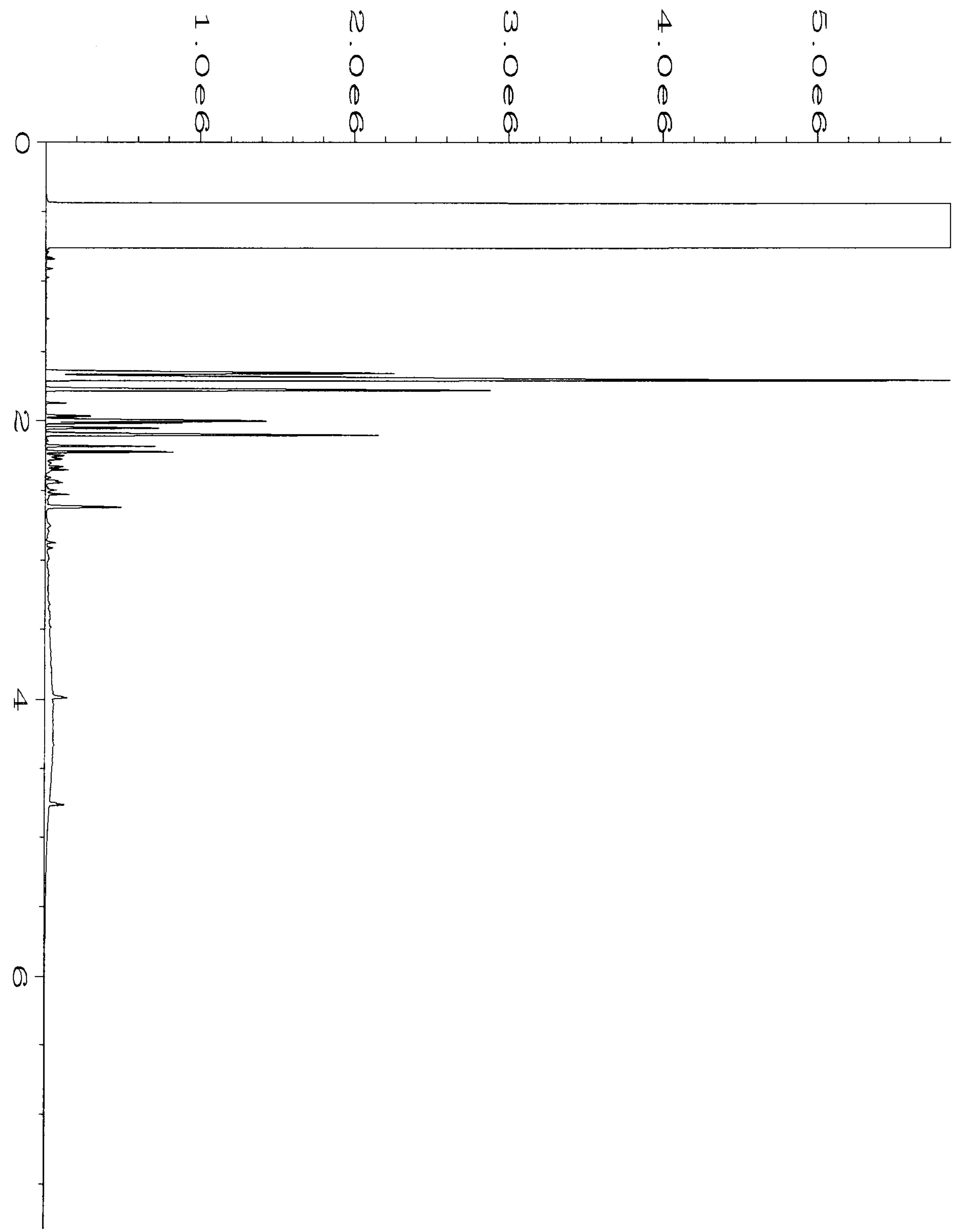
pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

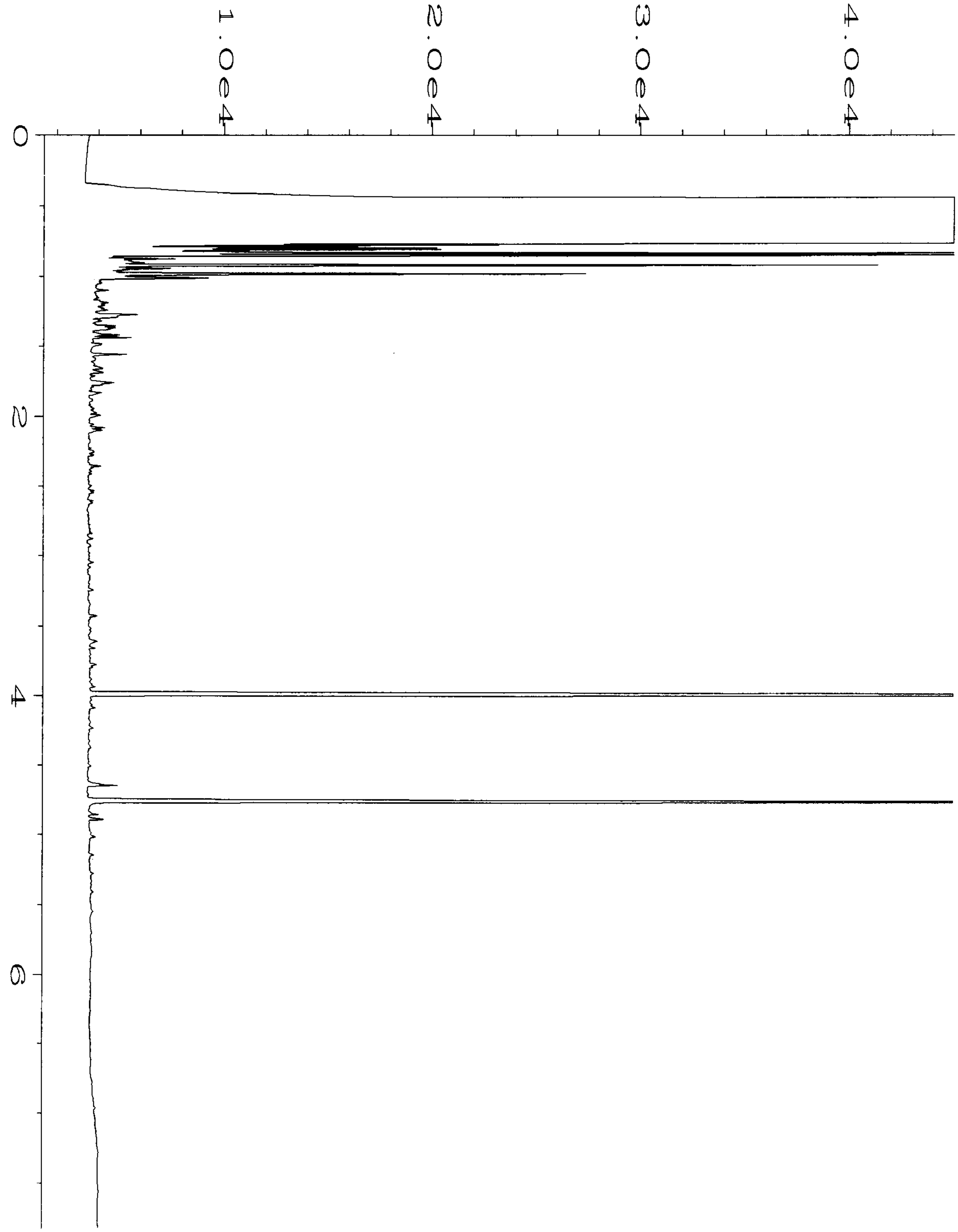
ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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.

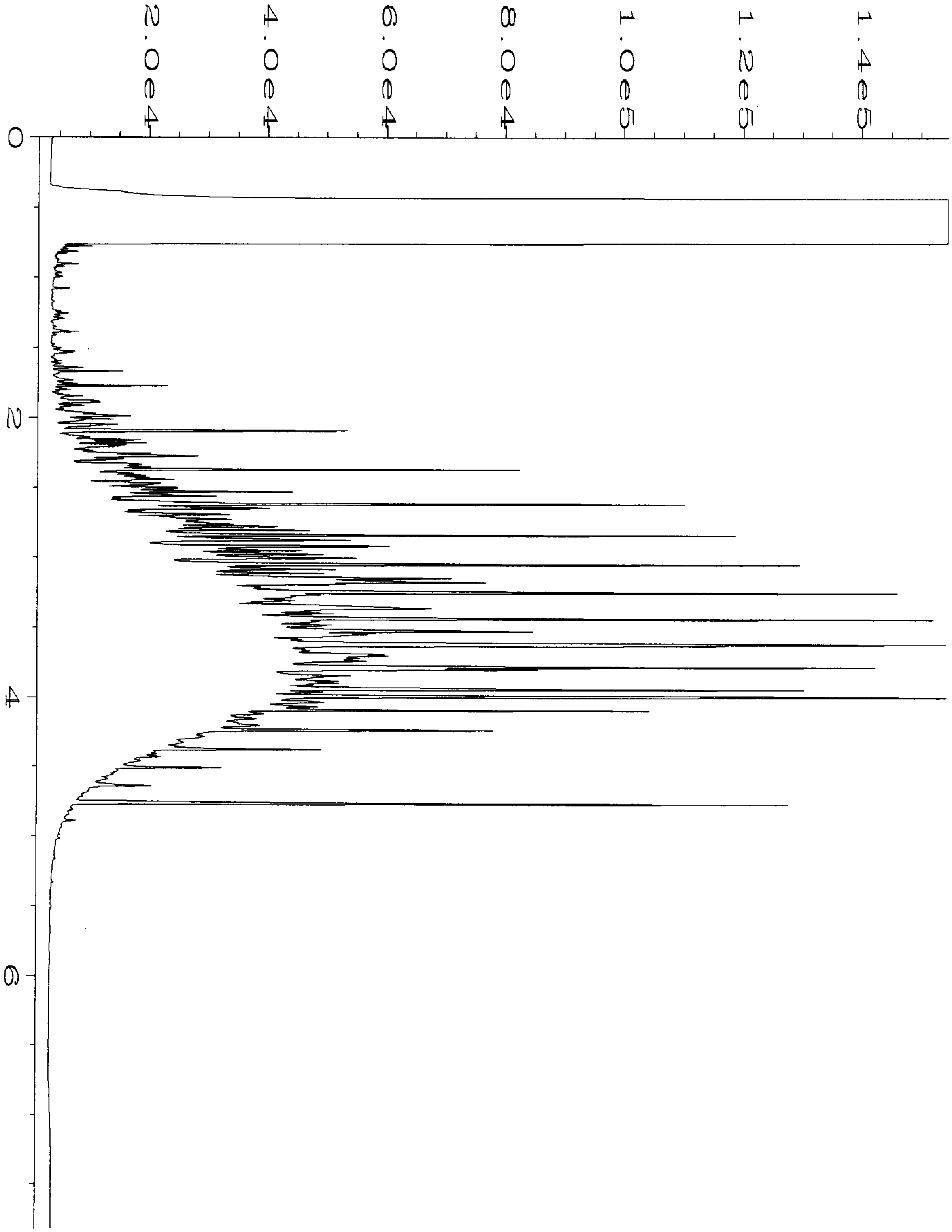


Data File Name	: C:\HPCHEM\6\DATA\11-11-13\052F0801.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC #6	Vial Number	: 52
Sample Name	: 311091-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 8
Acquired on	: 11 Nov 13 09:38 PM	Instrument Method:	DX.MTH
Report Created on:	12 Nov 13 09:48 AM	Analysis Method	: BAKEOUT.MTH



Data File Name : C:\HPCHEM\6\DATA\11-11-13\049F0801.D
Operator : mwdl
Instrument : GC #6
Sample Name : 03-2328 mb
Run Time Bar Code:
Acquired on : 11 Nov 13 09:01 PM
Report Created on: 12 Nov 13 09:47 AM

Page Number : 1
Vial Number : 49
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH



Data File Name : C:\HPCHEM\6\DATA\11-11-13\003F0201.D
Operator : mwdl
Instrument : GC #6
Sample Name : 500 Dx 41-23C
Run Time Bar Code:
Acquired on : 11 Nov 13 09:31 AM
Report Created on: 12 Nov 13 09:37 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH

311091

SAMPLE CHAIN OF CUSTODY ME 11-05-13 A05 / V1

Page # 1 of 1

Send Report To Rob Roberts

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue East, Suite 2000

City, State, ZIP Seattle, WA 98102

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

SAMPLERS (signature)	
PROJECT NAME/NO. SKS Shell	PO # 0914-001-05
REMARKS	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			Notes
MW-2-20131105	MW-2	—	01 A-D	11-5-13	1355	Water	4	X	X	X						

CAC 11-5-13

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	11-5-13	1458
Received by:	Nhan Phan	FeBI	11-5-13	1458
Relinquished by:				
Received by:				

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 8 °C

Friedman & Bruya, Inc. #406221

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

June 19, 2014

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Roberts:

Included are the results from the testing of material submitted on June 13, 2014 from the SOU_0914-001-09_20140613, F&BI 406221 project. There are 26 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
SOU0619R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 13, 2014 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001-09_20140613, F&BI 406221 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
406221 -01	MW104-20140612
406221 -02	GLMW-1-20140612
406221 -03	MW-3-20140612

All quality control requirements were acceptable.

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221
Date Extracted: 06/13/14 and 06/16/14
Date Analyzed: 06/13/14 and 06/16/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW104-20140612 406221-01 1/50	15,000	115
GLMW-1-20140612 406221-02 1/100	13,000	117
MW-3-20140612 406221-03	7,500	ip
Method Blank 04-1179 MB	<100	112

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221
Date Extracted: 06/13/14
Date Analyzed: 06/16/14

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)
MW104-20140612 406221-01	14,000 x	250 x	74
GLMW-1-20140612 406221-02	8,500 x	<250	68
MW-3-20140612 406221-03	4,100 x	<250	79
Method Blank 04-1215 MB	<50	<250	63

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221
Date Extracted: 06/13/14
Date Analyzed: 06/16/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
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)
MW104-20140612 406221-01	3,600 x	<250	87
GLMW-1-20140612 406221-02	3,300 x	<250	90
MW-3-20140612 406221-03	3,700 x	<250	88
Method Blank 04-1215 MB	<50	<250	74

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW104-20140612	Client:	SoundEarth Strategies
Date Received:	06/13/14	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/16/14	Lab ID:	406221-01
Date Analyzed:	06/16/14	Data File:	406221-01.042
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	GLMW-1-20140612	Client:	SoundEarth Strategies
Date Received:	06/13/14	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/16/14	Lab ID:	406221-02
Date Analyzed:	06/16/14	Data File:	406221-02.045
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	102	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW-3-20140612	Client:	SoundEarth Strategies
Date Received:	06/13/14	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/16/14	Lab ID:	406221-03
Date Analyzed:	06/16/14	Data File:	406221-03.046
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	96	60	125

Analyte:	Concentration ug/L (ppb)
Lead	3.62

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/16/14	Lab ID:	I4-376 mb
Date Analyzed:	06/16/14	Data File:	I4-376 mb.040
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	96	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW104-20140612	Client:	SoundEarth Strategies
Date Received:	06/13/14	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/16/14	Lab ID:	406221-01
Date Analyzed:	06/16/14	Data File:	406221-01.030
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	89	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	GLMW-1-20140612	Client:	SoundEarth Strategies
Date Received:	06/13/14	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/16/14	Lab ID:	406221-02
Date Analyzed:	06/16/14	Data File:	406221-02.031
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	94	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW-3-20140612	Client:	SoundEarth Strategies
Date Received:	06/13/14	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/16/14	Lab ID:	406221-03
Date Analyzed:	06/16/14	Data File:	406221-03.032
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	86	60	125

Analyte:	Concentration ug/L (ppb)
Lead	6.90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/16/14	Lab ID:	I4-371 mb
Date Analyzed:	06/16/14	Data File:	I4-371 mb.023
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW104-20140612	Client:	SoundEarth Strategies
Date Received:	06/13/14	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/13/14	Lab ID:	406221-01 1/100
Date Analyzed:	06/13/14	Data File:	061312.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	98	93	107
4-Bromofluorobenzene	99	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	1,800
Toluene	120
Ethylbenzene	480
m,p-Xylene	1,100
o-Xylene	230

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GLMW-1-20140612	Client:	SoundEarth Strategies
Date Received:	06/13/14	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/13/14	Lab ID:	406221-02 1/20
Date Analyzed:	06/13/14	Data File:	061316.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	97	93	107
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	1,500
Toluene	23
Ethylbenzene	180
m,p-Xylene	270
o-Xylene	42

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3-20140612	Client:	SoundEarth Strategies
Date Received:	06/13/14	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/13/14	Lab ID:	406221-03
Date Analyzed:	06/13/14	Data File:	061315.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	102	93	107
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	68
Toluene	9.4
Ethylbenzene	190 ve
m,p-Xylene	420 ve
o-Xylene	20

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3-20140612	Client:	SoundEarth Strategies
Date Received:	06/13/14	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/13/14	Lab ID:	406221-03 1/10
Date Analyzed:	06/13/14	Data File:	061317.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	96	93	107
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	66
Toluene	<10
Ethylbenzene	180
m,p-Xylene	400
o-Xylene	19

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0914-001-09_20140613, F&BI 406221
Date Extracted:	06/13/14	Lab ID:	04-1199 mb
Date Analyzed:	06/13/14	Data File:	061307.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	100	93	107
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221
Date Extracted: 06/16/14
Date Analyzed: 06/16/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED
Results Reported as µg/L (ppb)

Sample ID Laboratory ID	EDB
MW104-20140612 406221-01	<0.01
GLMW-1-20140612 406221-02	<0.01
MW-3-20140612 406221-03	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 406219-03 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	91	69-134

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221

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	94	98	63-142	4

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221

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 Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	111	114	61-133	3

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ENVIRONMENTAL CHEMISTS

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 406221-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	107	108	79-121	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	109	83-115

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 406229-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	102	105	79-121	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	103	83-115

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 406187-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	92	79-109
Toluene	ug/L (ppb)	50	<1	95	73-117
Ethylbenzene	ug/L (ppb)	50	<1	92	71-120
m,p-Xylene	ug/L (ppb)	100	<2	96	63-128
o-Xylene	ug/L (ppb)	50	<1	96	64-129

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	50	92	92	81-108	0
Toluene	ug/L (ppb)	50	96	97	83-108	1
Ethylbenzene	ug/L (ppb)	50	93	93	84-110	0
m,p-Xylene	ug/L (ppb)	100	97	97	84-112	0
o-Xylene	ug/L (ppb)	50	95	97	82-113	2

Date of Report: 06/19/14
Date Received: 06/13/14
Project: SOU_0914-001-09_20140613, F&BI 406221

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR
1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED**

Laboratory Code: 406221-03 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 10)
1,2-Dibromoethane	ug/L (ppb)	<0.01	<0.01	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
1,2-Dibromoethane	ug/L (ppb)	0.10	119	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.

(40622/ **SAMPLE CHAI)F CUSTODY** ME 06-13-14 AI3/ V2

Page # 1 of 1

Send Report to Rob Roberts

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, WA 98102

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

SAMPLERS (*signature*)

PROJECT NAME/NO.	PO #
SKS Shell	0914-001-09

REMARKS

* Dissolved Lead Sample filtered in field by samplers

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-Gx	BTEX by 8260C	NWTPH-Dx	NWTPH-Dx (with silica gel cleanup)	EDB by E.C. detector	Total Lead (200.8)	Dissolved Lead* (200.8)	Organic Lead	Notes
MW104-20140612	MW104	25.5	01A-I	06/12/14	1450	Water	9	X	X	X	X	X	X			
GLMW-1-20140612	GLMW-1	25.5	02		1605	Water	9	X	X	X	X	X	X			
MW-3-20140612	MW-3	26.0	03		1725	Water	9	X	X	X	X	X	X			

COC 06/12/14

Samples

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.	6/13/14	1103
Received by:	Kurt Johnson		6/13/14	1103
Relinquished by:				
Received by:	Jon Shimm			

Samples received at 5 °C

FORMS\COC\COC.DOC

APPENDIX D
SIMPLIFIED TERRESTRIAL ECOLOGICAL EVALUATION

Terrestrial Ecological Evaluation Process-
Simplified or Site-Specific Evaluation?

Documentation Form

	Terrestrial Concern	Response (Circle One)
*1	Is the site is located on or directly adjacent to an area where management or land use plans will maintain or restore native or semi-native vegetation?	Yes / No
*2a	Is the site used by a threatened or endangered species?	Yes / No
*2b	Is the site used by a wildlife species classified by the state department of fish and wildlife as a "priority species" or "species of concern" under Title 77 RCW?	Yes / No
*2c	Is the site used by a plant species classified by the Washington state department of Natural Resources natural heritage program as "endangered," "threatened," or "sensitive" under Title 79 RCW.	Yes / No
*3	Is the site (area where the contamination is located) located on a property that contains at least ten acres of native vegetation within 500 feet of the area where the contamination is located?	Yes / No
4	Has the department determined that the site may present a risk to significant wildlife populations?	Yes / No

*1 This includes for example, green-belts, protected wetlands, forestlands, locally designated environmentally sensitive areas, open space areas managed for wildlife, and some parks or outdoor recreation areas. This does not include park areas used for intensive sport activities such as baseball or football.

*2a What are the threatened or endangered species in Washington state?

*2b Which plant species are classified as threatened, endangered, or sensitive? Where can I find out more information about this topic?

*2c For plants, "used" means that a plant species grows at the site or has been found growing at the site. For animals, "used" means that individuals of a species have been observed to live, feed or breed at the site.

*3 For this analysis, do not include native vegetation beyond the property boundary.

The following sources shall be used in making this determination: Natural Vegetation of Oregon and Washington, J.F. Franklin and C.T. Dyrness, Oregon State University Press, 1988, and L.C. Hitchcock, C.L. Hitchcock, J.W. Thompson and A. Cronquist, 1955-1969, Vascular Plants of the Pacific Northwest(5 volumes). Areas planted with native species for ornamental or landscaping purposes shall not be considered to be native vegetation. [WAC 173-340-7491(2)(c)(i)]

(Here's a link to the Seattle Public Library and the Washington State Library to borrow a copy of Natural Vegetation of Oregon and Washington, J.F. Franklin and C.T. Dyrness, Oregon State University Press, 1988, or you may purchase it through your favorite bookseller. Here's an additional link to a useful online Field Guide to Selected Rare Plants of Washington developed by the Washington State Department of Natural Resources' Natural Heritage Program (WNHP) and the Spokane District of the U.S.D.I. Bureau of Land Management (BLM) which contains fact sheets for 139 vascular plant species and one lichen species.

Here is an aid to calculating area and an aerial photo depicting a site, its 500 foot boundary and several labeled circles identifying various areas for reference in judging the area of native vegetation within the 500 foot radius.

Table 749-1

Simplified Terrestrial Ecological Evaluation-Exposure Analysis Procedure

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

Notes for Table 749-1

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

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

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

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

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

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

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

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

[TEE Home]